

DESIGNING FOR COMPETENCE IN MOZAMBIQUE
TOWARDS A COMPETENCE-BASED CURRICULUM
FOR THE FACULTY OF EDUCATION
OF THE EDUARDO MONDLANE UNIVERSITY

Wim Kouwenhoven

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PROEFSCHRIFT

ter verkrijging van
de graad van doctor aan de Universiteit Twente,
op gezag van de rector magnificus,
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volgens besluit van het College voor Promoties
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te Zaandam

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Prof. dr. Tj. Plomp

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PREFACE

Having experienced for more than 50 years a multi-faceted life, I still get the feeling of amazement and wonder about the opportunities that present themselves to a human being and the choices he/she has to make each time. Such an opportunity for me was the writing of this study, telling the story of a journey towards an innovative curriculum for a new faculty and analysing and reflecting on the outcomes and the ground already covered during the journey. I felt fortunate to be a fellow traveller and researcher at the same time. The last one and half year of reading, thinking, writing and rewriting, and of discussions with Tjeerd and Jan, has been a happy period for me. This book and the defense of its content mark the farewell of a fairly contemplative life at the Department of Curriculum in the Faculty of Behavioural Sciences at the University of Twente that hospitably offered me a workspace and an intellectually stimulating work climate.

First and foremost I want to express my gratitude to the supervisors of my research, Tjeerd Plomp and Jan van den Akker. Tjeerd, who was with me from the beginning of the research project has become more than a 'critical friend'. I look back with fond memories on our conversations under the African night sky, or on the beach, during the search for sand dollars, which transcended the research endeavour and were variations on our common background. Both Tjeerd and Jan confirmed each time, in their comments on my drafts, my sometimes uneasy feelings about my writings and always succeeded in opening windows to clearer and often simpler perspectives.

Jan Streumer undertook to read and comment on my chapter on the concepts of competence and competence-based education. With his thorough knowledge of the competence movement in technical and professional education in Europe he was of great assistance in the improvement of this conceptual part of the study.

This study could not have been done without the collaboration of staff and students of the Faculdade de Educação of the Eduardo Mondlane University, and the many Dutch experts who were involved in the co-preparation and co-teaching of the courses in the first year of functioning of the faculty. They all provided me generously with data about their experiences, observations and opinions. I want to thank especially the seven students that participated in the interviews during their first study year: Anna Maria Nhampule, Marta Mendonça, Lídia Seifane, Victor Muirequetule, Isaias Muhate, Adriano Sacate and Custódio Ualane.

The Dutch Masters students from the University of Twente, Cindy Poortman and Caroline Timmers worked in Maputo on their design project, involving the acquisition and further development of generic competencies. Perhaps they did their blissful work a little too early in the curriculum development process, but they helped me very much with their probing questions and observations.

In the Netherlands Frans Haanstra, my colleague in the Staderp project in Maputo, was of great help with his thorough work, whenever I asked him to comment on aspects of my study. Without failure Frans managed to spot the weaknesses in the communication of my ideas and to reveal inconsistencies that I was only semi-consciously aware of.

Annette Thijs and Meta Kruger assisted me in the analysis of certain aspects of the curriculum of the Faculty of Education. I thank them for their interest in my work and their insightful comments. I also would like to thank Anne Bannink who provided me with a useful chapter of her doctoral thesis that invoked in me an increased attention for cultural aspects in the socio-political dimensions of the curriculum development process in the faculty.

Xavier Muianga and Jorge Muchanga were very helpful in improving my attempts to write a summary in Portuguese that made sense to the Mozambican reader. Arlindo Siteo corrected some factual data in Chapter 2 of the thesis. I thank all three of you for your assistance.

Sandra Schele has certainly reached a high level of competence in the lay-out of theses and has expertly put the multitude of pages into the right format. Thereafter she patiently and swiftly entered all corrections in the manuscript that I made after checking the dots and commas once more. Thank you Sandra for all your advice and assistance in the final stages of my project.

I certainly shall feel safe between my 'paranimfs' during the defense of my thesis. Thank you dear brother Jan and dear friend Lidy for being so close by.

Tineke, Wendel, Mirjam and Annemie, you formed the inner circle that was the safe haven in which I did not have to worry about the cumbersome practicalities of life. I have not always been able to mirror your expressions of love. So "thank you for having me". Annemie, I am proud and thankful that you designed such a wonderful cover for this 'schriftje'.

Wim Kouwenhoven
Autumn 2003

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PRELIMINARY NOTE

On the use of feminine and masculine 'personal pronouns'.
Throughout this thesis 'he' will be taken as meaning 'he/she'.

On the use of the term 'curriculum development process'

Although at times in this thesis the separate terms for the stages of design, development and implementation of a curriculum are mentioned, often the term 'curriculum development process' is used. This term is to be taken to include the three stages of design, development and implementation.

On the use of the term 'competence'

In the thesis the difference between 'competency' and 'competence' is discussed in various places. For reasons of convenience the term 'competence' will be used in most cases in a more general sense, encompassing competency *and* competence. For example the term 'competence-based' is used throughout this study and could be used as either 'competency-based' or 'competence-based'.

On appendices

Because the number of appendices and extra documents that are important to this study is large, it has been decided to include only the most important appendices in this book. They are in the text indicated with a single number, e.g. Appendix 4. Other relevant appendices can be read by consulting the website with material from this study:

<http://projects.gw.utwente.nl/crc/mozcomp/>

The appendices that are put on the website are in the text indicated with two numbers separated by a dot, of which the first one refers to the chapter, e.g. Appendix 7.1 is the first appendix of Chapter 7 that can be found on the website.

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GLOSSARY

| | |
|---------|---|
| AMIEMAC | Associação Moçambicana para a Investigação em Ensino da Matemática e Ciências Naturais (Mozambican association for research into Mathematics and Science Education) |
| BUSCEP | Basic University Science Entry Programme |
| CBC | Competence-based curriculum |
| CBE | Competence-based education |
| CBET | Competence-based education and training |
| DeSeCo | Defining and Selecting Competencies (an OECD project) |
| FRELIMO | Frente de Libertação de Moçambique (Mozambican Liberation Front) |
| GTDC | Grupo de Trabalho para o Desenvolvimento Curricular (Working group for curriculum development) |
| GTCG | Grupo de Trabalho para as Competências Genéricas (Working group on generic competencies) |
| HBO | Hoger beroepsonderwijs (Technical and Vocational Higher Education) |
| HRM | Human resource management |
| HRD | Human resource development |
| IC | Installation Commission for the Faculty of Education |
| ICCO | Inter-church Organisation for Development Co-operation |
| IMF | International Monetary Fund |
| INDE | Instituto Nacional do Desenvolvimento da Educação (National Institute for Education Development) |
| MESCT | Ministério do Ensino Superior Ciência e Tecnologia (Ministry of Higher Education, Science and Technology) |
| MHO | Medefinanciering Hoger Onderwijs (Joint Financing Programme for Co-operation in Higher Education) |
| MINED | Ministério de Educação (Ministry of Education) |
| NUFFIC | Netherlands organisation for international co-operation in higher education |
| OECD | Organisation for Economic Co-operation and Development |
| RENAMO | Resistência Nacional de Moçambique (Mozambican National Resistance) |
| RUG | Rijksuniversiteit Groningen (University of Groningen) |
| SCANS | [Labour] Secretary's Commission on Achieving Necessary Skills (USA) |
| STADEP | Staff Development Programme |
| UEM | Universidade Eduardo Mondlane |
| UNDP | United Nations Development Programme |
| UP | Universidade Pedagógica (Pedagogical University) |

CHAPTER 1

Introduction

1.1 BACKGROUND TO THE STUDY

This study concerns the design, development and implementation of a competence-based curriculum for the Faculty of Education in an African University, the Eduardo Mondlane University (UEM) in Maputo, Mozambique. Mozambique is one of the poorest countries of the world, but since the end of the devastating civil war in 1992 much effort has been put in rebuilding and further development of the education system. Notwithstanding this effort the education system has still a low quality and efficacy (Mário, Buendía Gomez, Kouwenhoven, Alberto, & Waddington, 2001). Several institutions for tertiary education have been involved in training teachers (Pedagogical University [UP] and the Catholic University) and in conducting educational research (National Institute for Education Development, INDE). The largest University in Mozambique, the UEM, has for more than a decade not been involved in the education and training of academic professionals in the field of education and in systematically conducting educational research. Because the need for educationalists with an academic background (Mário et al., 1999) had increased, the University Council of the UEM decided, in 1999, to re-open the Faculty of Education that had been closed temporarily in 1985. A proposal for aims, activities and structure of the 'new' Faculty was elaborated by a study committee, after which the responsibility for the preparations of the establishment of the Faculty and the design and development of its curriculum were assigned to an 'Installation Committee'. The conception of a competence-based curriculum took place in 1999, when the 'Installation Commission' took the decision to take the road to competence-based education. It resulted, in August 2001, in the start of three post-graduate programmes in Education, with an intended competence-based approach: a Masters programme in Curriculum and Instruction Development, one in Adult Education and one in Science and Mathematics Education.

The design, development and implementation of a competence-based curriculum in the Faculty of Education is an educational intervention, aimed at alleviating the problem of, in its most general form, the poor quality and effectiveness of the education system in Mozambique. In terms of the impact-evaluation model of Rossi, Freeman and Lipsey (1999) the impact of this intervention can only be determined after the graduates of the educational programmes have assumed or resumed their role in the education system. Impact, in this model synonymous with 'distant outcomes', refers in this case to an improved quality and efficacy of the education system in Mozambique. Because this study covers the period from early 1999 until June 2002, this impact cannot be determined directly. It will be argued, however, that, based on the literature, competence-based education might be a promising way to structure the curriculum of the post-graduate programmes in the Faculty of Education. This curriculum is aimed at educating professionals who are able to perform confidently and expertly their tasks in an often rapidly changing job environment. Also, in an indirect way, the impact can be estimated, based on 'anticipating indicators', such as the success of the educational programmes in attracting and retaining students, the results of the programmes (immediate outcomes) and the immediate effects of the programmes on the functioning of students in their work environment.

The process of design, development and implementation of the curriculum, from intervention to immediate outcomes is the object of investigation in the empirical part of this study. As will be discussed in Chapter 5, the research approach can be characterised as reconstructive development research (Van den Akker, 1999). Based on the curriculum typology of Goodlad, Klein and Tye (1979), the study investigates various phases in the design and development of a competence-based curriculum in the Faculty of Education. The design of the intended curriculum is reconstructed and analysed, followed by the development phase (formal curriculum), and the implementation of the curriculum (operational and experiential curriculum). The research design is elaborated in Chapter 5 of this thesis.

1.2 THE PROBLEM AND ITS CONTEXT

The mission statement of the Faculty of Education at UEM includes the following: "The Faculty of Education bases its activities on the principle that the quality and efficacy of the education system can be improved through the efficacy, efficiency and responsibility of the teachers and other agents in school education". (Mário et al., 1999, p.7). Thus, through raising the professional expertise of education workers, from schoolteachers to civil servants in a wide range of educational institutions, the

Faculty expects to contribute to enhance the 'quality and efficacy of the education system'. The apparently low quality of the education system (Mário et al., 2001) is one aspect of the problem that forms the basis of the research described in this study. Other aspects that relate to the context in which the problem can be situated are:

- Mozambique needs academically educated professionals that are flexible enough to respond to new situations and challenges. In the 'world of work' a change is taking place from a qualifications-based working environment, concentrating on 'jobs' to a competence-based one, focussing on the 'individual'. Or, from a 'job-paradigm' (derived from scientific management) where jobs are the building blocks of complex organisations to the 'competency paradigm' where people are human resources that work for an organisation (Lawler, 1994). This change is a sign that society, also in developing countries, is becoming more and more dynamic and complex and therefore demands professionals that are flexible enough to respond to new situations and problems (Baily, 1994; Marquardt, 1997; Rumsey, 1997; Wirth, 1993).
- Because of the changing role of knowledge in the contemporary society the ability to acquire the appropriate knowledge when needed at the spot ('just-in-time knowledge') has become more and more important. In other words, not the acquisition of disciplinary knowledge per se is important (cf. the mode 1 of knowledge production by Gibbons, 1998), but rather the application of knowledge and the knowing what to know to do (the mode 2 of knowledge production).
- In the university-wide Curriculum Reform Project of the UEM that started in 1999, 'competências' are introduced. The policy documents of the Curriculum Reform Project use 'competencies' and 'skills' interchangeably at various levels of generality. However, the UEM aims, through its Curriculum Reform Project, to change the present education practice in order to produce graduates who are better prepared to answer to the needs and demands of the Mozambican society. The implications of such a message point to a 'Mode 2' production of knowledge and the need to develop Mode 2 abilities.

The main question is then if competence-based education could provide an answer to these challenges. A second question is how this competence-based education should look like in the context of the Faculty of Education at UEM in Mozambique and how it should be designed, developed and implemented. In more formal terms these questions can be phrased as the following two problem statements for the study:

1. *"This study is to determine how the education and training of education professionals with a competence-based approach could contribute to improving the quality and efficacy of the education system".*

This problem statement refers to the potential impact/distant outcomes of the educational intervention. The problem will be discussed and analysed in the conceptual part of the study.

2. *"This study is to determine what are the characteristics of an effective competence-based curriculum for the Faculty of Education at UEM and how such a curriculum should be designed, developed and implemented".*

This problem statement refers to the more immediate outcomes. The reconstructive study, aimed at answering the problem, is described in chapters 6 to 8 of this study.

1.3 SIGNIFICANCE OF THE STUDY

Experiences with assistance to faculties and departments in the process of curriculum reform by the Centre for Academic Development at UEM show that within the university the knowledge about curriculum concepts and about the design, development and implementation of curriculum changes is underdeveloped. There is still a wide spread confusion about terms such as: competencies, skills, profile of the graduate, objectives, etc. No significant systematic and scientific reflection has taken place within UEM on curriculum matters and related design and development trajectories. In fact, only recently curriculum research has started within the Faculty of Education. Educational research in Mozambique takes place at the Pedagogical University, an institute that takes care of the schooling of secondary school teachers, but this happens mainly in the context of professional development of its staff. Curriculum research takes also place at the INDE. An Educational Research Association has not been created yet, although there is an Association for Research in Mathematics and Science Education (AMIEMAC). Only recently the existence of the Faculty of Education has led to renewed initiatives to found a Mozambican Educational Research Association.

In view of this lack of curriculum research and of development/intervention research in general in the Mozambican context, the significance of this study can be described as follows:

1. The study aims to contribute to enhancing the quality of the education system in Mozambique through:
 - carefully documenting the 'quest' for a competence-based curriculum and providing valuable reference material for further study in the Mozambican context;
 - designing and developing a 'quality product': a curriculum with a logical and coherent structure (internal consistency) that is in accordance with the needs of the stakeholders/clientele (external consistency);
 - introducing, in the Mozambican context, a relatively new type of research, development research, that will also be part of research projects of staff and students in the new Faculty and can serve as an example in a nearby context;
 - providing other faculties and departments in the UEM, as well as other institutions for higher education in Mozambique and the Southern African region, with reflections, conceptual clarifications and design guidelines that can assist them in managing a curriculum reform with a high internal and external consistency.
2. The study has significance for the educational sciences because it aims to:
 - reconstruct and analyse the design, development and implementation of a competence-based curriculum in the context of a developing country, signifying a 'first time experience' and thus expanding the knowledge on competence-based education and the development of competence-based curricula;
 - contribute to the conceptualisation of competence-based education in tertiary education, linking higher education to the 'world of work' and providing specifications for 'product' and 'process' (a characteristic outcome of development research), not only for the Mozambican context but for industrialised countries as well.

1.4 RESEARCH APPROACH

1.4.1 Research design

As written above, the question whether competence-based education is a plausible, promising answer in case of the design and development of a curriculum for the post-graduate programmes in the Faculty of Education will be addressed through a literature review. In this review experiences will be discussed with competence-based education and training in many countries. A conceptual framework will be developed that serves to argue that competence-based education can answer the

need for academic professionals who are able to perform confidently and expertly their tasks in an often rapidly changing job environment.

Once the first problem, stated above, has been answered, the second question to be addressed is how a competence-based curriculum should be designed, developed and implemented in the context of a Faculty of Education in a Mozambican university. This study is 'reconstructing', analysing and reflecting upon a project that had the aim to optimise the quality of the competence-based curriculum to be developed. It aims to answer the questions how design, development and implementation of the competence-based curriculum for the Faculty took place, with what results and why certain activities led to the observed outcomes. Three 'lenses' will be used in the analysis and reflection (cf. Van den Akker, 1998b). The first 'perspective' or lens concerns curriculum as product (substantive emphasis) and curriculum aspects, such as rationale, goals/objectives, learning environments, etc. The second lens concerns the technical professional point of view, involving questions about procedures and principles used during design, development and implementation of the curriculum. The last perspective involves a socio-political lens and addresses the actors and circumstances in the curriculum development process. The result of the analysis and reflection should serve the "articulation and specification of design principles" (Van den Akker, 1999, p6). These principles are, in de 'van den Akker typology' both substantive (what is an ideal competence-based curriculum for the Faculty of Education?) and procedural (how should this curriculum be developed and implemented?).

During the process of design, development and implementation of the curriculum for the Faculty of Education activities took place that are essential for formative research, such as preliminary investigation, theoretical embedding, empirical testing, and documentation, analysis and reflection on process and outcomes. Thus, although the focus of this study will be documentation, analysis and reflection, formative aspects will also be addressed.

Development research involves interventions, implying that the design, development and implementation of a competence-based curriculum for the three post-graduate programmes at the Faculty of Education can be studied as an intervention. When evaluating the effect of this intervention the 'impact research' approach (Rossi et al., 1999) offers a framework in which the intervention and its effects can be assessed through the acceptance or rejection of hypotheses. As will be shown in Chapter 5, the design, development and implementation of the curriculum can be visualised with help of the curriculum typology of Goodlad, Klein & Tye (1979), adapted by Van den Akker (1998a). In this typology the curriculum has various representations, from the first 'blueprints' of the designer to

the results of the curriculum in action in the form of learning outcomes. Van den Akker, after Goodlad et al., distinguishes:

- the ideal curriculum (as intended by the designers);
- the formal curriculum (as written down in curriculum documents);
- the perceived curriculum (as perceived by those who carry out the curriculum);
- the operational curriculum (as carried out in the learning environments);
- the experiential curriculum (as experienced by the learners);
- the attained curriculum (as achieved by the learners).

Kessels (1993) makes a distinction between 'ideal' and 'intended' curriculum in the context of corporate education. The ideal curriculum describes, according to Kessels " ...the most adequate set of learning conditions.... andexists as a postulated construct and is in no way tangible." (p. 17). It has connotations to an archetypical curriculum. Kessels presents it as an abstract reference model to all parties involved in an educational programme. The blueprint stage of a curriculum is then called 'intended curriculum'. In this study intended curriculum will be used rather than ideal curriculum, following the argumentation of Kessels. The attained curriculum refers to the impact of the educational intervention and cannot directly be measured, because there is a time-gap between the immediate outputs and outcomes of an educational intervention and the more distant outcomes (Rossi et al., 1999). Kessels introduces the term 'assessed curriculum' to indicate the immediate outputs and outcomes.

The successive steps in the design, development and implementation process lead to 'products', that relate to Goodlad's curriculum types (with the adaptations of Kessels). It is possible to distinguish in this process five phases that are described in the various chapters of this thesis:

1. Conceptualisation, based on literature and front-end analysis followed by the design of an '*intended curriculum*' (see chapters 2, 3 and 6).
2. Development activities leading to an official curriculum document, representing the '*formal curriculum*' (see chapter 7).
3. Further development activities leading to course descriptions in the three educational programmes, representing the '*formal curriculum*' at programme level (see chapter 7).
4. Implementation of the curriculum (see chapter 8). Implementation activities are representations of:
 - the '*perceived curriculum*', involving the interpretation of the curriculum by the actors, that is, the staff and leadership of the Faculty;
 - the '*operational curriculum*', giving an account of what happens in the learning environments created through the actions of the teachers;

- the '*experiential curriculum*', relating to what students experience in the learning environments, and
 - the '*assessed curriculum*', giving a record (by means of evaluation instruments) of the outputs and outcomes of the learning process or development of competencies (cf. Kessels, 1993). Learning and development take place through the teaching and learning activities structured by the curriculum (as experienced by the actors, influenced by various factors, enacted and experienced in the learning environments by teachers and students).
5. Recommendations for the further implementation and development of the curriculum (see chapter 9).

The description and exploration of the design, development and implementation process is based on the three tenets of qualitative research methodology (Tellis, 1997): describing, understanding and explaining. Because case studies also satisfy these three tenets, this study can be characterised as an embedded single case study (Yin, 1994). The research design is further elaborated in chapter 4 of this study.

1.4.2 The researcher as designer

Van de Akker (1999) refers to the potential conflict in roles, when designer/developer and researcher are the same person, as one of the problems of development research. It is thereby implicitly assumed that the designer is also the ultimate decision maker and the author of the 'products' that can range from educational materials to programmes or curricula. However, in the context of this study the designer had no final say about the intervention designs. This means that three roles can be distinguished: the role of designer and developer who also implements 'his' curriculum, the role of 'implementor' of a curriculum that has been decided on by others, and the role of researcher.

Van den Akker (1999) advises to concentrate in the beginning of the design and development process more on the (creative) role of designer and at a later stage during development and implementation stand back a little more and assume more the role of researcher. A permanent consciousness of all roles is essential, and measures have to be taken to eliminate or minimise conflicts of interest, including observations and comments of critical, knowledgeable outsiders, and a careful documentation of all steps taken as designer and as researcher.

Triangulation is an important instrument to reduce researcher bias and to "...provide a more certain portrayal of the ...phenomenon" (Jick, 1983 in Massey, 1999). Of the four types of triangulation, outlined by Denzin and Lincoln (1994),

data triangulation has been applied because data were collected at a variety of times and from a range of persons, as well as investigator triangulation (in using Dutch experts, staff and students in observing the same phenomenon), and methodological triangulation because a variety of methods were used in the research.

As mentioned before, the context of this study was complicated, because the designer had no final say about the intervention designs. Although the fact that already from the beginning of the design and development process staff of the Faculty were involved points to a 'deliberative' approach to curriculum development (Walker, 1990), it will also be argued that the designer role in implementation activities became increasingly dependent on unforeseen incidents and decisions. This, in turn, also influenced the formative research design, that, in this case, could be characterised, according to Thijs (1999) as an emergent research design (c.f. van den Akker, 1999). Thus, in a development research perspective a reconstructive approach will be adopted in this study with 'embedded moments of formative research'.

1.5 STRUCTURE OF THE THESIS

In Chapter 2 the context of the study will be described. The chapter will provide data on Mozambique, on education in Mozambique in general and higher education in particular, on the foundation and development of the Eduardo Mondlane University and on the history of its Faculty of Education. Finally, the most important events leading to the re-opening of the Faculty of Education will be presented.

Chapter 3 contains the conceptual framework of the study. It deals with the question: "What is competence-based education". Based on literature about the use of the competence concept in a number of countries, a conceptual model of competence, competencies and competence-based education is presented. Special emphasis is given to 'generic competencies'. The conceptual framework leads to the formulation of indicators (in the form of a list of questions) for assessment of the competence-based 'quality' of a curriculum.

In Chapter 4 literature on curriculum and curriculum development is discussed. Because the implementation of a curriculum is one of the most important phases of the development process, special attention is given to the characteristics of change and how to monitor and manage change. The development of a curriculum for the

Faculty of Education was a project in which the UEM and three Dutch universities co-operated. The cultural background of the participants in the project was one of the factors influencing the realisation of the project. In this chapter some notes from the literature on culture and intercultural communication are given.

Chapter 5 addresses the design of the study. The research design of this study follows the approach of development research, mainly a reconstructive approach. The design, development and implementation of a competence-based curriculum at the Faculty of Education can be explored from various viewpoints, observed through various 'lenses' and analysed with various instruments. The chapter describes the viewpoints, lenses and instruments and gives a summary of data collection and analysis during the design, development and implementation phases.

Chapter 6 starts with the reconstruction and analysis of a 'prologue', focussing on the origins of the new faculty. Then the design phase of the curriculum is addressed. Apart from the 'product' question about the intended curriculum, which has a more 'substantive' character (Van den Akker, 1999), some procedural questions, for example about the why and how of the curriculum development process, are also addressed. The role of the various 'actors' in this process is further clarified. Three lenses form the perspectives from which the analysis and reflection on the design phase is taking place (cf. Van den Akker, 1998b): substantive questions about essential aspects of the designed curriculum, technical-professional questions about procedure and principles of the design, and socio-political questions about decisions, actors and circumstances in the design process.

In the next chapter, Chapter 7, reconstruction, analysis and reflection are taking place with respect to the development of the curriculum leading to a curriculum document (formal curriculum) and course outlines for the first part (common core) of the post-graduate programmes. The same three lenses that were used in Chapter 6 are applied in this chapter as well. Important events during the development phase were the needs assessment and a working visit of core staff to the Netherlands to finalise the curriculum document and prepare the courses of the common core part of the post-graduate programmes.

Chapter 8 addresses the implementation phase of the competence-based curriculum, restricting itself to the common core part of the three post-graduate programmes. The three lenses or viewpoints that have guided the analysis in the previous two chapters will also be applied in the reconstruction and analysis of the implementation of the common core. The role of generic competencies in the

common core courses gets specific attention. Data are analysed from a variety of sources. For the first time students enter the reconstruction, analysis and reflection as an important source of information and actors in the experiential curriculum.

In Chapter 9 the findings of the reconstruction, analysis and reflection are summarised, conclusions drawn and recommendations made. The research questions will be addressed once more through the intervention model that is presented in Chapter 5. Conclusions are formulated as principles that could be used to guide similar curriculum development processes in similar contexts.

CHAPTER 2

Mozambique and its (Higher) Education system

2.1 GEOGRAPHIC AND DEMOGRAPHIC DATA

Mozambique is located in Southern Africa, bordering the Mozambique Channel, between South Africa and Tanzania. It has a surface area of 801 590 km² (CIA, 2002) and borders South Africa, Swaziland, Zimbabwe, Malawi and Tanzania. Its coast has a length of 2470 km.



Figure 2.1. Map of Mozambique

Source: <http://www.questconnect.org/images/mozM01.gif>

The estimated population size for 2002 is 19 600 000. The poor development status of Mozambique is reflected in an average life expectancy of 39 years (United Nations Development Programme [UNDP], 2002). The HIV/AIDS infection rate is estimated at 12 – 16% of the adult population, but it is very likely that the incidence of HIV/AIDS is much higher, because only 40% of the population has access to medical care and there is no adequate system to diagnose the disease in groups at risk, such as pregnant mothers.

In the past, 80% of the population lived in rural areas and 53% of those lived in the northern part of the country. The civil war that started shortly after independence and natural disasters such as floodings along the Limpopo and Zambezi rivers have caused an increased migration to the cities. Settlement in the south is mostly along the coast, while the interior is sparsely populated.

There are 16 main ethnic groups or tribes and they make up 99.66% of the population. The main tribes are the Shangaan, Chokwe, Manyika, Sena and Makua. (Source: http://www.questconnect.org/africa_Mozambique.htm)

Despite being the language of the colonial power, Portuguese was deliberately kept by the ruling FRELIMO (Mozambican Liberation Front) party as official language after independence with the aim of creating unity amongst the various population groups with their different cultures and languages. Still, only 2% of the population speak Portuguese as a mother tongue and only 30% speak it as a second language (Education Action, 2000). The majority of the population speaks one of the 39 indigenous Bantu languages (Ethnologue, 2002).

2.2 THE ECONOMY

In the UNDP human development index Mozambique appears at the bottom of the list, number 170 out of 173 countries (UNDP, 2002). The human development index measures a country's achievement in terms of life expectancy, educational attainment and adjusted real income. After the exploitation by the Portuguese colonial regime independence was obtained in 1975, followed by a well intended but mismanaged socialist experiment and a violent civil war that lasted during most of the eighties and only ended with the Rome peace accords in 1992. Natural disasters such as severe droughts, devastating cyclones and floods, occurring mostly in the central and southern provinces, added to the poverty of the country. At the end of the eighties the estimated annual per capita income was US\$80 (Langerbein, 2000). An economic reform plan (PRE) with the intention to steer the economy in a 'free-market' direction, as demanded by World Bank and IMF, was

introduced in 1987. After establishing political stability with the democratic elections in 1994, the economy recovered and showed double digit growth in the recent past. The per capita income is now estimated US\$210 (World Bank, 2002) but the country is still heavily dependent on foreign aid. The majority of the population (70% in 2000) remains below the poverty line. Subsistence agriculture continues to employ the vast majority of the country's workforce. A substantial trade imbalance persists, although it has diminished with the opening of the MOZAL aluminium smelter, the country's largest foreign investment project (CIA, 2002).

2.3 A BRIEF HISTORY

Mozambique is in fact about 110 years old. The country came into existence in its present form as a result of an Anglo-Portuguese treaty of May 1891 (Newitt, 1995). The earliest history starts, however, millennia before with the first inhabitants, believed to have been the San people. From about 1000BC the Bantu people began migrating from West Africa to the South bringing their knowledge of farming and iron working. By the end of the first millennium loosely constructed states or 'kingdoms' had been formed by various tribes but there was no real organisation of the people. During this time Arabs from the north began arriving along the coast opening trade routes. Intermarriage with the Bantu people resulted in the rise of the Swahili language and culture.

Portuguese influence started with the landing of Vasco da Gama on Mozambique Island in 1498. The Portuguese didn't have firm control of the country, even after they proclaimed Mozambique their colony in 1752 and began a flourishing trade in slaves which by the 1820s accounted for 85 per cent of all exports. This trade continued until the beginning of the twentieth century (Monteiro, n.d.).

When Antonio Salazar came to power in Portugal, in 1926, through a fascist coup, the exploitation of Mozambique was forcefully promoted. The European population of the colony increased from 27 000 in 1940 to 97 000 in 1960. The Mozambicans were forbidden by law to trade or to run their own business, the few schools and hospitals that did exist were reserved for the Portuguese, whites and 'assimilated' blacks. In short the Mozambicans lived in a state of 'virtual slavery'.

The organised resistance against the colonial oppression is said to have started with the 'massacre at Mueda', in 1960, when Portuguese troops killed 600 people protesting against taxed and forced labour conditions. Mozambicans in exile set up a number of resistance movements of which the most important one, the Mozambique Liberation Front (Frelimo) was formed in Dar es Salaam, Tanzania, in 1962 and grew under the leadership of the charismatic Eduardo Chivambu

Mondlane. The armed struggle started in 1964. Mondlane was murdered by a parcel bomb in 1969 and the leadership of the Frelimo was taken over by the future first president of the independent Mozambique, Samora Machel.

After the 'revolution of the carnations' had brought an end to the fascist government in Portugal, it did not last long before Mozambique gained its independence (on 25 July, 1975). Almost all Portuguese fled the country and left a nation with no infrastructure and few skilled professionals. Frelimo has the immense task of building up a new nation in which virtually no unity existed and took a number of measures such as organising communal villages, with collective farms and primary health care, literacy campaigns, instituting Portuguese as the first language and preaching socialism as the way forward to a 'New Society'. The economic policy, however, proved to be unrealistic and by 1983 the country was nearly bankrupt. In addition other political groups supported by South Africa and Zimbabwe were attempting to destabilise the country. The Mozambique National Resistance (Renamo) started basically as a group of guerrilla fighters, trained by Rhodesia (Zimbabwe) and later by the apartheid government of South Africa. Their primary aim was to destroy the infrastructure in Mozambique and create in this way economic and political instability. RENAMO never had a clear political structure and programme, although they encountered support by the population that was dissatisfied by the strict socialist measures of the Frelimo government that had destroyed the traditional social fabric.

The civil war lasted 16 years resulting in the death of hundreds of thousands of people, the relocation of 1.7 million refugees and the destruction of the country's infrastructure. Samora Machel was killed in a plane crash, under suspect conditions, in 1986 and Joaquim Chissano became the second president.

In 1992, as a result of the fall of the apartheid government of South Africa and the end of the cold war, and after pressure from many outside governments, Frelimo and Renamo agreed to a cease-fire. In 1994 UN-monitored elections were held and the Frelimo-backed Chissano was sworn in as president. Through a disciplined economic plan the rebuilding of the devastated country has been extremely successful, earning the country foreign confidence and aid. While Mozambique reported some of the world's largest economic growth rates in the late 1990s, it has suffered enormous setbacks because of natural disaster—the enormous damage caused by severe flooding in the winters of 2000 and 2001. Hundreds died and thousands were displaced by the flooding.

In 2002 Chissano announced he would not seek a third term in the 2004 presidential elections. FRELIMO selected independence hero Armando Guebuza as their new candidate.

2.4 EDUCATION IN MOZAMBIQUE

The history of education in Mozambique could be described in four main chapters: education in the colonial era, education during the liberation struggle, education after independence and during the civil war, and education after the peace accords and during the building of a democratic Mozambique.

During the Portuguese colonial oppression education was mainly reserved for the children of the Portuguese settlers and civil servants and a few 'assimilados', Africans who had renounced their tribal customs and had assimilated the Portuguese culture. The curriculum differed in urban and missionary (rural) schools. Students at urban schools followed the same curriculum as in Portugal, but in rural areas or suburban areas the curriculum had more grades and religious components than the others (International Bureau of Education [IBE], 2002). The education policy was strictly utilitarian, aiming to prepare a minimal work force with enough skills to serve the colonial interests and being justified to the outside world as 'civilisation of the savage' (Buendía, 2000; IBE, 2002). At the end of the colonial era, when FRELIMO had already liberated part of the country, access to education was made easier for Africans, in the hope to create an ideological front against the liberation movement (Buendía, 2000).

From 1964 onwards, new schools appeared in the liberated zones under the banner: "educate man to win the war, create a new society, and develop our country". The schools served as a kind of laboratory for FRELIMO's educational policies. In practice the new education was characterised by utilitarianism (Ribeiro, 1999), in answer to the need for people with some knowledge to operate complex war equipment and the need to produce food to feed the soldiers. In this sense, "...the 'utility' of the African that necessitated some education in the colonial view can be compared to the view of FRELIMO that education was necessary 'to be of service to the development'. In both systems schooling and education were reduced to a professional, practical and utilitarian dimension" (Buendía, 2000, 411). On the other hand, during the early years of the new schools educational programmes were negotiated with the community before being implemented (Ribeiro, 1999).

When Mozambique became independent in 1975, 93% of the population had no access to schooling. The FRELIMO government made education one of its priorities and in the first years schools were built and large numbers of (mainly unqualified) teachers recruited. Enrolments rose between 1975 and 1979 with 20 to 40% at primary and secondary school level and illiteracy was reduced to 75% in 1980 (Mário, Buendía, Kouwenhoven, Alberto, & Waddington, 2001). Portuguese was adopted as the national language and as the only medium of instruction, serving

the 'strategy of national unification'. Education was aiming to create the 'New Man', living in a society that served the interests of the peasants and working class with a Mozambican identity and a scientific, materialistic and dialectical outlook. In the name of 'democratic centralism', but de facto 'bureaucratic voluntarism', the FRELIMO ideals were imposed on the education system and caused soon dissatisfaction and demotivation among teachers and students that stood sceptical towards the FRELIMO ideas or were unfamiliar with them. In the schools the classroom practice did not reflect the socialist ideals at all. The Frelimo school did not succeed in overcome the authoritarian character of the colonial past, mainly because an authoritarian approach was inherent to the new society in which the 'revolution' was equated with the absolute truth (Buendía, 2000). This led to the learning of empty words and reproduction of a social practice, characterised by authoritarianism.

A National Education System was approved by parliament in 1982 and implementation started in 1983. A new institute, the national Institute for the Development of Education (INDE) had the task to develop the curricula for the new education system that consisted of general education, teacher training and education, vocational-technical education, adult education, and higher education.

Already a few years after independence the resistance movement RENAMO, backed by South Africa and Rhodesia, started its guerrilla activities in the North and Centre of the country. During the following years of destabilisation and civil war (1977 - 1992) the RENAMO's main aim was to destroy the infrastructure, including that of the education system. In 1989 45% of the whole primary school network had been closed or destroyed (Partido FRELIMO, 1989). Literacy activities had practically come to a standstill in 1980 and the illiteracy rate in 1990 was 60% (Takala & Marope, 2002). The destabilisation, economic downfall and natural disasters forced Mozambique to negotiations with World Bank and IMF and resulted in structural re-adjustment measures through the Programme for Economic Recovery, published in 1987. This was soon followed, during the 5th congress of FRELIMO in 1989, by the official shift of Mozambique from Marxist-Leninism to a free-market economy. The priority of the economic sector led to a sharp drop in expenditure for education (from about 12% in 1980 to 4% in 1987).

The further development of educational policy was guided by two documents, the first of which was "A Educação em Moçambique - Problemas e Perspectivas" (Ministério de Educação, 1990). This document led to the elaboration of a number

of sub-sectoral Master Plans and the formulation of various pressing issues to be analysed by Technical Commissions (Mário, Buendía, Kouwenhoven, Alberto, & Waddington, 2001). In 1995 a National Education Policy and Strategies for Implementation were adopted by the government as part of a national development blueprint for economic and social development. The education plan was operationalised in the Education Sector Strategic Plan for 1999 - 2003, approved in 1998 (Ministério de Educação, 1998). This plan, the second important education policy document, is characterised by a partnership of government, civil society and donors and covers formal and non-formal basic education, general secondary education and vocational education. The major aims are an expansion of the access to education, resulting into universal primary schooling, improvement of the quality of education, among others through curriculum reforms, and long term sustainability, involving decentralisation. After the 1999 elections a separate Ministry of Higher Education, Science and Technology was established that produced its own strategic plan in January 2000.

The structure of the education system is presented in Figure 2.2 and some statistics in Table 2.1.

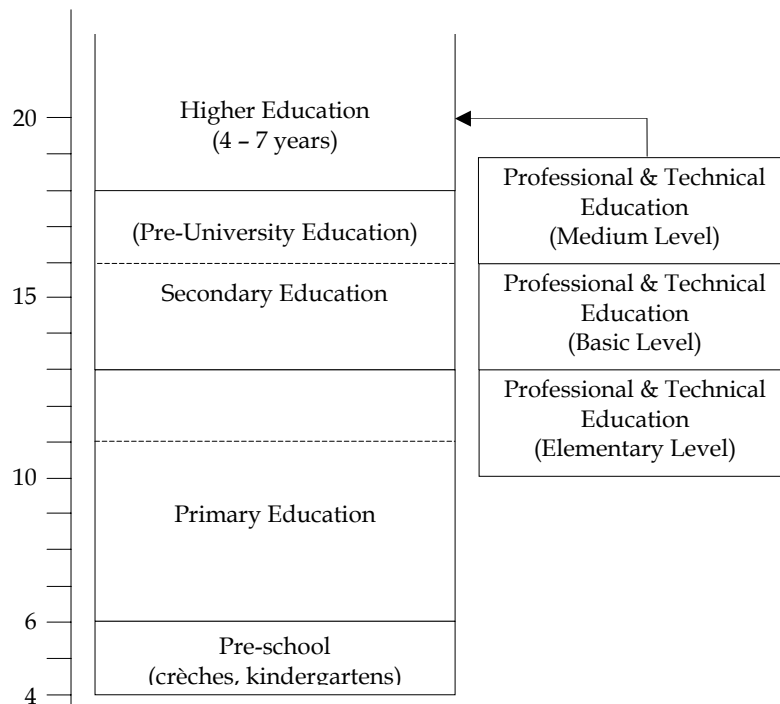


Figure 2.2. The (formal) education system in Mozambique

Table 2.1. *Some education statistics*

| Level | Year | Gross Enrolment Rate (%) | | | Net Enrolment Rate (%) | | |
|-------------|-----------|--------------------------|--------|------|------------------------|--------|------|
| | | Total | Female | Male | Total | Female | Male |
| Pre-primary | 1999/2000 | No data available | | | No data available | | |
| Primary | 1999/2000 | 85.4 | 72.9 | 97.9 | 50.1 | 54.7 | 45.6 |
| Secondary | 1999/2000 | 14.0 | 11.3 | 16.6 | 7.3 | 6.2 | 8.5 |
| Tertiary | 1999/2000 | 0.48 | 0.23 | 0.72 | | | |

Source: UNESCO Institute for Statistics, 2002.

| | | | | | | | |
|----------------------|------|------|-----|-----|--|--|--|
| Technical-Vocational | 1997 | 0.8 | 0.5 | 1.1 | | | |
| | | 11.8 | | | | | |

Source: MESCT, 2000.

| Level | Year | Literacy Rate (%) | | |
|-------|------|-------------------|------|------|
| 15+ | 2000 | 56.0 | 71.3 | 40.0 |

Source: UNESCO Institute for Statistics, 2002.

In "Review of Education Sector Analysis in Mozambique, 1990 – 1998" (Mário et al., 2001) 30 studies on the education system in Mozambique between 1990 and 1998 have been reviewed and analysed. The review organises its findings round the themes and sub-themes of the Education Sector Strategic Plan. These findings and conclusions sketch a picture of the education landscape in Mozambique, realising that at many places in this landscape more in-depth investigation and analysis are necessary. The main findings and conclusions are summarised in Box 2.1.

Box 2.1. *Main findings and conclusions of the Review of Education Sector Analysis in Mozambique, 1990 – 1998*

1. *The state of the education system*
 - The average level of formal education is among the lowest in the world.
 - Internal and external efficiency of the education system are low.
 - There is a low enrolment at all levels of formal education.
 - There are considerable enrolment disparities in gender and between regions and socio-economic strata.
 - The curriculum in basic and secondary education is rigid and promotes outdated teaching methods.
 - Cultural values, involving, among others, the role of traditional education, might negatively influence the perceived value of formal schooling, thus lowering the enrolment, especially at more advanced levels of the educational system.
2. *Institutional aspects of the education system*
 - The institutional capacity of the Ministry of Education is low and is compounded by the high degree of centralisation of the educational system.

Box 2.1. *Main findings and conclusions of the Review of Education Sector Analysis in Mozambique, 1990 – 1998 (continued)*

3. *Teachers*
 - The quality of teachers is still low and their salaries and living conditions are very poor.
 - Teacher training is insufficient in quantity and quality.
 - Teacher training institutions have under-qualified trainers and are poorly equipped.
4. *Schoolbooks/teaching materials*
 - Lack of distribution capacity impedes the existing production capacity of educational materials.
 - Present teaching materials are inadequate because they lack awareness of the multi-lingual environment in Mozambique.
5. *Vocational education*
 - Vocational and technical education in Mozambique is internally and externally inefficient. A major reform, conceptually and financially, is needed
6. *Non-formal education and Adult education*
 - In non-formal education the participation in basic literacy and post-literacy courses have dropped while evening classes in primary and secondary schooling show a high enrolment
 - There seems to be a low priority for adult education
7. *The role of the communities in education*
 - There is a need to involve the community more in the planning and implementation of education.

2.5 HIGHER EDUCATION IN MOZAMBIQUE

The history of Higher Education in Mozambique starts in 1962 with the founding of an institution called the General University Studies of Mozambique (EGUM). This was done to counteract the growing criticism of the world community on the colonial practices of Portugal, but in practice the EGUM were only accessible to the children of the colonists and the elite of 'assimilados' (Ministério do Ensino Superior Ciência e Tecnologia [MESCT], 2000). In 1968 it acquired university status as the University of Lourenço Marques and was offering a comprehensive programme of university courses. Despite a Portuguese move to open up education for Africans in the late sixties and early seventies, only about 40 black Africans, less than 2% of the student body, had entered the University at independence in 1975 (Mário, Fry, Levey & Chilundo, 2001).

Soon after independence the university was named after the first leader of the Frelimo, Eduardo Mondlane. The effects of the exodus of the Portuguese were reflected in a decrease in student number and staff (there were only 10 Mozambican

academic staff in 1978). In order to respond to the demands of the new socialist economy programmes that were deemed irrelevant were closed. At the same time new faculties were opened, such as a Faculty of Marxism-Leninism, a Faculty for Combatants and Vanguard workers (for the further education of party cadres) and a Faculty of Education (in 1980) that aimed at producing secondary school teachers. Personal careers were subject to the central planning of the socialist regime. The Ministry of Education assigned students to courses and after graduation students were placed in positions within the government or party. Some students went abroad for further studies, mainly to countries in Eastern Europe.

In 1985 the second institution for higher education was opened: the Higher Pedagogic Institute (ISP). Soon after that the Faculty of Education at UEM was "...duly closed" (Mário, Fry, Levey & Chilundo, 2001, p.4). The reasons for this closure are very difficult to trace. The Strategic Plan for Higher Education mentions: "In those days, this Faculty absorbed 50% of the new admissions. The creation of this institution (Higher Pedagogic Institute) was a response to the needs of raising the entrance level of the students and of increasing the courses' length, and also because its growing size would become intolerable within UEM." (MESCT, 2000, p.12). Another circulating view that could not be confirmed states that the government wanted more control on the production of teachers and could do so by creating a new institution. As a consequence of the growing need for teachers and training of other educational professionals, ISP was transformed in 1995 into the Pedagogical University (UP).

In 1986 the Ministry of Foreign Affairs started an institute for the training of diplomats, the Higher Institute for International Relations (ISRI). Two more public institutions for higher education would follow: the Nautical School of Mozambique (ENM), gaining higher education status in 1991 (but is still dormant as higher education institution) and the Academy of Police Sciences (ACIPOL) in 1999.

Following the change of the socialist policies to an orientation towards the free-market economy at the end of the eighties, legislation for higher education was introduced in the early nineties. This included, among others, the establishment of a National Council for Higher Education that evaluated applications for the establishment of Higher Education Institutions. The liberalisation of the higher education 'market' led to the emergence of a number of private universities. Three have a commercial origin; the Higher Polytechnic and University Institute (ISPU) started in 1996, the Higher Institute of Sciences and Technology of Mozambique (ISCTEM in 1997, and the Higher Institute for Transport and Communications (ISUTC) in 2000. There are also two religious universities formed: the Catholic University of Mozambique (UCM), whose activities started in August 1996 and the

Islamic University Mussa Bin Bique (UMBB), authorised in 1998, and started in 2000. A number of universities have faculties outside Maputo or are located entirely in the Central or North of the country. UEM is mainly located in Maputo; a Faculty for Tourism has recently been opened in Inhambane (still in the South) as well as a delegation of the Faculty of Law in Beira.

The enrolment of university students in the governmental and non-governmental institutions rose from 4000 in 1990 to about 12000 in 1999 (MESCT, 2000). However, the growing demand for places, coupled with a marked decrease of the public finance resources available for the functioning of higher education caused a surplus of candidates for places. In 1999 there were about 8 times more candidates than places and admittance is done through selection based on admission examinations. Still, the number of students in higher education is very low compared to that of other countries in- and outside Africa.

The analysis of the Ministry of Higher Education (MESCT, 2000) ends with a list of strengths and weaknesses of the higher education sub-sector in Mozambique.

The most important strengths are, according to MESCT:

1. An increasing number of Mozambican teaching staff taking post-graduate studies, resulting in a declining dependence on expatriate staff.
2. An increase of higher education institutions.
3. The existence of research and services providing units in public higher education institutions.
4. A high demand for higher education graduates and huge market for academic and service oriented research activities.
5. Economic growth and ongoing democratisation of the country.
6. The establishment of a Ministry for Higher Education, Science and Technology (MESCT).
7. The availability of good information and communication technologies in the country.

In relation to the last point, the case study of higher education in Mozambique concludes that the situation at UEM is favourable, but expresses, in relation to ICT, its "...disappointment at its relatively slow dissemination in Mozambique's other universities" (Mário, Fry, Levey & Chilundo, 2001, p. 59).

From the list with 20 weaknesses of higher education in Mozambique the most important ones are:

1. An imbalance between regions and gender in terms of students in higher education.

2. A limited number of programmes that are relevant to the labour market.
3. Lack of internal efficiency of Higher Education Institutions.
4. Outdated courses and curricula (duration, structures, contents and teaching methods).
5. Lack of legislation and regulation for higher education and of established mechanisms for assessing, controlling and monitoring quality of higher education.
6. Lack of a national research policy.
7. Lack of articulation between higher education and labour market.
8. Lack of professional and vocational technical schools of tertiary education.

The analysis of the ministry ends with a number of recommendations (supported by the case study on higher education in Mozambique) under the following headings

1. Meet social demands of access and equity.
2. Meet labour market demand and national needs: flexibility and responsiveness.
3. Use available resources more efficiently.
4. Diversify sources of finance and methods of funding institutions and students.
5. Diversify institutions, provision and delivery.
6. Enhance and ensure quality.
7. Redefine the role of government.

The strategic plan for higher education in Mozambique appears to be in line with the view of what should be done to "revitalise universities in Africa" (Association of African Universities [AAU] & the World Bank, 1997). It is concluded that "With numerous studies now available for guidance, it is believed that the main constraint to the revival of African universities is not a lack of knowledge or a sense of what is required but rather an inability to take the necessary actions" (Association for the Development of Education in Africa [ADEA], 1999). The need for strategic planning is emphasised as well as the need to foster and reward research activity, the development of a management information system and the need to "devise and initiate management training courses for all university managers, including senior administrative staff, department heads, faculty deans, and vice-chancellors" (ADEA, 1999, p. 2). The strategic plan for higher education in Mozambique underlines this view when it recommends:

"Increasing efficiency of management of higher education, by developing and improving management information, and providing training in administrative and financial management skills" and "Promoting and disseminating research, including both the development and application of new knowledge and technologies" (MESCT, 2000, p.71).

In the case of UEM, as will be shown below, the university has indeed embarked on a strategic planning exercise, although it is not very clear what its commitment is to management training at all levels.

2.6 THE UNIVERSIDADE EDUARDO MONDLANE

The history of UEM has been described already in the previous paragraph. Here some more attention will be paid to the strategic planning exercises and a description will be given of study programmes, staff and students of the university. The first planning document of UEM is produced in 1991, in response to the changing political climate of Mozambique and the demands of various donors for a development plan. The document with the title: "The Present and Prospects for the Future" (Eduardo Mondlane University [UEM], 1991) focussed on five problem areas: the difficulty of training and maintaining qualified Mozambican staff and the need to reduce dependency on expatriates; the small number of student admissions and a marked regional imbalance between students from the south and the centre/north; a high student dropout rate and low rate of graduation; a paucity of research and outreach activities; and an inefficient, cumbersome and over-centralised administration (Fry & Utui, 1999). Although improvements could be recorded, graduation rates were still low in 1995, students were still mainly from the southern provinces and male, staff retention was poor and "...in spite of the many studies carried out and a few reforms, the management of the University continued almost as inefficient as ever" (Fry & Utui, 1999, p. 6).

The present rector UEM, Brazão Mazula, took office in 1995 and soon established a new commission with members the academic and administrative staff that, under the motto "Rethinking the University", had the task to produce an 'Indicative Plan'. In December 1997 a draft Strategic Plan 1998-2002 was presented (Eduardo Mondlane University, 1997). Again the need was emphasised to reform curricula and management structures and procedures, but the report did not give operationalisations of all the objectives, that were mentioned for the coming planning period. After some confusing actions, involving the production of a second report, without knowledge of the original commission, a final strategic plan, being a synthesis of the two reports, was approved by the University Council in October 1998 (Eduardo Mondlane University, 1998). The report consists of three parts, a (SWOT) analysis of the present state of UEM, outlining strengths, weaknesses, opportunities and threats for the UEM, a mission statement, and the strategic plan itself with twelve basic objectives of which the second mentions:

"Guaranteeing excellence and quality. The University will carry out a major reform of the curriculum to bring courses more into line with 'national reality' and to introduce new teaching methods. This is expected to increase productivity and reduce cost. Information technologies will be introduced to 'revolutionize' the teaching process" (Fry & Utui, 1999, p.11).

The curriculum reform project started in May 1998 under the leadership of the Vice-rector academic affairs, Lídia Brito. Under her firm and results-oriented management a commission produced by December 1999 a "New Curriculum Framework for the UEM" (UEM, 1999a). In this document the importance of defining 'graduate profiles' is mentioned. The education at the university should lead to "agents of intervention and change" (UEM, 1999a, p. 7) with the following qualities:

- an intellectual curiosity and autonomy;
- an inquisitive spirit, always seeking for more knowledge about the reality and oneself;
- the flexibility and capability to innovate and change;
- the capacity to work individually and in a team;
- the capacity to analyse and solve problems , transferring and applying relevant concepts, methods and techniques to different situations;
- the capacity for life-long learning and development.

The report continues:

"The competencies, attitudes and predispositions that form the core of a graduate profile at UEM should allow the integration of theoretical and practical knowledge in the respective areas of education, through the incorporation of practices that reflect the Mozambican reality in its multiple dimensions" (UEM, 1999a, p. 8 [translation by author of this study]). This statement is a hint to competence-based education and is later in the document reinforced by a discussion of the 'correlated curriculum model' (see further discussion in chapter 6 of this thesis).

When Lídia Brito left UEM to become the first Minister of Higher Education, Science and Technology, the pace of the curriculum reform campaign slowed down considerably and the only innovation to be seen in the reformed curricula of faculties that managed to go through the exercise was a reduction of the duration of the 'Licenciatura' programmes, in most cases from five to four years.

Box 2.2 gives a profile of the UEM, based on the annual report of the academic year 1998/1999 (UEM, 1999b). More recent annual reports have not been produced yet.

Box 2.2. A profile of the Eduardo Mondlane University

Number of **students** in 1989/1999: 6500 of which 24.5% are women. The number of students in the 2002-2003 course is reported to be 8046 of which (still) 24% female (source:

http://www.uem.mz/dra/ingressos_renovacoes.htm)

Number of **academic staff** in 1999: 526 full time academic staff (of which 81 were expatriates) and 209 part time academic staff of which 19 were expatriates. Many Mozambican staff members have a 'Licenciatura' degree (371), a number of whom are studying abroad for their Masters degree. In 1999, 191 had a Master's degree and 69 a PhD. Four Mozambican academic staff had a bachelor's degree in 1999. Of the total teaching staff approximately 23 percent are women.

In 2001 the UEM had the following **Faculties and Centres**:

- the Faculty of Agriculture and Forest Engineering;
- the Faculty of Sciences;
- the Faculty of Economics;
- the Faculty of Engineering;
- the Faculty of Arts;
- the Faculty of Medicine;
- the Faculty of Veterinary Sciences;
- the Faculty of Social Sciences;
- the Faculty of Law;
- the Faculty of Architecture and physical planning;
- the Faculty of Education;
- the 'Historical Archives of Mozambique';
- the Centre for Africa Studies;
- the Centre of Electronics and Instrumentation;
- the Informatics Centre;
- the Museum of Natural history;
- the Centre for population (demographic) studies;
- the Centre for Engineering studies;
- the Centre for studies of habitat development.

In general, the programmes offered by the UEM still have duration of five years and prepare for a 'Licenciatura' degree, a degree slightly above the Anglo-Saxon Bachelors Degree. As a result of the curriculum reform exercise some faculties have reduced the duration of the Licenciatura programme to four years and in some cases a bachelors - masters structure has been adopted.

The UEM depends to a large extent of its funding on contributions from donors. Major donors are the World Bank, Ford Foundation, SIDA/SAREC (Sweden), the EU, GTZ (Germany), the Netherlands Government (including the MHO programme), the Italian Government and the Portuguese Calouste Gulbenkian Foundation.

2.7 THE (RE-)OPENING OF THE FACULTY OF EDUCATION AT THE EDUARDO MONDLANE UNIVERSITY

As mentioned above, in the mid eighties the five-year old Faculty of Education at UEM was closed and the teacher training and education activities were transferred to the Higher Pedagogical Institute, the later Universidade Pedagógica. Soon after the closure of the Faculty two donor-funded projects started that involved educational activities and would later act as a catalyst for the establishment of a new Faculty of Education. In 1986 the BUSCEP (Basic University Science Entry Programme) project was initiated, co-funded by the Dutch government and carried out in co-operation with the Dutch Vrije Universiteit (Free University) Amsterdam. The purpose of BUSCEP was to provide entering students with the basic skills and attitudes in Science and Mathematics that they had not acquired in secondary school and to help them make a smooth transition into higher education (Mário, Fry, Levey & Chilundo, 2001). The programme ended its project status in 1997 and continued for some time, thus supporting the conclusion of the external evaluation that the programme was fully integrated and widely supported within the university and, consequently, was sustainable (Smart & Bomba, 1999). There were, however, other views. The Central Commission for Curriculum Reform (CCRC) at UEM concluded, based on a university-wide survey that the teaching-learning activities carried out during the 'basic semester' under guidance of BUSCEP had not resulted in students who had sufficient academic knowledge and skills in science and mathematics. They attributed this 'failure' to the lack of integration into and support of secondary schoolteachers by the BUSCEP programme and the weak connection and collaboration between faculties at the receiving end and BUSCEP (Mário, Fry, Levey & Chilundo, 2001).

The other programme that involved educational interventions was STADEP (Staff Development Project). STADEP started in 1989 as a pilot project with the aim to provide pedagogical and didactical training to young and beginning lecturers of the university. The project developed a programme of courses for academic staff and took on the individual counselling of young lecturers (this happened in fact only in the early years of its existence) and the participation in the educational commissions of faculties, assisting them in all kinds of educational matters (STADEP, n.d.) The project was again funded by the Dutch government through the MHO programme (Joint Financing Programme for Co-operation in Higher Education) and involved a strong co-operation with the Dutch Rijks Universiteit Groningen. STADEP finished in 2001, but continued to be supported by Dutch donor funding as the Centre for Academic Development, housed in the new Faculty of Education. Present staff shortage has put the activities at a low level,

while the expansion to a system of academic support to students and to increased services to institutions outside the university came virtually to a standstill in 2002.

In May 1997 representatives of BUSCEP and STADEP met for a first exploratory discussion on the future of both programmes after the ending of the last project phase. Although the first terms of reference of the 'BUSCEP/STADEP commission' mention as main objective "...the investigation of forms of integration between STADEP and BUSCEP in the structure of a future Centre of Educational Studies/Educational Centre" (UEM, 1997), the issue of re-opening the Faculty of Education came soon on the agenda. The document "Project of the re-opening of the Faculty of Education" (Mário et al., 1999) clearly links the two projects to the Faculty of Education by referring to their "...functions inherent to a Faculty of Education" (p. 4).

In February 1998 the Rector of UEM installed an official commission with the task to elaborate a project to re-open the Faculty of Education. The decision to re-open the Faculty was based, amongst others, on the following observations (Mário et al., 1999):

- Several departments in various Faculties of UEM were planning to introduce educational options in their licenciatura programmes, implying pre-service teacher education.
- At institutional level there was a growing need to build capacity in schooling and research in the area of Education. This would involve graduate and post-graduate programmes in Education, pedagogical professional development of lecturers that were at the beginning of their career and setting up educational research on various aspects of academic life.
- The two programmes aimed at improving the quality of education at UEM, BUSCEP and STADEP, were involved in a process of restructuring and were looking for ways to become institutionalised.

The commission collected and analysed documents, consulted key persons in- and outside the university, and made a number of study visits in the region and overseas. In July 1999 the findings and recommendations were published in the report "Project for the Re-opening of the Faculty of Education" (Mário et al., 1999). The report mentions that the main aim of the new Faculty of Education would not be pre-service teacher education and training, although it had a role to play in the plans of several departments to start offering 'educational options'. In stead the Faculty would concentrate "...its efforts in the running of postgraduate courses, educational research and extension activities, including in-service training for secondary school teachers" (Mário et al., 1999, p.6). It was also thought that the Faculty could play a role in the development of distance education programmes. Eight activity areas were defined (see box 2.3).

Box 2.3. *A first list of activity areas of the Faculty of Education*

1. The start of post-graduate and specialisation programmes in:
 - Education management and administration
 - Curriculum analysis and development
 - Education policy analysis
 - Adult education
 - Science and mathematics education
 - Language education
 - History and geography education
2. The start of under-graduate programmes in:
 - Psychology
 - Child development and primary education
3. Co-ordination of the pedagogic and didactic subjects in the teacher education in various programmes at UEM (educational options).
4. The setting up of in-service training and education for secondary school teachers.
5. The (continuing) programme of professional development of academic staff.
6. The encouragement and support of "...analytical, critical and independent work among university students through upgrading courses on study, self-management and academic counselling methods".
7. The start of an educational research programme.
8. The promotion of the "systematic use of distance teaching and open learning methodologies and techniques in the University".

Source: Mário et al., 1999, pp 8-9.

Immediately after receiving the report the Rector nominated the 'Installation Commission', consisting of five members, under leadership of Dr. Mouzinho Mário. The task of the Installation Commission (IC) was "the creation of human, material, financial and organisational conditions for the (re)start, on a regular base, of activities in the area of education and training, research and extension, identified as priorities in the 'Project for the re-opening of the Faculty of Education', from the academic year 2001-2002 onwards" (UEM, 1999b). The terms of reference of the IC also mention the implementation of a research and training programme as agreed upon between UEM and NUFFIC (Netherlands Organisation for International Cooperation in Higher Education), with respect to the 'Pre-project for the installation of the Faculty of Education'. The pre-project signified the start of a close collaboration and a heavy involvement of three Dutch universities (Free University Amsterdam, University of Groningen and University of Twente) in the setting up of the Faculty and its educational programmes. The preparations for this co-operation, in the context of the MHO programme, started at the end of 1998 and resulted in the approval by the Dutch donor of a pre-project, running from mid 1999 to the end of 2000. The main aim of the pre-project was to formulate a full-blown project proposal for co-operation and assistance to the young Faculty during its first years of existence. Apart from working visits to and from the Netherlands

and in Southern Africa two major workshops gave impetus to the process of establishing the Faculty and its programmes. The first one was held in November 1999 and aimed at planning the installation exercise, the second one took place in February 2000 and concentrated on the curriculum of the educational programmes in the Faculty and the preparation of a needs assessment. The curriculum design and development activities will be discussed in detail in subsequent chapters. At this stage it is sufficient to mention that the first staff was recruited in the beginning of 2000 and that the joint efforts of IC, academic staff of the Faculty and Dutch experts led to the submission of a curriculum document (UEM, 2001) to the senate of UEM in May 2001, followed by the approval, by the University Council, of the post-graduate programmes in Adult Education, Curriculum and Instruction Development, and Science and Mathematics Education. The rector had already approved, in September 2000, the official re-opening of the Faculty; the appointment of Dr. Mouzinho Mário as first dean of the new Faculty followed in February 2001. Admission procedures for students in the three post-graduate programmes started in June 2001 and at the end of August about 40 students entered their two-year masters in education study. In the following two months the number went down to about 30.

In August 2002 about 20 students registered for the three post-graduate programmes while 60 students started the graduate programme in (educational) psychology. At present the Faculty has 20 full-time staff and about 5 part-time lecturers. Several staff are involved in further studies (at masters and PhD level). Content experts from the Netherlands are assisting the staff of the graduate and post-graduate programmes in teaching and further development and implementation of the curriculum.

In Box 2.4 a summary is given of the main events leading to the establishment of the Faculty of Education.

Box 2.4. The history of the Faculty of Education: the main events

1997

May: Representatives of BUSCEP and STADEP meet for a first exploratory discussion on the future of both programmes after the ending of the last project phase.

1998

February: Installation of a commission with the task to investigate the viability of re-opening the Faculty of Education at UEM.

November: Start of negotiations between UEM and NUFFIC to formulate a pre-project aimed at assistance to the preparations for the installation of a Faculty of Education and the formulation of a multi-annual project to assist such a faculty in its first years of existence.

Box 2.4. *The history of the Faculty of Education: the main events (continued)***1999**

- First half: Various study visits in- and outside the region
- March: The University Council recommends, based on an initial report of the commission, to re-open the Faculty of Education
- July: The Rector nominates the Installation Commission with the mission to create human, material, organisational and pedagogical conditions for an effective start of educational activities in the Faculty of Education from August 2001 onwards.
Start of the pre-project involving co-operation between the UEM and Dutch universities in Groningen, Twente and Amsterdam (VUA).
- October: Study visit to the Netherlands in the context of the future Centre for Academic Development.
- November: Workshop with all pre-project partners with the objective to formulate an operational plan for the installation of the Faculty and to elaborate a programme for the development of research capacity within the Faculty.

2000

- First months: Study visits to universities in the Southern African region
- February: Workshop with all pre-project partners on the design and development of the curriculum in the Faculty and on the preparation of the needs assessment.
- May: Workshop with representatives from the region on experiences and regional models of in-service education and training (INSET) of teachers.
- June: Start of negotiations between UEM and Dutch universities on a multi-annual project to support the initial activities of the Faculty.
Working visit to the Netherlands with the aim to formulate a capacity building plan for academic staff in the Faculty.
- July: Start of needs assessment as a first step in the design of the curricula for the various post-graduate programmes in the Faculty.
- September: Official dispatch of the Rector announcing the re-opening of the Faculty of Education.
- October: Workshop on the integration of ICT in the educational activities of the Faculty.

2001

- February: Appointment of Dr. Mouzinho Mário as Dean of the Faculty of Education
- March: Working visit to the Netherlands with the aim to finalise the curricula of the post-graduate programmes in the Faculty.
- May: Approval of curriculum document on post-graduate programmes by the Academic Council (Senate) of UEM.
- June: Approval of post-graduate programmes by the University Council of UEM.
Start of admission of students.
- August: Official opening of the first year of the postgraduate programmes in Adult Education, Curriculum and Instruction Development, and Mathematics and Science Education.
- November: Approval by NUFFIC of multi-annual projects (2001-2004) of co-operation and support between UEM and three Dutch universities.

CHAPTER 3

On competence, competencies and competence-based education

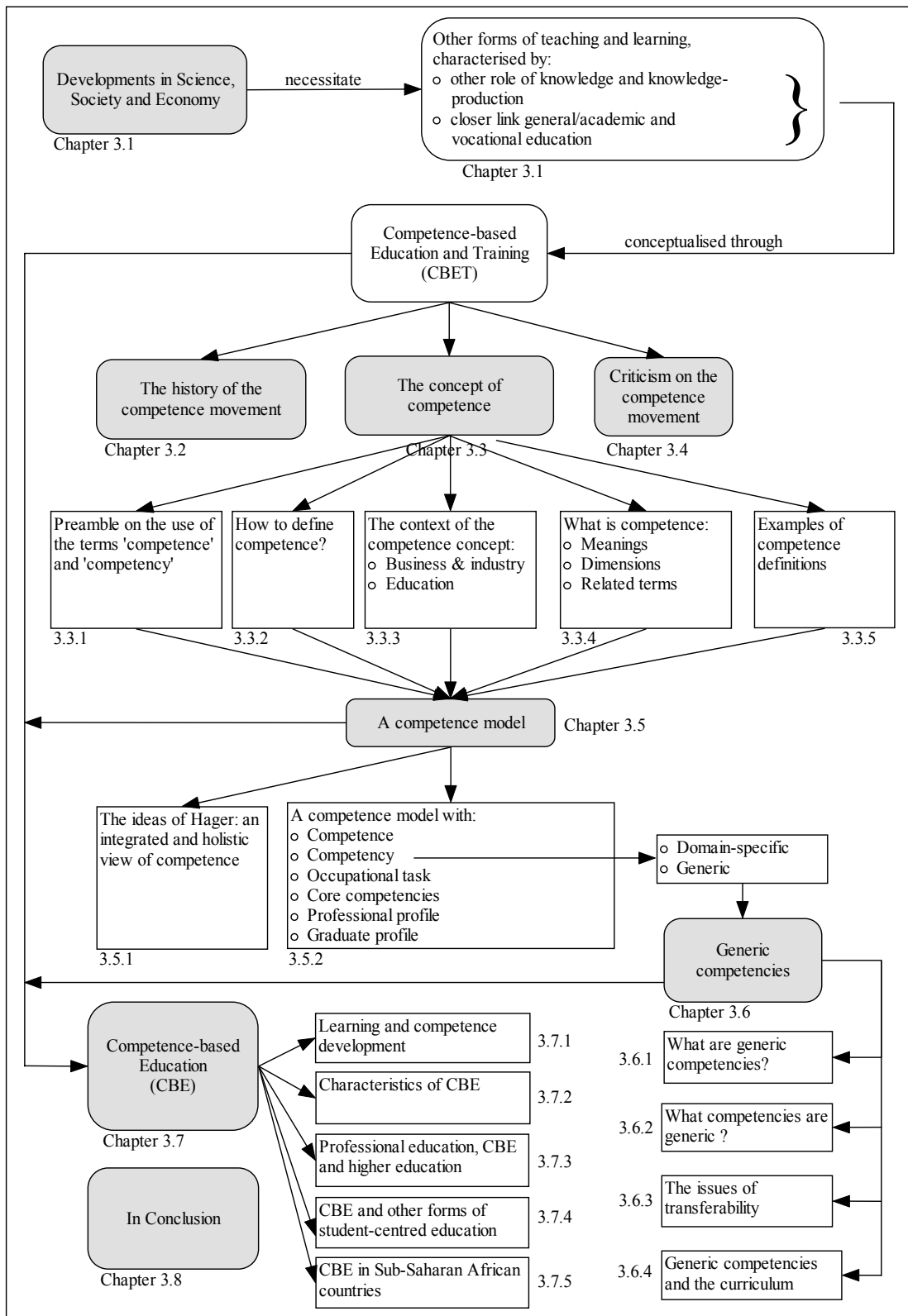
What are the characteristics of competence-based education, with a focus on Higher Education? This chapter addresses that question by discussing the most relevant parts of the vast amount of literature on competence and competence-based education and training. The guiding questions are how competence and competencies can be conceptualised and what are effective ways to acquire and develop competence.

In Chapter 3.1 the developments in science, society and economy are described that form the context for the (renewed) interest in competence and competence-based education and training. As a result of these developments the acquisition of knowledge in itself is not anymore the major aim of education and training, but the application of the acquired knowledge. This is also seen in the diminishing gap between the vocational and general aspects of education.

The origins of the 'competence movement', in the early decades of the last century and the beginnings of competence-based education and training (CBET) are outlined in chapter 3.2. The dimensions of the competence concept and related terms and concepts are discussed in chapter 3.3, based on an article by Stoof, Martens, Van Merriënboer and Bastiaens (2002), in which a pragmatic solution is proposed for defining competence. Chapter 3.4 discusses the literature that represents criticism on the competence movement. Both sections (3.3 and 3.4) are used to identify essential elements for a competence model that forms the basis for this study. The model is presented in chapter 3.5, where the ideas of Paul Hager (Hager & Gonczi, 1996) of an integrated, holistic approach to competence and CBET are first introduced as the platform on which the competence model of this study has been built. In chapter 3.6 special attention is paid to 'generic competencies' and their role in general and vocational higher education. Finally, in chapter 3.7 the characteristics of competence-based education will be discussed as well as the question why competence-based education can offer a contribution to the education of students/graduates that are well prepared to answer to the needs and demands of society, or, more specifically, the education sector in Mozambique.

The structure of this chapter is given in Box 3.1.

Box 3.1. Structure of Chapter 3



3.1 RECENT DEVELOPMENTS IN SOCIETY AND THEIR CONSEQUENCES FOR EDUCATION

The Dutch Onderwijsraad [Education Council] (2003) has published a report about 'learning in a knowledge society'. The report mentions a number of important developments in society in the past decades that have led to, amongst others, an increased attention for the acquisition of competencies and competence-based education and training (cf. Kearns, 2001).

- Knowledge has gained a more and more central position, signifying the transition from an industrial society to a knowledge-intensive society.

Terms such as 'knowledge management', 'knowledge worker', 'life-long learning', the 'learning organisation', etc. signify a conception of 'knowledge', where knowing is seen as a tool in the performance of occupational tasks, a production factor (Halal, 1998; Mulcahy, 2000; Nedermeijer & Pilot, 2000) and, in some cases, even as a commodity that can be traded. The development of knowledge, especially in the sciences and technology goes extremely fast. The half-life of the disciplinary knowledge of an electrotechnical engineer is nowadays 5 year; software packages that had a life-span of 15 years in the 1970s now have a lifecycle of, at most, 3 years (Weggeman, 1997). The transition to a knowledge-intensive society brings with it the need for broadly applicable knowledge and the importance of learning competencies, in other words 'learning to learn' (cf. Bennett, Dunne & Carré, 1999; Delors, 1996; Gonczi, 2001; Kearns & Papadopoulos, 2000).

- The classical concept of knowledge as school-based and discipline-based is broadened; knowledge as an integrative capability: competency.

The acquisition of knowledge in itself is not the major aim of education and training, but what can be done with this knowledge (Van der Klink, Boon & Schlusmans, 2002). Because the knowledge base of most academic 'disciplines' is changing at an ever increasing speed, the ability to acquire the appropriate knowledge at the spot ('just-in-time knowledge') has become more important. Next to the explicit declarative, procedural and causal knowledge (know-what and know-why), implicit or tacit knowledge is also essential for a knowledge worker (Polanyi, 1966; Nonaka & Takeuchi, 1995). This involves know-how (operational knowledge) as well as know-who, knowledge of who can provide the ideas or additional operational knowledge when needed (Onderwijsraad, 2003). (Tacit) Knowledge can be seen as a personal capability (competency) according to Kessels (2001). At some places, e.g. in many sub-Saharan African countries (Delors, 1996), there is traditionally no formally codified knowledge and the know-how is based on tacit knowledge.

- The development of knowledge is taking place in more diverse contexts.

It is often linked to concrete problem situations and is created and used through the interaction of members of (multi-disciplinary) teams.

In the traditional view knowledge is seen as a distinct cultural asset and represented by explicit, codified, formal and often strongly hierarchical structures (Westera & Sloep, 1998). This disciplinary, mostly declarative, knowledge is only part of the knowledge needed to cope with complex real life situations. Knowledge is considered to be to a large extent implicit, ill structured, informal, and diffuse, as it reflects a great deal of context dependency and often is connected with specific behaviours (Di Sessa, 1979). Gibbons (1998) speaks about two 'modes' of knowledge production. He indicates how, in the 20th century, the emerging research culture at the universities created the disciplinary structure of knowledge. The disciplinary structure "... defines both what shall count as 'good science' and prescribes as well what students need to know if they intend to become scientists" (p. 4). This mode of knowledge production is called mode 1. Mode 1 production refers to knowledge of the discipline-based type, typically produced in the 'classical' universities. According to Husén (1994), the Western university, which served as a model throughout the world, has been characterised by the following:

- It made more or less sharp distinction between theory and practice.
- It has put a premium on autonomy and aloofness to the extent of complete irrelevance.
- It has been both socially and intellectually an elite institution.
- It has tried to be an 'ivory tower', as an institution whose main purpose is to 'seek the truth'. (p. 13).

Gibbons' mode 2 knowledge development (Gibbons, 1998) is the production of knowledge in the context of application, that is, it arises in the process of solving particular complex problems in collaborative trans-disciplinary teams and partnerships, situated both within and outside higher education institutions. Mode 2 knowledge development is characterised by:

- Knowledge is developed in the context in which it is applied.
- Concepts and needs of users determine the definition of problems and solutions.
- New knowledge is developing from the practice and is often trans-disciplinary. Cross-disciplinary competencies are important.
- ICT is important because it allows the set-up of knowledge-networks; knowledge is created more and more outside the traditional knowledge institutes (e.g. universities). Individuals can increase their knowledge by participating in innovation processes (Organisation for Economic Co-operation and Development [OECD], 2000).

The role of universities in the development of mode 2 knowledge has been ambiguous (Gonczi, 2001). In some cases universities want to put a strong emphasis on mode 1 knowledge production because timeless, universal knowledge is important in a world where everything is in flow (Gonczi, 2001). However, in general the need is recognised for domain-specific competencies within the disciplines *and* trans-disciplinary, as well as generic competencies (cf. Delors, 1996; Teichler, 1998).

Institutions of higher education in developing countries have mostly kept to the traditional functions and objectives of Western universities (Maamouri & Wagner, 2001), often being 'more Roman than the pope'. This included the 'ivory tower' idea that they should only deal with theoretical knowledge, show interest to the formulation of theory and research, and value knowledge ownership and preservation. It led to a focus on the process of knowledge creation and transfer within a culture of transmission (UNESCO-BREDA, 1994). However, global developments in science, society and economy affect the developing countries as well. The response of their higher education institutions has been slow or absent, leading to an increasing gap between curricula and amount of knowledge and know-how required for the new job market (Hountondji, 1998).

- The economy is increasingly becoming a knowledge economy.

On the labour market we see: rapid changes in functions and descriptions of functions, rapidly changing discrepancies between demand and supply and an increasing mobility of workers (cf. Marquardt, 1997; Wirth, 1993). Important aspects are:

- The development from an industrial economy to a post-industrial knowledge economy, where innovation is central (Rumsey, 1997). Table 3.1 shows the difference in the workplace of the 20th and that of the 21st Century. Complexity makes the work processes increasingly dependent on the combined knowledge and know-how of teams (cf. Delors, 1996).
- The globalisation of the economy.
- The changing organisation of labour.
- The changes on the labour market, caused by an increasing mobility of workers.

Table 3.1. *Comparison of workplaces in the 20th and 21st century*

| | Workplace of the mid 20th Century | Workplace of the 21st Century |
|------------------------------|---|---|
| 1. Stability | Relatively static | Dynamic - constant change |
| 2. Basis | Process-based | Information-based |
| 3. Scope of work | Focus only on the production and delivery of products and services to given specifications | Wider consideration of a range of social and practical issues in the delivery of products and services (e.g. environment, safety, quality, aesthetics, ethics, discrimination, etc. |
| 4. Definition of job role | Prescribed job role | Flexible interpretation of job needs and ability to adjust roles |
| 5. Approach to work | Conformity to prescribed rules and procedures | Adaptation to new situations and changes -- need to be critically reflective and interpretive |
| 6. Social emphasis | Individualistic | Collaborative |
| 7. Overall context | Part of a local industry | Part of a global economy |
| 8. Nature of job | Job was for life | Job will be a transition within an ongoing career of changing occupations |
| 9. Focus of training | Preparation for a single occupation | Preparation for a career pathway (of changing occupations) |
| 10. Key skills and knowledge | <ul style="list-style-type: none"> ▪ Technical skills (particularly the use of tools to deliver products or services) ▪ Specific declarative and procedural knowledge needed to apply particular technical skills | <ul style="list-style-type: none"> ▪ Ability to access, evaluate and apply information ▪ Interpersonal skills ▪ Cognitive and meta-cognitive skills ▪ Declarative, procedural, strategic and dispositional knowledge across a range of contexts |
| 11. Key technologies | <ul style="list-style-type: none"> ▪ Machines using electric motors ▪ Analogue communication systems ▪ Hand and power tools ▪ Typewriters, photocopiers and fax machines | <ul style="list-style-type: none"> ▪ Computers ▪ Digital and multimedia communication systems ▪ Computerised machinery and tools |

Source: Rumsey (1997), p. 3.

A change is taking place from a qualifications-based working environment, concentrating on 'jobs' to a competence-based one, focussing on the 'individual'. Or, from a 'job-paradigm (derived from scientific management)' where jobs are the building blocks of complex organisations to the 'competency paradigm' where people are human resources that work for an organisation (Lawler, 1994). In a society that is becoming more and more dynamic and complex professionals need to be flexible enough to respond to new situations and problems. Baily (1994, p. 71) states: "The high-tech world is a fast moving, ever changing environment which needs people who have the capacity to learn and develop, to move and change with the needs of the organisation: who are prepared to break the mould of the past".

- A post-modern society, characterised by cultural diversity, a changing social coherence (diversification, more loose links) and a growing individualisation. Work is getting less important in life, while education and learning (and leisure) are becoming more essential.

Education that is purely academic and characterised in the words of Robbins (1963) by 'what is taught should be taught in such a way as to promote the general process of the mind', does not respond anymore to the recent developments in science and society. One answer has been a stronger focus on the world of work, signified by the attention for 'core', or personal transferable skills, such as the ability to co-operate, communicate, and solve problems; skills which are assumed to transfer readily across a range of contexts (Bennett, Dunne & Carré, 1999). The report of the Onderwijsraad (2003) mentions:

- With respect to the content: the move from disciplinary knowledge to broad (generic) competencies. Broad can be described as 'preparing for (working) life', involving concepts (in vocational education) of flexibility and mobility (Nijhof & Streumer, 1998b).
- As far as levels are concerned: the need for more workers with high qualifications and, therefore, the need for opportunities for life-long learning (cf. Van der Klink et al., 2002).

Another result of the developments described above is that the difference between vocational and academic/general education is getting smaller, with increasingly active partnerships between higher education institutions and the worlds of industry, commerce and public service (Hager & Hyland, 2003; National Committee of Inquiry into Higher Education [NCIHE], 1997; Nijhof, 1998; Stern & Wagner, 1999; Teichler, 1998). Teichler (1998) summarises the direction that Higher Education is to take in relation to the world of work as follows:

Universities will have to:

- devote greater attention to generic competencies, social skills and personality development;
- reshape the function of higher education in the move towards a society of lifelong learning;
- prepare students for the growing economic and societal globalisation and internationalisation;
- establish regular modes of communication between higher education and the world of work (cf. Stern & Wagner, 1999).

In summary, the literature on the consequences for education of the developments in science, society and economy points to the need for learning environments that promote the development of broad, generic competencies and a closer link between (academic) education and the world of work. The report of the Dutch Education Council (Onderwijsraad, 2003) emphasises extra-mural, informal learning that has as advantages the problem- and competence-based character, the linking of learning to authentic contexts, the use of broad packages of resources and co-operative learning. Such activities are best described with the constructivist paradigm. Necessary is a balance between learning activities in- and outside school and between disciplinary content knowledge (and skills) and broad competencies. In the next sections of this chapter these 'broad competencies' will be conceptualised as well as the development of domain-specific and generic competencies in competence-based education.

3.2 THE HISTORY OF THE COMPETENCE MOVEMENT

Because one cannot write about competence and education without relating to the world of work, concepts such as work, profession, and vocational education will play a role throughout this chapter. Although one could speak of 'intellectual competencies' as knowledge and skills related to thinking and processing information and although one could certainly apply aspects of the competence concept to general/liberal education, it is in the link to the (future) professional roles of learners that competence-based education has its strength.

Later on in this chapter the concept of competence will be discussed extensively. For the purpose of this section the term '*competence*' can be defined as the capability to realise 'up to standard' the key occupational tasks (see below) that characterise a profession. A *competent* professional shows a satisfactory (or superior) performance. *Key occupational tasks* are the tasks that are characteristic for a profession.

Competence has existed since self-consciousness came to human beings. It was

originally (in the early history of mankind) acquired on an individual basis by experimenting, emulating the actions of others, primarily aimed at survival and reproduction (aptly expressed by the term 'sabre-tooth curriculum' of Harold Benjamin, [1939] 1975). When crafts entered human life, education was done through apprenticeship, thus emphasising the vocational function of education (Coffey, 1992). Novices learned from experts, who made their tacit knowledge and skills explicit. The idea of 'schools' originated from the groups of students round the ancient Greek philosophers, who embodied the craftsmanship of the intellect. When the schools housed more and more students, a more distant mode of teaching and learning emerged. This was also the case in the trade schools, for example in ancient Egypt (1000 BC), but with still much attention for the job-related competencies and knowledge closely linked to these competencies.

The ideas of the ancient Greeks, that handwork was thought to be inferior to the 'work of the mind', the privilege of the free men, was the beginning of the separation of vocational education from general education that has since then pervaded the Western society (cf. Lewis, 1991). Aristotle, for example, distinguished theoretical knowledge (having a share in the divine because it had to do with 'certainty'), practical knowledge and productive knowledge, each linked to a social class (Gonczi, 2001). Thus, "...education and training, theory and practice, the liberal and the vocational – the polarities have centuries of turbulent history" (Silver & Brennan, 1988, p. 3 as cited in Hager & Hyland, 2003). At the beginning of the twentieth century these polarities were once more emphasised when the rapidly industrialising society needed a schooled workforce (Hager & Hyland, 2003). Public schools emerged where 'general/generic' knowledge was taught but also the trade schools became more and more academic, losing sight of job-related competencies. The term 'training' was introduced to distinguish workplace learning from general/liberal education.

The continuous need for improved efficiency and increased production in the industries led to a thinking about 'best ways to fulfil a task' (Taylor, 1911, cited in Garavan & McGuire, 2001), that could be seen as a 'precursor' of the competence concept. In the United States of America (USA) it led to an educational reform in the 1920s, that linked industrial/business models to classroom-based education with a focus on behaviourist objectives (Bates, 1995; Franklin, 1997). The rise of behaviourism in education in the early decades of the twentieth century (Skinner, 1938; Tyler, 1934,) is seen by many authors as the beginning of thinking about competence and competence-based education (Grugulis, 1997; Raelin & Coole, 1995; Sandberg, 2000; Tuxworth, 1989). Behaviourism provided the possibility to talk about behaviour as the performance of a task and about trainable traits of people in order to improve this performance.

Although the roots of competence-based education (CBE) can be traced back to the 1920s, the first competence-based curricula appeared in the 1960s in the USA as "competency-based education and training" (CBET) in teacher education¹ (Burke, Hansen, Houston & Johnson, 1975; Elam, 1971; Houston, 1980; Hyland, 1995). CBET was presented as the answer on a demand for greater accountability, a greater efficiency and more community-involvement in decision making (Tuxworth, 1989). The strong behaviourist approach was facilitated by the publications of Mager on the formulation of behavioural objectives in education (Mager, 1962). One important claim was that in CBE of teachers and through certification based on competence standards there would be a direct relation between teacher competence and pupil learning. However, further research at that time did not show such a relation and also failed to prove the superiority of CBE over other forms of education.

After the start of competency-based teacher education the movement did not become very powerful, amongst others because there was no clarity on many concepts. Burke et al. (1975, p. i) note the "...general lack of definition and criteria just for what constitutes a competency based teacher education programme". Although Hall and Jones (1976) could still publish a book with the optimistic title: "Competency-based Education: A Process for The Improvement of Education", the too hasty implementation and the anxiousness of administrators to use CBET as a means to enforce teaching standards resulted in counter-forces and a slowdown of the developments in CBET.

In the 1970s competence became also more prominent in human resource development (HRD). The rationalistic approach to human performance was continued in the Human Performance Technology (HPT) movement (cf. Stolovitch & Keeps, 1999), well illustrated by the title of Gilbert's standard work: 'Human competence: Engineering worthy performance' (Gilbert, 1978). Further developments of competence-based education can be separated from the growing competence-based training in business organisations (Bos, 1998), although Stoof et al. (2002) state that the "competence movement in the educational field is a response to and derivation of the developments in business organisations" (p. 350).

Before further developments of CBE in a number of countries are described, first an overview will be given of conceptualisations of competence and the definitions will be introduced that will be used in this study.

¹ Later in this chapter the different conceptions of 'competency' (used in the USA) and 'competence' (used in the UK) will be discussed. For this section, on the history of the competence movement, the difference is not important. Throughout this study 'competence' is used as the most generic term, indicating the quality of being competent.

3.3 WHAT IS COMPETENCE?

3.3.1 A preamble on competence, competency, competences and competencies

As stated above, the word 'competence' will be used throughout this study in a generic sense, meaning the quality or state of being competent. Because somebody can be competent in several (unrelated) areas - for example somebody can be a competent bridge player and a competent bridge builder -, the plural 'competences' can sometimes be used as well, although the term 'competence in such and such areas' is preferred. In section 3.3.4 the difference is discussed between the American approach to competence (in the United States of America [USA] one reads about '*competency*-based education') and the English approach (in the United Kingdom [UK] the term '*competence*-based education' is used). When referring to literature from the USA the term 'competency' will be used when dealing with the generic concept; in the case of literature from other countries the term 'competence' will appear. The term 'competence-based education' will be used throughout this study assuming to incorporate the American '*competency*-based education'. In section 3.5.3 a competence model will be presented in which the 'quality of being competent' is explained by the possession of a set of 'competencies' that together are causally related to a competent performance. A competency is conceptualised in the model as the capability to choose and use (apply) an integrated combination of knowledge, skills and attitudes with the intention to realise a task. Competence is the capacity to realise 'up to standard' the key occupational tasks (see below) that characterise a profession.

3.3.2 On competence definitions

Competence-based education aims to make students more competent through the acquisition of competencies and the further development of the newly acquired or already held competencies. This presupposes that there is clarity about how competencies are conceptualised and that, in case of a particular education or training programme, the relevant competencies have been formulated.

The lack of a generally accepted operational definition of competence/competency is generally acknowledged (Buskermolen, de la Parra, 1999; Garavan & McGuire, 2001; Kessels, 1999a) and sometimes considered a "significant problem" (Gorsline, 1996; Van der Heijden, 1997). Some authors simply accept the fact and support a pragmatic approach (Kessels, 1999; Mulder, 2001; Rychen & Salganik, 2002). Weinert (2001) mentions the conceptual vagueness, coupled with 'fashionable elements' and uses the term 'conceptual inflation', while Bos (1998) talks about a 'container concept' when discussing competence definitions. Stoof et al. (2002) label the search for an overarching definition as an objectivist approach, that is futile in absence of an absolute truth, and advocate instead a constructivist approach where

the "...criterion for a competence definition is not whether the definition is true but the extent to which the constructed definition has proved to be adequate in the context to which it is used (i.e. viability)" (p.347). Whether the above mentioned support for a 'pragmatic approach' to come to an adequate or usable definition has always a constructivist basis can be disputed. This pragmatic approach should rather be seen as a third way next to the objectivist searching for the one absolute truth and the relativist construction of a reality in context. The guiding principle in a pragmatic approach is the usability or, indeed, viability of the definition and 'truth' takes the form of 'agreement of usability' between the members of the community that uses the definition.

The lack of a generally accepted definition of competency or competence is clearly visible in the many definitions of competency/competence that can be found in the literature, almost as many as there are authors writing on competence-related matters. The occurrence of this multitude of definitions has, in turn, led to various classifications of definitions. Such classifications can help to clarify the concepts of competence, competency and related terms such as 'ability', 'aptitude', 'capability', 'effectiveness', 'qualification', 'proficiency', and 'skill', which form the 'small semantic core' (Weinert, 1999, p.3) of the competence concept (see Section 3.3.4).

3.3.3 The context in which the competence concept is used

A distinction can be made between definitions that originate from the context of business and industry (human resource management [HRM] and human resource development [HRD]), and the educational context (Bos, 1998; Onderwijsraad, 2002). In the business and industry context competence can be a trait of an individual, a group or an organisation (Bos, 1998; Rumsey, 1997; Weinert, 2001). Buskermolen and de la Parra (1999) distinguish between organisational and individual competencies and define organisational competencies as the whole of individual competencies of employees, technical infrastructure, procedures and culture. A related definition speaks of 'core competencies' (Prahalad & Hamel, 1990) and refers to a unique capability of a business organisation to deliver products and services, giving it its competitive edge on the market. Boon and van der Klink (2001) add to the organisational and individual competence concepts the use of competencies as a tool to structure and facilitate communication between education and the labour market (cf. Hövels, 1998; Mulder, 2001).

The observations above are exemplary for the fact that the developments in competence thinking in business organisations are well documented. This seems not to be the case for the education institutions (Stoof et al., 2002), which may be attributed to the fact that the developments in the educational field were following those in the business organisations and that professional organisations are often the customers of educational institutions (Everwijn, 1999 cited in Stoof et al., 2002),

who took over the trends of business and industry to keep the customers 'happy'. On the other hand, the discussion about the transition and connection between education and the labour market, that has been going on for at least 30 years, involved concepts such as 'qualifications' that are similar to competence (cf. Nijhof & Streumer, 1994; Stern & Wagner, 1999).

3.3.4 Aspects of the competence concept

The German psychologist Weinert has produced a comprehensive report on conceptions of competence (Weinert, 1999) as part of the of the DeSeCo project (cf. Weinert, 2001). DeSeCo (acronym for Definition and Selection of Competencies) is an OECD (Organisation for Economic Co-operation and Development) project aimed at: "...identifying a set of competencies that are needed by both children and adults to lead responsible and successful lives in a modern, democratic society and for society to face the challenges of the present and the future. The program also seeks to advance the development of a common, overarching theoretical framework for the identification of key competencies that can provide a basis for more accurate and appropriate measurement of competencies and interpretation of empirical results" (Salganik, Rychen, Moser & Konstant, 1999, p.5).

Weinert distinguishes seven ways in which the term competence is used (see Box 3.2).

Box 3.2. Seven meanings of competence, after Weinert (1999)

- *Competence as general intelligence.* Both general cognitive competencies (IQ) and domain-specific intellectual abilities (verbal, numerical, communicative, etc.) can be addressed. Competence is a general psychological, dispositional construct.
- *Competence as performance-oriented intelligence.* It is the set of cognitive abilities, skills, knowledge, strategies and routines, needed for a specific performance.
- *Competence as motivation.* The self-concept, achievement motive, and personal control beliefs, determine a competent performance, complemented by subjective experience and attitudes about learning and performance. The achievement motive signifies the need to experience competence through an excellent performance. Personal control beliefs include the personal explanations for success and failure.
- *Competence as a combination of cognitive abilities and motivation resulting into action.* The action leads to the fulfilment of the goals, demands and tasks of a particular context (e.g. a profession).
- *Competence as a set of key competencies or 'generic competencies'* (Everwijn, 1996) Key competencies are those competencies that can be used for attaining good performance across a wide variety of different situations.
- *Competence as a set of 'metacompetencies'.* Metacompetencies refer to knowledge, motivational attributions and volitional skills that allow cognitive resources to be used most efficiently across different tasks, in different content areas, and for different purposes.
- *Competence as part of the total human resources,* necessary for the development of a society, an economy or an institution.

Although it goes probably too far to label these seven meanings a 'taxonomy of competence' by Weinert, some hierarchy is noticed, where the latter meanings seem more 'holistic' than the first ones. A holistic concept of competence will, in fact, have to include the meanings that are mentioned in point 4, 5 and 6 in Box 3.2.

In a report of the Dutch Education Council (Onderwijsraad, 2002) three dimensions are proposed that are absolutely necessary for a conception of competence:

1. *Specificity*. Competence is related to capabilities in a certain context.
2. *Degree of integration*. Competencies are clusters of attributes (knowledge, skills, attitudes, personal characteristics), necessary for problem solving actions.
3. *Durability*. This does not imply that competence cannot change. For example competence can 'grow' from the level of novice to professional to expert.

Important but not necessary are the following three dimensions:

4. *Focus on action*. Competence is a construct that is inferred from behaviour. In other words competence is the capacity to act.
5. *Learnability*. Competence cannot be transmitted but should be acquired and further developed by the 'learner'.
6. *Interdependence*. Often other competencies (for example learning competencies) are needed for the development of a particular competency.

The six dimensions can have certain weights depending on the context in which the competence concept is used. This idea of a flexible definition of the competence concept is also used by Stoof et al. (2002) in their constructivist approach to the formulation of a competence definition. They present a flexible framework, for use in HRD situations, that has three determinants of the 'viability' of the definition, i.e. the adequacy for the situation in which it is used:

- *People*. Who is defining competence? From what point of view?
- *Goal*. What is the purpose of the definition?
- *Context*. In what type of organisation and in what type of processes is the definition going to be used?

Stoof et al. (2002) represent the construction of a definition of competence as the demarcation of a certain area. Thus, there are boundaries that determine what competence is and what not. The 'area' of the definition (what it covers) is, in the model of Stoof et al. (2002) determined by forces from within, called 'dimensions', and forces from the outside formed by 'terms related to the competence concept'. The conscious choice for, or emphasis on certain dimensions and terms expands or restricts the competence concept, and leads to the most viable definition.

The different 'dimensions' and 'terms' given by Stoof et al. (2002) provide a comprehensive list of various aspects of the competence concept. These aspects facilitate the description of the competence model that will be presented in section 3.5 and that is used in this study. Therefore, a summary and discussion of these dimensions and terms related to competence is presented below.

The following dimensions determine the scope of the competence definition:

▪ **Personal versus task characteristics**

This relates also to the US versus UK approach or "competency versus competence, competencies versus competences, input versus output, behavioural versus vocational competence" (Stoof et al., p. 354). A focus on personal characteristics emphasises the ability; competency is seen as a quality, characteristic or attribute of a person or as an 'input'. A task oriented approach focuses on the standard of performance required and is output-oriented (Holmes, 1994). Bos (1998) mentions the 'output' perspective of competence where often functional analysis describes the roles and tasks that are performed by practitioners in the workplace. Competence is seen as capacity to perform these roles and tasks to a defined standard (often at entry point of the profession) and emphasises the output of the education and training process (IFAC Education Committee, 2001). A functional approach is also chosen by the DeSeCo project (Rychen & Salganik, 2000), placing complex demands facing individuals at the forefront of the concept of competence. Rychen and Salganik (2000, p.8) state that "...this perspective contrasts with one that is focused on an internal mental structure for cognitive abilities and skills."

In the 'input' view the focus is on the capabilities necessary to achieve competent performance and the term 'competency' is used for these capabilities. In the US 'competency' is used mostly and the input approach favoured (Garavan & McGuire, 2001). The behaviour of excellent performers is considered the basis for the development of tests of relevant competencies. In the UK the term 'competence' is used for the capacity to perform up to standard, and the job and performance standards for job functions are point of departure (Bolton, Brown & McCartney, 1999; Fletcher, 1997; Garavan & McGuire, 2001; Mansfield, 1989; Melton, 1997). Garavan & McGuire (2001) remark that generally, both UK and US perspectives view competencies as being related to characteristics of individuals.

Finn (1993) makes a distinction between Input, Process and Output Competencies. Input competencies refer to the knowledge and understanding, skills and abilities that a person brings to a job; process competencies have to do with the unconscious, conscious and behavioural dimensions of a person's capability to do a job; output competencies are defined as the capacity to perform the activities within an occupational area to the levels of performance expected in employment. Finn labels input (knowledge and experience) and process (attitude and behaviour) competencies as aspects of attribute-based inference of competence (involving a series of personal attributes, e.g. a set of skills, knowledge and attitudes, that are believed to underlie competence [Heywood, Gonczi & Hager, 1992]). Output competencies could be described in performance-based competency standards.

The input - output terminology leads to confusion because, as the IFAC Education Committee (2001) rightfully remarks, inputs can also be expressed as learning outputs. Or, the output of one process can be the input of the following learning stage. In section 3.4.1 an integrated conceptualisation of competence will be presented (after Hager, 1994) that transcends the input - output distinction.

The European perspective on competencies is analogous to that adopted in the UK according to Garavan & McGuire (2001), although Atwel (cited in Streumer & Bjorkquist, 1998) states that in Germany competence is understood as an internal quality of the individual, involving knowledge and skills but also relating to 'occupational identity'. The IFAC Education Committee (2001) relates the UK view of competence to the views in Australia and New Zealand and summarises the difference between competence (output) and competency (input) as follows: "to be 'competent' or to demonstrate 'competency' is taken to mean that candidates are able to demonstrate a competence or a set of competences to the required standard and also have the capabilities (sometimes also referred to as competencies) required to do so" (p. 11).

Woodruffe (1993), cited in Bolton et al. (1999) states: "An essential distinction [*between competence and competency*] is between aspects of the job at which the person is competent, and aspects of the person which enable him or her to be competent. Competencies deal with the behaviours people need to display in order to do the job effectively (e.g. sensitivity) and not with the job itself (e.g. staff management)" (p.30). This view is linking the US-UK difference between competency and competence to the concepts used in this study where competence is seen as the 'state of being competent' and is the collection or set of competencies needed for a 'competent performance' (cf. American Academy of Physician Assistants [AAPA], 1996; Spencer & Spencer, 1993). Wolf (1989) talks about the component parts of which, it is hypothesised, competence consists and relates this to 'inputs', thus implicitly meaning 'competencies'. Field and Drysdale (1991) state that an area of competence can be conceived as a cluster of 'elements of competence', named 'competencies'. Nielsen (2001) sees an activity related competence as characterised by several specialised competencies.

▪ **Individual versus distributed competence**

This refers to the fact, as mentioned before, that competence can be attributed to individuals, groups or organisations. Related to the distributed approach is the theory of distributed cognition (Salomon, 1993) that states that cognition occurs not only in individual minds, but through the co-operation of many individuals. This implies systems thinking, approaching systems as a whole.

▪ **Specific versus general competence**

Related is the dimension of universal versus crucial competence. The scope of a competence definition can be quite narrow, only referring to a specific task as part of a job or work-role, or it can be broader, up to covering a whole profession (cf. Mulder, 2001). In this study the concept of 'key occupational task' is used to describe a profession in broader terms.

▪ **Levels of competence versus competence as a level**

A level of competence implies a certain gradation in being competent (cf. Parry, 1996; Ling, 1999; Thijssen, 1998; Rychen & Salganik, 2002). Proficiency is then the level of competence that is required for a successful performance of occupational tasks (Benner, 1984; Mirabile, 1997). Trivett (1975), cited in Beile (1997) writes: "[Competence is] the state or quality of being capable of adequate performance. Individuals are described as competent if they can meet or surpass the prevailing standard of adequacy for a particular activity. While competence does not equate with excellence, it does imply a level of proficiency that has been judged to be sufficient for the purpose of the activity in question."

Competence can also be regarded as a single stage of professional development where a professional develops from a novice to a competent practitioner and from there to an expert (Eraut, 1994).

▪ **Teachable versus non-teachable competence**

Well-known is the iceberg model from Spencer and Spencer (1993) in which skills and knowledge are visible, and thus teachable, whereas self-concept, traits and motives are hidden under the surface. Self-concept could be changed (with effort) in educational interventions, while traits and motives are thought 'non-teachable' and only serve as selection criteria in, for example, recruitment for jobs. Parry (1996) distinguishes hard competence (related to job-specific abilities) and soft competence, related to personality traits, values and styles. Stoof et al. (2002) state: "When competence is not divided in elements but is approached as a whole, the teaching question remains: Can competence be taught?" (p.356). Rychen and Salganik (2000) report that the DeSeCo project emphasises the concept that competencies are learned. The conception of competencies as learned contrasts with one in which competencies are considered innate, inborn characteristics. This does, however, not imply that competencies are also teachable.

There are various terms that relate to the competence concept and a discussion of the differences between those terms and 'competence' assists in restricting a competence definition.

▪ **Competence versus performance**

In Stoof's view (Stoof et al., 2002) competence is performance that is at least effective, but a better statement would be that competence is *related* to effective performance. The authors themselves clarify the difference between competence and performance when they mention Chomsky (1957, 1965). He makes a distinction between (linguistic) competence as an innate ability to acquire and creatively use the mother tongue, and linguistic performance, on the other hand, that 'communicates the competence'. Mulder (2001) remarks the same when he talks about the relation between competence and behaviour. In other words performance is closely related to an observable, objective result, whereas competence seem to refer more to personal abilities that underlie this result and is a construct that cannot be observed directly (Ashworth & Saxton, 1990; Wolf, 1989). In the words of Gonczi, Hager and Athanasou (1993): "Performance is what is directly observable, whereas competence is not directly observable, rather it is inferred from performance" (p. 6).

▪ **Competence versus qualification**

Competent persons are not necessarily qualified. In Germany and the Netherlands the term 'qualification' has been used as being synonymous with 'competence' (cf. Brown, 1998b; Klarus, 1998; Streumer & Bjorkquist, 1998; Van Zolingen, 1995) or 'competency' (cf. Bunk, 1994). On the other hand, qualification can be related to certification, representing an official proof of the competence of a person as in the British National Vocational Qualifications, or the German 'Doppelqualifikation' (Hövels & Römkes, 1993). Or: competencies are developed, qualifications are awarded (Onstenk, 1997). Some authors view qualification as the standards of competence and the related performance criteria (Ellström, 1998; Short, 1984).

▪ **Competence versus capability and ability**

Ability is a term that is used in many definitions of competence or competency to indicate that competence is not the same as performance, but is a construct used to describe what causes performance (see also section 3.2.4). Using the phrase: "being able to perform task X (at a desired level)" as a way of stating a competency does not lead to more conceptual understanding of the construct, as De Bie and Mostert (2000) remark in a sceptical article on what they see as a 'competence hype'. The question is what underlies competent performance, what attributes are needed and how they are used. It is in this context that the term 'capability' is used sometimes. In the view of Stoof et al. (2002) "...capability could refer to personal features that are not necessarily used or that the owner is not even aware of. Competence, on the other hand, seems to be related to personal features that are required to perform a

particular activity" (p. 359). Cairns (1996) advocates the use of 'capability' in stead of 'competence' to indicate a move away from a narrow, behaviourist approach to competence and competence development: "Where research benefited by taking things beyond empiricism, so too can education and training benefit from taking on capability, and thus moving beyond competence" (cf. Bolton et al., 1999; Bryce & McCurry, 1999).

On the other hand competence and capability also appear in one and the same definition where capability refers to concepts as knowledge, skills and attitudes that are often associated with competence (Eraut, 1994, Mulder, 2001). As mentioned before, in the semantic core of the competence concept many related terms are found (Weinert, 1999).

▪ **Competence versus knowledge, skills and attitudes**

Knowledge, skills and attitudes are often used in competence definitions to describe what makes a person capable to perform. Skills seem to have the strongest relation to competence, because both skill and competence are directly related to action and performance. However, knowledge is also involved in an integrated way (cf. Dison & Rule, 1996; Mitchell, 1989), whereby the emphasis has shifted from being knowledgeable to being able to apply knowledge (AAPA, 1996). The role of knowledge in competence-based education is further discussed in section 3.7.1.

In some definitions competence is equated with a set of knowledge, skills and attitudes. Some examples are given in Box 3.4 in section 3.3.5. Mulder (2001), and Kupper and Van Wulfften Palthe (2001) use capability as an overarching concept for knowledge, skills and attitudes. Some authors (Hager & Gonczi, 1996; Bontius, Den Boogert & Huisman, 2001) stress the integrated application of knowledge and skills and the role of attitudes in task performance, stating that the sum is greater than the parts. An essential aspect of competence is also the capability to choose the right 'attributes' at the right time. This ability to monitor, reflect and direct the application of knowledge and skills is a cognitive activity and could, therefore, be named 'meta-cognition' (Adkins, 1997; Ashcraft, 1994; Marzano et al., 1988).

The question what underlies a competent performance involves more than knowledge, skills and attitudes. Two important aspects are the personality of the performer and the context in which the task is performed. Related to the aspect of personality Neufeld and Norman (1985), cited in AAPA (1996), introduce 'native abilities', next to knowledge and skills, giving three dimensions that could differentiate between the job performances of individuals. Stasz, McArthur, Lewis, and Ramsey (1990) emphasise the motivational style or disposition of the worker (e.g., their motivations for choosing or doing a task, and confidence in one's ability to do a task) that can either strengthen or weaken the workers ability to effectively

utilise their skills. Huitt (1997) when commenting on the [Labour] Secretary's Commission on Achieving Necessary Skills (SCANS) report (1991) suggests that several competencies, mainly in the affective and conative/volitional domains, have been overlooked. Many descriptions of competency do not include personality. Garavan & McGuire (2001) state: "In particular, they give little consideration to when competencies are used, how they are used and the moderating influence of personal characteristics on their usage" (p. 146). The question remains, however, if personality should be included in a *definition* of competence (e.g. Willis & Dubin, 1990) or not (e.g. Cheetham & Chivers, 1998). In the latter case personality could still be mentioned as an essential factor determining the level of a performance.

The role of context in the competence concept is an important point of discussion in the literature. This is especially the case when talking about 'generic competencies', that are supposed to be context-independent or, at least, transferable/applicable from one context to another (see section 3.6). Knowledge, skills, cognitive and meta-cognitive abilities, and disposition all play a role in competent performance, but the effect of the social and physical environments in which individuals operate, should also be taken into account (Cheetham & Chivers, 1998; Rumsey, 1997). The importance of the social environment in learning has already been emphasised in social constructivism (Kukla, 2000; Searle, 1995; Vygotsky, 1978) and situated learning (Lave & Wenger, 1990). Likewise, authors have emphasised that the development of competence can only take place in a social context (Nowlen, 1990; Holmes, 2001), through the interaction with others. Featherman and Carson (1999) talk about 'social fitness', when they comment on Weinert's (1999) description of competence as 'cognitive fitness for a particular class of tasks'.

The concept of situated learning, stating that "...knowledge is created and made meaningful by the context in which it is acquired" (Farmer, Buckmaster & LeGrand, 1992, p. 46) is the basis for an 'interpretative' view of competence (Garavan & McGuire, 2001; Milton, 1999). The interpretative approach argues for an 'intentional' dimension of competence, stating that what makes someone a competent performer depends on his/her conception of work and his/her relation to it (Velde, 1999). Thus competence is constituted through workers' conception of the work, and the attributes are an internal part of workers' conception of the work (Sandberg, 1994). The world of work is a complex system of social relations (Jones & Moore, 1995) and competence can only be developed in a 'community of practice'. The interpretative view of competence and emphasis on situated learning are also a reaction on the strong behaviourist approach to competence. Especially in the UK the National Council for Vocational Qualifications (NCVQ) has promoted an approach where competencies are expressed in 'Standards', leading to lists of verbal descriptions of behaviour, broken down into 'key roles', 'units', 'elements', 'performance criteria',

'range indicators' and 'assessment criteria'. Learners, called 'participants' had the task to produce evidence to prove that they had replicated the behaviour described in the Standards. Thus the competence-based approach of the NCVQ was seen as reflecting behaviourist ideas in which behavioural objectives were renamed competencies (Hyland, 1994; Ramsay, 1993). Mace (1992, p. 5), cited in Franklin (1997), stated: "It is still the minority who get the kind of training at work which offers a genuine opportunity for workers to reflect, to express ideas, and to share experience." Contrary to the behaviourist approach, a constructivist approach to learning supports the reflection, expression of ideas and sharing of experiences. Kerka (1997) argues that constructivism can be found in situated learning and in cognitive apprenticeship (Brown, Collins & Duguid, 1989) where an expert makes his tacit knowledge explicit and guides the novice to expertise.

▪ **Competence versus expertise**

Herling (2000) states that competence refers to minimal efficiency, while expertise refers to optimal efficiency. Referring to the previous discussion of levels of competence, expertise could be seen as the highest level of competence (Parry, 1996; Thijssen, 1998) or as the state of being an expert, the final stage of the triad novice-competent performer-expert (Dreyfus & Dreyfus, 1986; Eraut, 1994). It is clear, however that competence and expertise are closely related (Stoof et al., 2002).

3.3.5 Examples of competence definitions

Using some of the characteristics mentioned above and comparing a selection of competence definitions by various authors, five groups can be distinguished:

1. Competence as the *ability to perform at a desired level* or according to a certain standard. This refers to competence as output.
2. Competence as the *ability to choose and use the attributes* (knowledge, skills and attitudes) that are needed for a performance at a desired level. This involves meta-cognitive attributes.
3. Competence as the *possession of certain attributes (knowledge, skills and attitudes)*, or competence as input.
4. Competence as a mere *description of what someone can do*. This refers also to competence as output.
5. More *complete definitions of competence*, containing elements of the four groups above.

Box 3.3 gives some examples of the first group of competence definitions using 'the ability to perform well' as a description of the competence concept. These definitions answer the question "What makes somebody a good performer?" by:

"The competence to perform well" which De Bie and Mostert (2000) label as 'begging the question'. In fact, many competence statements have the form of 'the ability/capability to realise (occupational) task X', but this does not necessarily imply a rejection of the competence concept, as De Bie and Mostert (2000) suggest. Competence statements can be seen as just an intermediary step, linking the professional practice, expressed in key occupational tasks, to competencies as personal attributes. These competencies can be taken as the attainment targets in education and can be defined in a more holistic way, as will be outlined below.

Box 3.3. Some examples of definitions of competence as 'ability to perform'

- Competence is the state or quality of being capable of adequate performance (Trivett, 1975).
- Competence is the ability to perform in work roles or jobs to the standard required in employment (Field & Drysdale, 1991).
- Competency (sic) is the ability of a student/worker enabling him to accomplish tasks adequately, to find solutions and to realise them in work situations (Kirschner, Van Vilsteren, Hummel & Wigman, 2001).
- Competence is being able to perform a work role to a defined standard with reference to real working environments" (Mansfield, 1989).
- A competence is the ability to meet a complex demand successfully or carry out a complex activity or task (Rychen & Salganik, 2002).

See also: Boyatzis, 1982; Nordhaug & Gronhaug, 1984; Onstenk, 1997; Public Accountants' and Auditors' Board, 2001; Spencer & Spencer, 1993.

Another group of definitions involves competence at a meta-cognitive level as 'the ability to choose and use the attributes that are needed for a performance at a desired level' (see for some examples Box 3.4).

Box 3.4. Some examples of definitions of competence as 'ability to choose and use attributes that are needed for a performance at a desired level'

- Competence is the ability to apply knowledge, understanding and skills in performing to the standards required in employment ... [including] solving problems and meeting changing demands (Beaumont, 1995, p. 12, cited in Franklin, 1997).
- Competence should be considered as a learned, cognitive demand-specific performance disposition, and that corresponding metacompetencies and motivational attributions be included in analyses of this construct (Weinert, 1999).
- Competence is the capacity of an individual to use a set of knowledge, skills and attitude attributes to perform concrete activities in an adequate way (Bontius et al., 2001).
- A competent person is, within a certain context (situation) able/capable to choose from a set of available behaviours and to execute suitable behaviours in order to reach a certain goal (Kirschner, Van Vilsteren, Hummel, & Wigman, 1997).

See also: Down, Martin, Hager, & Bricknell (1999).

In a third category of definitions competence is defined as 'the possession of certain attributes -knowledge, skills and attitudes-' (see Box 3.5 for some examples), while a fourth category uses competence as an outcome, giving a description of what someone can do (see Box 3.6).

Box 3.5. *Some examples of definitions of competence as 'the possession of certain attributes (knowledge, skills and attitudes)'*

- Competence represents the totality of knowledge, skills and abilities required for professional practice (AAPA, 1996).
- Competency: knowledge, skill, or attitude that enables one to effectively perform the activities of a given occupation or function to the standards expected in employment (Richey et al., 1999).
- Competence is the quality or state of having sufficient knowledge, judgement, and skill to carry responsibility and provide services (Nasseh, 1996).
- The skills, knowledge and understanding, qualities and attributes, sets of values, beliefs and attitudes which lead to effective managerial performance in a given context, situation or role (Woodall and Winstanley, 1998).

See also: Gonczi, Hager & Oliver, 1990; Klarus, 1998; South African Qualifications Authority, 2000; Thijssen, 1998; World Health Organisation, 1988).

Schlusmans et al. (2000) observe that many authors writing on 'competence-based learning environments' use the definition of Parry (1996): Competence is a cluster of skills, attitudes and underlying knowledge elements allowing an individual to perform tasks that are part of a function or role. They add that this view emphasises the capacity to perform tasks (see Box 3.3) and not the performance itself.

Box 3.6. *Some examples of definitions of competence as an 'outcome'*

- "Competence is an outcome: it describes what someone can do. It does not describe the learning process which the individual has undergone. Competence is not the only outcome of learning, nor is it an invariable outcome of education and training" (Unit for Adult Continuing Education, 1989, p. 6, cited in Franklin, 1997).
- A competency is defined as "a statement that describes the observable demonstration of a composite of the specific skills" (Hall & Jones, 1976, p. 29).
- Competence is an action, behaviour or outcome which the person should be able to demonstrate (Training Standards Agency, 2000, cited in Garavan & McGuire, 2001).

Gonczi (1999) describes the difference between definitions from Box 3.3 and Box 3.6 as the potential richness of a notion of competent performance as an ever-evolving reality which allows for critique and improvement of currently accepted ways of acting and, on the other hand competence *as* performance - competency as a prescribed and predetermined set of behaviours.

Finally there are definitions that combine elements of the four groups described above. Box 3.7 gives some examples of more elaborate competence descriptions.

Box 3.7. Some examples of more elaborate competence descriptions

- Competence is the capability of a person or an organisation to reach specific achievements. Personal competencies comprise: integrated performance oriented capabilities, which consist of clusters of knowledge structures and also cognitive, interactive, affective and where necessary psychomotor capabilities, and attitudes and values, which are conditional for carrying out tasks, solving problems and more generally, effectively functioning in a certain profession, organisation, position or role (Mulder, 2001).
- Professional competence is the ability to function in the tasks considered essential within a given profession. A distinction is made between proficiencies and general characteristics. Proficiencies include domain-specific knowledge, technical skills and problem-solving ability. General characteristics include intellectual ability, personality, traits, motivation, attitudes and values (Willis & Dubin, 1990).
- Competence pertains to the ability to perform the activities within a function or an occupational area to the levels of performance expected in employment.
- It is a broad concept which embodies the ability to transfer skills and knowledge to new situations within the occupational area.
It encompasses organisation and planning of work, innovation and coping with non-routine activities.
It includes those qualities of personal effectiveness that are required in the workplace to deal with co-workers, managers and customers (Training Agency, 1988, cited in Debling, 1989).

See also: Ellström (1998).

3.4 CRITICISM ON THE COMPETENCE CONCEPT

The strongest criticism on the competence concept and its application in competence-based education and training (CBET) can be found in the UK in the first half of the 1990s (Ashworth & Saxton, 1990; Bates, 1995; Hyland, 1994), not surprising because of the forceful introduction of a 'Qualifications Framework' and the many reports, rules and decrees that accompanied the introduction of 'National Vocational Qualifications' [NVQs] and 'General National Vocational Qualifications' [GNVQs] (cf. Oates, 1998), labelled the 'Trojan Horse for the competence movement' by Bates (1995, p.39). The criticism concerns mainly the traditional, behaviourist approach to competence and competence-based education and training.

Often the fear is expressed that a competence-based approach will lead to the 'vocationalisation' of general education (Bates, 1995) and will lead, in the opinion of the authors, to an impoverishment of learning. In this respect Smithers (1993), cited

in Bates (1995), speaks of a 'disaster of epic proportion'. Some authors conclude that competency-based education is likely more suitable for vocational education than for other forms of education such as teacher training (Dhillon & Moreland, 1996; Pennington, 1994, cited in Bell & Mitchell, 2001). The criticisms by various authors (for example, the often cited Ashworth & Saxton, 1990, give a list of 13 points) can be categorised into seven groups and will be discussed below, including some conclusions for the definition/description of competence that has been used in this study.

▪ **Conceptual confusion**

Ashworth and Saxton (1990) use a definition of the British Training Agency (TA, 1988) to show the unclear logical status of the competence concept. In this definition an 'element of competence' is defined as: an action, behaviour, outcome, piece of knowledge or an understanding. Such a multitude of meanings does not contribute to conceptual clarity (Velde, 1999). If competence is taken as an outcome than it is not clear whether the way this outcome has been produced is important. Outcomes, according to Ashworth and Saxton (1990) can be the result of diverse individual processes. They continue to assert that the mental processes involved in a competence are unclear which makes the choice of a teaching strategy very difficult. "We have to conclude that a careful educator would be well advised not to attempt to teach according to the competence approach" (p.18).

Another observation of Ashworth and Saxton (1990) concerns the emptiness of competence statements such as "The candidate is able to ...", resembling the behaviourist tradition of formulating educational objectives (cf. Mager, 1962). Ramsay (1993) sees this merely listing of what students should be able to do as a lack of epistemological foundation. He also mentions the lack of specification of 'underpinning knowledge' and the lack of clarity about assessment. However, in traditional academic education there is also a lack of reflection and epistemological foundation. "It is simply assumed, in practice, that students will learn if they take part" (Ramsy, 1993, p. 71).

As shown in section 3.2 much of the conceptual confusion can be clarified by making certain choices in the 'dimensions' of the competence concept and 'related terms'.

▪ **A behaviourist approach in the competence movement**

In section 3.1 the origins of competence-based education have been outlined already and the outcomes/performance-based teacher education programmes in the late 1960s were mentioned (Hall & Jones, 1976, Hyland, 1995). A little later competence-based training and education appeared prominently in the UK,

Australia and New Zealand. Initially strictly behaviouristic approaches were used, mainly because of policy reasons, satisfying the need for a clear, accountable and simple operationalisation of separate 'skills' and measurable standards of performance (Velde, 1999). Many authors criticise the resulting narrow and simplistic approach to education and training (Bates, 1995; Marshall, 1991; McLeish, 1990; Nijhof & Streumer, 1994; Thomson, 1990; Winning, 1993). Collins (1991) talks about the "narrow technicist approach to education which defines knowledge in the light of bureaucratic and corporate needs; such strategies, resulting in 'technocratic formulations and reductionistic competence-statements', have served to de-skill the educator's role and marginalise the vocational commitment of professionals" (p.6).

Competence involves more than the narrow description of countless tasks that are just to be 'ticked off' and should involve broader (generic) skills (Bell & Mitchell, 2001; Evans, 1995; Gonczi, 1997; Hyland, 1995; Jones & Moore, 1995; Stewart & Hamlyn, 1995). Hyland (1994) criticises the atomisation and fragmentation of learning into measurable chunks in competence-based education. Thomson (1990) writes on competence-based teacher training: "There may be a danger in narrowing the training to teaching/assessing technical competencies only. Other skills such as communication, group techniques, and problem-solving are important workplace skills" (p. 179). The danger of producing ever longer lists of tasks and related skills is attributed by most authors to a behaviourist approach. In the context of the USA, Baily & Meritt (1995) point to the narrow conceptualisation of skills and the proliferation of job titles and categories. Callender (1992) warns: "We will have people with competences rather than competent people" (p.21). The tendency to continue specifying tasks and skills in order to create more clarity for learner and instructor is refuted by the 'Level of Specificity Problem' that deals with the problem of formulating learning objectives: "If you have only a few general objectives they are easy to remember and handle, but too vague and ambiguous. But if you try to eliminate ambiguity by splitting down the objectives and qualifying the conditions of performance, the list becomes impossibly long" (MacDonald-Ross, 1973, p. 34). The competence approach tends to underestimate the complexities in comprehensively describing competence, and tends to 'atomise' the concept - the competence approach "...is like using a quantity surveyor rather than an artist to capture the grandeur of St Paul's" (Brundrett, 2000). Ashworth and Saxton (1990) state: "Any behaviour is a 'meaningful gestalt'; a whole in which the individual elements affect each other in a manner that changes their nature. The elements of skill are not recognisable or separable from the complex whole" (p.12). The ability to act competently in new, unexpected situations is not a characteristic of behaviourist training (Ramsay, 1993). Ramsay (1993) refers to Moss (1981), who

in a cognitivist way hypothesises an act of mediation between stimulus and response. Thus, cognitive capacities determine the way a response is given to a stimulus (Wittrock, 1979).

In section 3.5.1 the integrated approach to competence of Hager and Gonczi will be presented as an answer to the criticism of behaviourism in competence-based education. Some remarks, however, should be made at this place already. The measurement of performance or behaviour has always been very important in education and there is probably no teacher who has not learned about behavioural objectives and, for example, Bloom's taxonomy of behavioural objectives in the cognitive domain. So, behaviourism has always been a very strong movement in general and vocational education. In case of CBE and the concept of competence, one has to realise that competence is a construct that can only be inferred from performance. It has to be situated in the space of mediation between stimulus and response, as mentioned above. Nevertheless there is a clear danger in CBE that education is trivialised to training of small chunks, units of competence and assuming that the sum of the parts represents the totality of good practice (Norris, 1991).

▪ **The absence of an interactionist, interpretative view**

The view that the workplace is a place for learning and that competence development should involve the worker's meaningful experience of practice has been discussed in section 3.2 as the 'interpretative view' of competence (cf. Dall'Alba & Sandberg, 1996; Hyland, 1994).

Asworth and Saxton (1990) state that any skill or knowledge is part of a person's 'lived world', it gains its meaning partly from the context in which it is learned and that context is neglected in competence (cf. Garavan & McGuire, 2001; Sandberg, 2000).

This view of competence development in the work place suits the practice of vocational education (Velde, 1999) but relates also to ideas about dual learning that have since long existed in the German tradition of vocational education (cf. Nijhof & Streumer, 1994) and are also emerging in higher education (Kessels, 2000a). The ideas of learning in a community of practice led to a criticism of the competence approach because in this approach performance is seen as a highly individual affair (Nowlen, 1990 in Baily & Merritt, 1995). A more phenomenological and interactionist perspective is also a sign of the move away from behaviourism towards more cognitivist and constructivist views (Bates, 1995). The 'human agent' with her personal characteristics is missing in most competence descriptions (Garavan & McGuire, 2001; University of Melbourne, 2002).

The importance of the social and physical context and personality for the clarification of the competence concept have been discussed in section 3.3. It was there concluded that any description of competence should take account of context and personal characteristics when outlining how competence and performance are related.

▪ **No attention for fundamental and specialist knowledge; the competence approach leads to generalists**

Bates (1995) speaks about 'numerous references' to concerns of teaching staff that in CBET theoretical knowledge would be marginalised. Knowledge is thought to be downgraded in favour of action, knowledge and understanding appear only to be recognised to the extent that they are visible in the performance of an occupation (Hyland, 1993; Moodly, 2000). A curious criticism can be found with Candy and Harris (1990), cited in John (1995), who state that a disadvantage of the competence-based approach is that students would forget material once they would have 'finished a particular competency'. Apart from their rather behaviourist view in which competencies are seen as discrete tasks that can be ticked off, the forgetting of material after finishing a task is exactly what happens in traditional education, especially in those disciplines that are 'content-heavy', such as medicine.

The use of competencies as pre-determined goals can form a barrier to creative and high-level educational activities or, 'deep learning' (Ashworth & Saxton, 1990; University of Melbourne, 2002). Also, there is a general trend to move to more general occupational skills and professional profiles. This implies the education and production of generalists (De Bie & Mostert, 2000).

Because many authors see the competence movement as leading to behaviourist training, they criticise the absence of a firm relation between theory and practice in competence-based education and training (Ashworth & Saxton, 1990; Ramsay, 1993). Lankard (1996) cites Parnell (1996), who proposes "...combining an information-rich subject-matter content with an experience-rich context of application" (p19). Thus, there is a need to connect the content of knowledge with the context of the application. As will be discussed more in detail in section 3.7 the behaviourist approach can be recognised in the period 1960 – 1980. After that, under the influence of cognitivism and constructivism a more holistic approach to CBE was advocated.

In section 3.1 the changing role of knowledge in industrialised societies has been mentioned in relation to the justification of CBE. The ability to apply knowledge has become more important than just the possession of knowledge. This, again, necessitates the learning of meta-cognitive skills and developing skills of self-evaluation (Lankard, 1996).

▪ **Assessment in CBE is flawed or impossible**

The criticism on assessment in CBE is based on the assumption that CBE is behaviourist, leading to long lists of narrowly defined skills, that can easily be 'ticked off'. The criticism that the setting of competence standards leads to a minimum performance (it is enough to pass the minimum performance level required for demonstrating competence) and to 'de-skilling' (Ramsay, 1993) is convincingly rejected by Hager (1993). He points to the 'conventional' education system where students also may go for the minimum effort to pass and emphasises that competence does not have to be assessed on a one level basis (either you have it or not), but can be inferred from a full range of performances from 'excellent' to 'failed' (Gonczi, Hager & Oliver, 1990), implying a continuum of levels of competence.

A related criticism, based as well on anti-behaviourism, states that performance in a profession should not be pinned down in a fixed description, but that there should be room for the unexpected. In fact competence has a lot to do with dealing with change, being flexible, knowing how to act in a context of innovation. Moody (2000) states that the functionalist (behaviourist) tradition of assessment (that is, breaking down competency into various functions) does not allow people to respond in an unexpected way and thus there is no place for alternative indicators of performance. Ashworth and Saxton (1990) write: "The more human the action, in the sense of being non-mechanical, creative, or sensitive to the social setting, the more inappropriate the competency model of human action is" (p.24). They end their much cited article with the rather cryptic conclusion: "If summative assessment is possible using the competence model, formative or diagnostic assessment certainly is not" (p.24), which may be true in a behaviourist approach to competence. In the section on competence-based education (section 3.7.3) will be explained how formative assessment is an important characteristic of CBE.

▪ **Competence and politics**

If competence-based education is based on behaviourist principles, then the criticism is understandable that the rise of the competence movement has socio-economic and thus political origins (cf. Velde, 1999). Bates (1995) states: "...we need to view the arrival of competence-based pedagogy as epiphenomenal, as a surfacing in education of deeper changes in structures and processes of social control over work, education and training and as a means of synchronising these historically separate spheres" (p.46). Jackson and Jordan (2000) state that "...neo-liberal skills training policies move control over skills training, away from individuals and unions and into the hands of private capital..." (cf. Barnett, 1997a, cited in Bennett et al., 1999; Brundrett, 2000; Crittenden, 1995; Von Kotze & Cooper, 2000).

A broader, integrated concept of competence avoids behaviourism and is, as will be outlined in section 3.5.1 a democratic and emancipating way of looking at work, at what makes good work and how to learn to do a good job. Ellström (1998) talks about creative learning when he indicates that in changing work environments workers need to redefine constantly their tasks and roles and that competence has to do with the capability to do this.

▪ **The concept of generic competencies**

In the literature criticism on the competence movement is also directed against the concept of generic competencies. Because a separate section (3.6) is devoted to generic competencies, this criticism will be discussed under that section.

3.5 TOWARDS A COMPETENCE MODEL

3.5.1 The integrated approach of Hager

The five groups of competence definitions given in section 3.3.5 can be 'merged' into two perspectives from which competence can be conceptualised: a) competence as a set of tasks or behaviours, and b) competence as a set of attributes (cf. Velde, 1999). A third group, with elements from both perspectives, contains definitions that show a more 'holistic' perspective. Table 3.2 shows the relation between the categories from section 3.3.5 and the two collapsed groups.

Table 3.2. *Categorisation of competence definitions*

| Group of competence definitions (see section 3.3.5) | Perspective from which competence can be conceptualised |
|--|--|
| Competence as the ability to perform at a desired level or according to a certain standard. | Competence as a set of behaviours |
| Competence as an outcome, giving a description of what someone can do. | |
| Competence as the ability to choose and use the attributes (knowledge, skills and attitudes) that are needed for a performance at a desired level. This implies meta-cognitive attributes. | Competence as a set of attributes |
| Competence as the possession of certain attributes (knowledge, skills and attitudes). | |
| More holistic definitions of competence, containing elements of the four groups above. | |

Hager (1993) and Gonczi (1994) further illustrate this categorisation of competence conceptions by distinguishing three basic conceptions of competence: behaviourist, generic and integrated/holistic.

In the behaviourist or specific tasks approach (Hager, 1993) competence is thought of as (the completion of) a simple series of discrete tasks. The approach implies a large number of specific competencies and a list that grows longer as the complexity of work increases. As outlined above in section 3.3 this leads to atomised tasks without any synergy, the whole is here not greater than the parts (Gonczi, 1994). Also, the broader aspects of competent performance, such as planning or reacting to contingencies, are left out of the picture (Hager & Gonczi, 1996).

In the attribute or generic skills approach general attributes are taken as predictor of future performance (Hager, 1993). Gonczi (1994) describes this approach as follows: "... Such an approach concentrates on the underlying attributes, e.g. knowledge or critical thinking capacity, which provide the basis for transferable or more specific attributes. ... In this model, competencies are thought of as general attributes, ignoring the context in which they might be applied" [p.29] (cf. Onderwijsraad, 2003). Criticisms of the 'generic' approach include: lack of evidence that such 'generic' competencies exist; doubts about the viability of 'transferability'; the decontextualising of competence; and its abstraction from concrete situations in which skills are actually performed (Gonczi, 1994; Hager & Gonczi, 1996; Nijhof & Streumer, 1998a; Stasz, Ramsey, Eden, Melamid & Kaganoff, 1996; Velde, 1999). Hager (1993) indicates that here the link between a "...generic attribute (such as analysis) and actual professional performance is doubly vague -- firstly, because the claim that graduates develop a capacity for analysis typically is not subjected to detailed scrutiny, and secondly, because what analysis typically means in the day-to-day practice of the profession is not considered." Thus, as Hager (1993) summarises, the generic skills approach encourages excellence that is remote from professional practice.

The two conceptions that are described by Hager as 'specific tasks approach' and 'generic skills approach' have connotations to the personal vs. task dimension of the competence concept, as discussed in section 3.2.2.1. Eraut (1994) distinguishes two types of competence in a similar way when he talks about 'socially defined competence' and 'individually situated competence'. Socially defined competence is the ability to perform the tasks required to the expected standard while individually situated competence is an underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation.

In a paper by Hager, Gonczi and Oliver (1990) a third approach to competence is described in which those areas of professional practice are identified in which it is

essential to demonstrate minimum competence. These are then analysed in terms of knowledge, abilities, skills and attitudes displayed in the context of realistic professional tasks. This approach integrates both attributes and performance into a single framework. In the integrated approach competence is inferred from performance, and the complex interplay of knowledge, skills and attitudes has a synergetic effect in which the whole is greater than the parts (Tovey, 1993). A matrix can be designed with task and attributes and, as a third dimension the context. An example of such a three dimensional matrix is the model for family medicine that was adopted in 1984 by the Australian Family Medical program. (Fabb and Marshall, 1984, cited in Hager, Gonczi & Oliver, 1990). There are five basic attributes (knowledge, interpretative skills, problem solving skills, etc); five basic functions or roles in which the abilities are applied (understanding the individual, the family and the community; analysing and defining health problems, etc) and nine areas of medical practice (pregnant woman, neonate, infant, etc).

Thus, in the Hager model key occupational tasks are selected that are central to the practice of the profession. The realisation of key occupational tasks is always an 'intentional action' and can be distinguished from 'behaviour'. Once the key occupational tasks have been identified, the main attributes that are required for a competent performance are described. A competence standard should then integrate both task and attributes to 'capture the holistic richness of professional practice' (Hager, 1993). Hager (1994) describes the conceptualisation of competence as:

"Competence is conceptualised in terms of knowledge, abilities, skills and attitudes displayed in the context of a carefully chosen set of realistic professional tasks (intentional actions) which are at an appropriate level of generality" (p. 10).

In his definition of competence Hager (1996) uses the term 'competency' without much explanation of a difference between competence and competency:

"...competency is defined as a complex combination of attributes (knowledge, attitudes and skills) that underpins some aspect of occupational performance" (p.1).

The aspect of synergy, expressed in the words 'complex combination' in the above definition (cf. Bowden & Masters, 1993), Hager, Athanasou & Gonczi, 1994; Griffin & Gillis, 1997) refines this definition compared to an earlier one: "A competent professional has the attributes (knowledge, abilities, skills and attitudes) necessary for job performance to the appropriate standards" (Hager, Gonczi & Oliver, 1990).

In another article on 'what is competence', Hager and Gonczi (1996) quote two dictionaries, that describe competence as the "ability to do something' or the "ability for a task" (Concise Oxford Dictionary) or "the quality of being competent", where competent means 'properly qualified' or 'capable'" (Macquarie Concise Dictionary). This, they state, supports their view that competence is related to

abilities or capabilities and thus with certain "...personal characteristics that underlie competent performance" (Hager & Gonczi, 1996, p.15). They call these personal characteristics 'attributes' (knowledge, abilities, skills and attitudes) and state that "...occupational competency standards that omit attributes are akin to a zoo without animals" (p.16). On the other hand, competence and hence ability or capability is not totally general, but is directed at a particular task, has an appropriate object (Hager, 1995; Hager & Gonczi, 1996). Or: "Attributes of individuals do not in themselves constitute competence. Nor is competence the mere performance of a series of tasks" (Hager, 1996, p.1).

Some implications of the integrated approach to competence are given in Box 3.8.

Box 3.8. *Elements of the integrated or task-attribute approach*

▪ **Competence is inferred from performance**

Hager states that competence is a construct that is inferred from the performance of relatively complex and demanding intentional actions (cf. Rychen & Salganik, 2002). A profession could be characterised by a limited number of such actions or key occupational tasks (Hager, 1993 mentions 30 - 40, Hager & Gonczi, 1996 mention 20 - 30). The tasks also interact and often several tasks are realised at the same moment.

▪ **Competence should be holistic, the richness of the professional practice should be captured**

Essential is also the idea of 'situational understanding'. A cognitive perspective is called on to 'frame' a skilled intentional action appropriate to the context (cf. Hager, Gonczi & Athanasou, 1994). Competencies signify the relation between the professional and their work (Hager & Gonczi, 1996; Velde, 1999)

In this way a balance is struck between too much fragmentation by a narrow description of a multitude of tasks and a rigid, monistic holism that excludes all analysis of the parts. Assessment of performance is important because competence is inferred from performance. But, because attributes may also figure in performance criteria, assessment of the possession of certain attributes, such as knowledge may be used as supplementary evidence (Gonczi, Hager, Athanasou, 1993).

▪ **There is a manageable number of core competencies that characterise a profession**

Twenty to thirty core competencies form a clear statement of what is important in a profession, and what makes somebody a competent professional (Hager, 1993, Hager & Gonczi, 1996).

▪ **There is more than one way to realise a complex occupational task**

Standards do not imply *standardisation* and the formulation of competence standards in the integrated model allow for diversity that is characteristic of dynamic professionals (Hager, 1993). Competence standards are typically about outcomes leaving it open how the outcomes are achieved. A narrow task description leads to the implication that all competent performance is the same (Hager & Gonczi, 1996).

Box 3.8. *Elements of the integrated or task-attribute approach (continued)*

- **The integrated approach offers a powerful device for improving the content and learning environment, including assessment of the curriculum**

Hager is against an approach in (higher) education where role and task analysis leads to the formulation of a series of practical modules. Competency standards are the guiding principle and point of departure for designing and development of a curriculum, and not the curriculum document itself. (Hager, 1993; Hager, 1995; Hager & Gonczi, 1996). Hager (1993) states also that the formulation of competency standards with attention for the underpinning attributes gives academics the freedom to choose the appropriate learning environment. In fact, in competence-based education learners/trainees have an important role in constructing their own learning environment. See also section 3.6.3 about the characteristics of competence-based education.

- **There is a joint control over the curriculum by the profession and the education provider**

The opinion that the curriculum is going to be controlled by faceless bureaucrats or by the economic forces that drive business and industry can be refuted by the fact that competence standards do not constitute the curriculum document. It is the teaching staff (and students!) who will translate the competence standards into a proper learning environment. On the other hand, competence standards that have been formulated in consultation with bodies that represent the profession, are a powerful means to counteract fragmentation of courses and fighting between academics for expansion of own disciplinary areas that we see too often in the world of (higher) education.

- **Competence is demonstrated over time, for example through portfolios. Assessment needs careful planning**

It has already been argued that the complexity of a profession cannot be captured in a checklist of observable behaviours, increasing perhaps the objectivity but certainly not the validity of assessment. Because competence is inferred from performance, assessment of competence is subjected to the same demands of validity and reliability as other forms of assessment in academic institutions (Hager, 1993; Scheeres & Hager, 1994).

- **By integrating attributes and tasks, the richer conception of competence integrates general and vocational education**

General education has often been seen as the domain of (fundamental) knowledge and skills, such as analytical reasoning and scientific, pure research, while vocational education has been thought to be focused mainly on the performance of occupational tasks.

- "The richer conception of competence offers a healthy corrective to an outmoded way of thinking about vocational and general education" (Hager & Gonczi, 1996, p. 16). The need for the integration of theory and practice in vocational education is addressed by Van der Sanden, Streumer, Doornekamp and Teurlings (2001). One of the levels at which integration can take place is 'integration over disciplines', through broadly applicable generic abilities (generic competencies).

3.5.2 Towards a definition of competence and competency

An elaborate description of the competence concept is given by Prinsloo (2001), who introduces the term 'competence framework', and describes this as a whole of tasks/performances and the underpinning attributes that "...constitutes a detailed profile of what professionals "can do" instead of profiling them in terms of what they know" (p. 3). The framework (in this case for the accounting profession) should, after Birkett (1993), involve an appropriate linkage between:

- The tasks to be performed.
- The contexts in which tasks are to be performed.
- Specific performance criteria.
- Individual attributes entailed by the performance.

In this description the elements of capability, performance, context and the attributes knowledge, skills and attitudes can be recognised as well as personality in a more implicit way. A similar description can be found for the concept of 'occupational competence' found in the proposal for a competence-based qualification structure of vocational education in the Netherlands (Colo [Association for knowledge centres vocational education and business and industry], 2002).

Rumsey (1997) relates competence to 'dealing with change' and describes the attributes that are involved as:

- Cognitive structure, including declarative, procedural, strategic and dispositional knowledge.
- Existing technical skills.
- Cognitive and meta-cognitive skills- the thinking processes by which people manipulate and access knowledge in their cognitive structure when dealing with change and novel situations.
- Disposition. People's dispositions are highly modulated by their personal perceptions (and misperceptions) and the socio-cultural influences in their environment.

Rumsey (1997) also mentions as important the effect of the social and physical environments in which individuals operate. This is an example of an elaborate competence description with emphasis on the attributes and no mentioning of tasks or performance.

Based on the discussion of dimensions and related terms in section 3.2.2, and the ideas of Hager in section 3.4.1, essential components of an elaborate competence definition can now be identified (see Box 3.9). In such a definition the realisation of a task or the performance of a role are considered the results of the 'activation' of a specific competency or a set of competencies. Within a profession there are

typically a number of roles, and roles comprise a wide range of tasks and even subtasks (Hager, Gonczi & Oliver, 1990; Marsh, 1997).

Box 3.9. *Essential elements of a description of competency*

Competency is

- the capability
- to choose and use (apply)
- an integrated cluster of knowledge, skills and attitudes
- with the intention to perform a role or realise a task
- in a specific (work) context
- according to a certain standard
- taking into account personal characteristics such as motivation and willpower.

The elements of the competence concept in Box 3.9 are found back in some characteristics of the competence concept formulated in the report of the Dutch Education Council (Onderwijsraad, 2002). The report mentions, for example, the context dependency, the integration of knowledge, skills and attitudes, and the relation to a task.

3.5.3 A model of competence and competency

The presentation of a comprehensive definition of competency can be further clarified in a model that will be presented below (see also Fig 3.1). Point of departure for the model is the question: "What drives a satisfactory or excellent performance?" The model describes what 'goes on in the head' (i.e. processing at cognitive level) when a task is realised. From this model competency is deduced as the ability to process in an intentional way. The model can be transcribed from a psychological point of view to the level of 'learning' (acquisition and development) of competencies. Elements of the transcribed model are professional profile, graduate profile, core competencies and their constituting domain-specific and generic competencies.

An important question is which mental prerequisites an individual does need to meet a particular demand, or: what are the internal mental structures the activation of which is assumed to yield certain results? (Rychen & Salganik, 2002). Kegan (1999) states: 'A great benefit to a concept like 'competence' is that it directs our attention beneath the observable behavioural surface of 'skills' to inquire into the mental capacity that creates the behaviour. (p.67).

A professional performs in his/her work a large number of tasks that can be grouped into 'key occupational tasks' (Hager, 1993). An example: for an Adult Educator a key occupational task could be 'Designing an education programme for

a certain group of adults in a specific setting/context'. The realisation (performance) of the tasks implies 'intentional actions', activities that are consciously planned, monitored and regulated and that involve certain attributes (knowledge, skills, attitudes) and personal characteristics of the professional. Knowledge, skills and attitudes are utilised in an integrated way, although they may be used in varying degrees, depending on the (occupational) task or a task component. For example, one would expect in counselling a crime victim more emphasis on attitudes than in building a bookshelf.

In order to perform (key) tasks the professional should be able to 'select' and use the appropriate knowledge, skills and attitudes, that is, process them and come to deliberate actions, aimed at realising the task. In cognitive terms the 'attributes' that are activated for the realisation of a task could also be seen as cognitive schemata, mental plans that are abstract and that serve as guides for action, as structures for interpreting information, as organised frameworks for solving problems, etc. (Reber, 1996; Scholl, 2000). Satchwell (1996) mentions a "...control structure, that ...enables individuals to solve problems using their procedural and declarative knowledge." This 'control structure' is elsewhere labelled 'meta-cognition' (Adkins, 1997; Ashcraft, 1994; Marzano et al., 1988). Thus, the mental processing of a task or a problem, characterised by 'intentional action', requires certain cognitive monitoring and regulation activities. An example is 'situational understanding' (professionals take account of the varying contexts in which they are operating and are able to transfer, that is, select and apply the necessary attributes in new contexts). "One basic prerequisite for the acquisition of meta-competencies is the ability to introspect about one's own cognitive processes and products, available from the third year of life and increasing with age" (Weinert 2001, p.54).

Thus, in order to perform a task at an acceptable (or superior) level, the professional needs to have at his disposal a 'toolbox' with certain attributes, knowledge, skills and attitudes. He further needs to know how and when to use these 'tools', making use of meta-cognition (such as situational understanding). The availability of attributes at a sufficient level, the capability to utilise them adequately, and the regulation by meta-cognition, provide the conditions for an intentional action (or series of actions) to take place, resulting in the acceptable performance of a task.

The above can be summarised in a model that is presented in Figure 3.1. The model shows the relationships and connections between the various cognitive processing aspects of a task performance. In this model the task related context (where and how the task is 'situated') is perceived and processed by situational understanding.

The personal context involves (amongst others) emotional, physical factors that directly influence the professional as a person. For example, an individual might just have recovered from an illness and is still feeling tired, or he² might be worried by family troubles, etc. The personal characteristics determine to what extent these positive or negative factors will influence the processing of the task. Reflection on the outcomes provides feedback to the practitioner, leading, if necessary, to additional intentional actions.

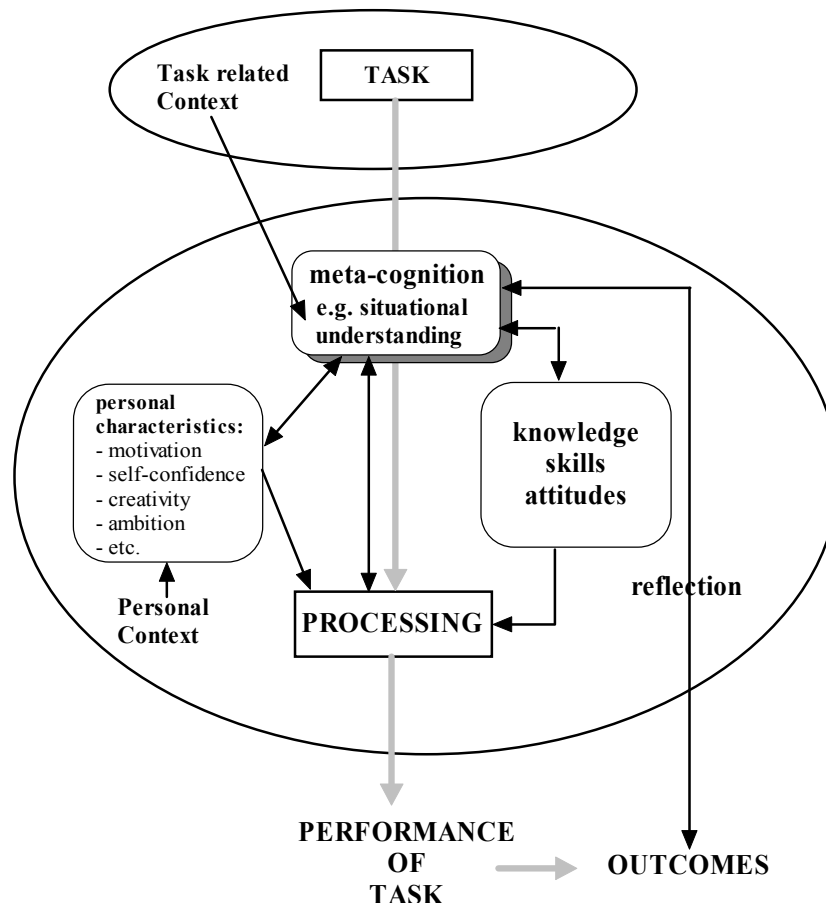


Figure 3.1. A model of the cognitive aspects of task performance

The model shows analogies to cognitive models of memory systems, for example Anderson's model (Anderson, 1983) in which information from the outside world is encoded and then processed in the working memory. This working memory stores or retrieves encoded information in and from the declarative memory and, through matching with a 'production rule' in the production memory executes a production

² In order to avoid unnecessary confusion 'he' is used in cases where the subject could be male or female.

rule after which a 'performance' results. The production memory can also 'learn' new production rules by observing the application of old ones (Benjafield, 1996).

Competency and competence can be deduced from the model and be defined as follows:

- *Competency* is the capability to choose and use (apply) an integrated combination of knowledge, skills and attitudes with the intention to realise a task in a certain context, while personal characteristics such as motivation, self-confidence, willpower are part of that context.
- *Competence* is the capacity to realise 'up to standard' the key occupational tasks (see below) that characterise a profession. A *competent* professional shows a satisfactory (or superior) performance. *Key occupational tasks* are the tasks that are characteristic for a profession. A profession could be described by 20 - 30 key occupational tasks (Hager & Gonczi, 1996).

Competence is thus a construct that can be inferred from performance (Hager, 1993). It refers to the capacity to "do the job". Expertise implies competence, but being competent does not necessarily imply being an expert. Research on novice versus expert performance (e.g., Chi, Glaser & Farr, 1988) suggests that the nature of expertise is largely due to the possession of schemas that guide perception and problem solving. In the model presented above the possession of schemas could be thought as a characteristic of competence, while expertise would then mean the possession of more and richer schemas.

Competency is what makes somebody competent. The definition of competency puts emphasis on the possession of certain cognitive 'tools' (knowledge, skills, abilities and attitudes) and the ability to apply these tools at the right time on the right spot. Thus, competency implies being knowledgeable and skilful, and having the 'know-how'. Kirschner et al. (1997) state that a person can be skilful but not necessarily competent, but, on the other hand, that being competent always implies being skilful.

A comparable model of competence can be found in the publications of Cheetham and Chivers (1996, 1998). They developed a model of competence with four 'core components', that can be thought of as groups of competencies:

1. Knowledge/cognitive competence: "...the possession of appropriate work-related knowledge and the ability to put this to effective use".
2. Functional competence: "...the ability to perform a range of work-based tasks effectively to produce specific outcomes."

3. Personal or behavioural competence: "...the ability to adopt appropriate, observable behaviours in work-related situations."
4. Values/ethical competence: "...the possession of appropriate personal and professional values and the ability to make sound judgements based upon these in work-related situations" (Cheetham & Chivers, 1996, p.24).

Each component contributes to the 'outcomes' (labelled 'professional competence'), that are observed and perceived by the practitioner himself and by others who may provide feedback and sharpen the perception of the self. The context is conceptualised as the context of work: "the particular situation in which a practitioner is required to operate", and the work environment: "the physical, cultural and social conditions which surround an individual at work" (Cheetham & Chivers, 1998, p. 273). Meta-cognitive competence also occurs in the model with 'reflection' mentioned separately as a kind of 'super meta-competency', while 'personality' and 'motivation' are mentioned as factors that influence professional competence.

The model of Cheetham and Chivers supports the model that has been developed for this study. In the latter model, that conceptualises 'what goes on in the head' in order to come to the realisation of a task, competency is implicit in the interaction between context, personality, attributes and meta-cognition.

The broad, general, concept of competence can be related to competencies through the concept of 'core competencies' as is shown in Fig 3.2, below.

Core competency (plural: *Core competencies*) is defined as: the set of appropriate competencies needed to realise a key occupational task at a satisfactory or superior level.

Stated in another way: Core competencies are directly linked to key occupational tasks and are integrated clusters of domain-specific and generic competencies.

It should be noted that in the literature the term 'core competencies' is also used in the sense of strategic business capabilities that provide a company with a marketplace advantage (cf. Prahalad & Hamel, 1990). In the UK the term 'core skills' is referring to generic competencies (in this case communication, numeracy, IT, problem solving, and working with others).

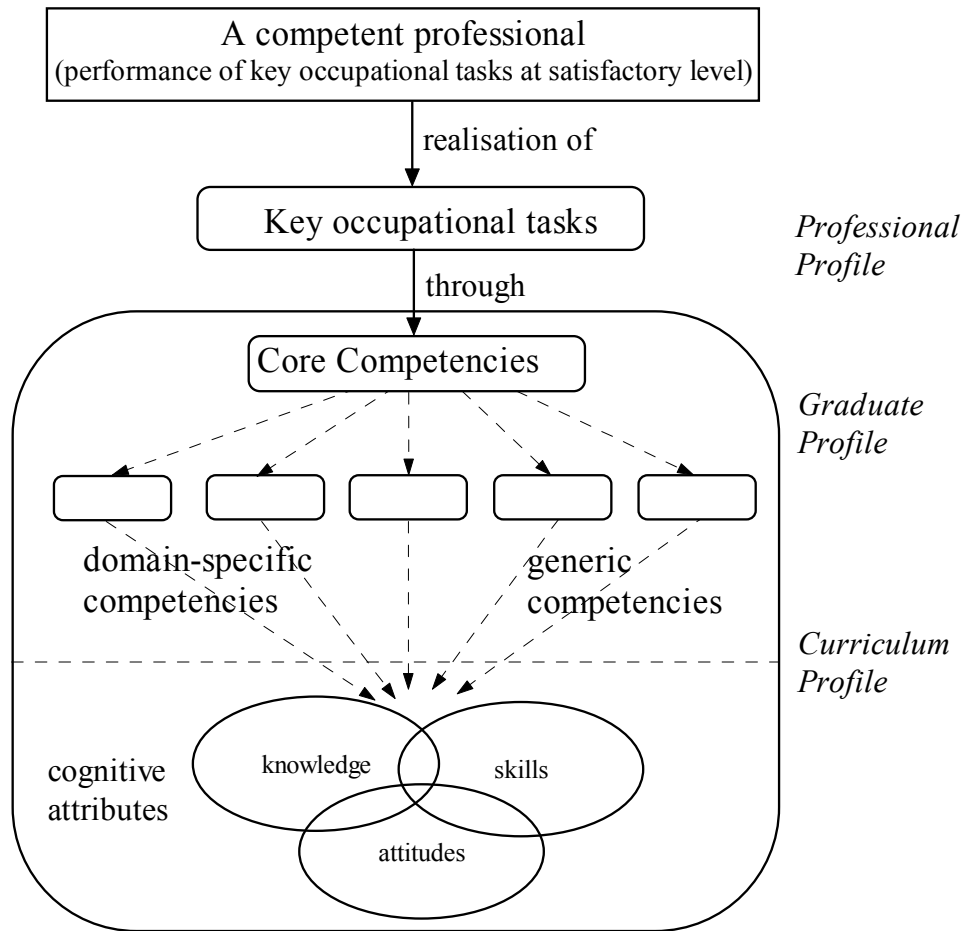


Figure 3.2. The relation between competence, core competencies and constituting (domain-specific and generic) competencies

Competencies are categorised in this model in two groups following the classification of Everwijn (1996). Competencies can be **domain-specific**, relating to clusters of knowledge, skills and attitudes within one specific content domain related to the profession. Another group of competencies is called '**generic**', because they are needed in all content domains and can be utilised in new professional situations (transfer). The name 'life skills' is sometimes used for the latter group and indicates that these competencies are, because of their transferability, the basic set of capabilities for the life of today, within and outside the profession. Matters related to generic competencies will be discussed further in section 3.6.

In the development of a competence-based curriculum a sequence is followed (sometimes called the 'Royal track' [Brandsma, 1993]) involving the formulation of a professional profile with key occupational tasks, followed by graduate profile with (selected) core competencies that relate directly to the professional profile. In the curriculum profile the final attainment levels of the graduate are defined in competence standards for both domain-specific and generic competencies.

In the scientific enterprise of research and development the competency model assumes the presence of certain 'academic' competencies, that is, domain-specific and generic competencies that are developed at a high level in order to enable the 'academic' professional to find innovative solutions to scientific problems or to redefine problems in a new way (cf. Mathijssen-Jansen, 1999; Kessels, 2000). Creativity and insight play an important role as well.

In a design-oriented approach to tasks, the outcome of the processing of problem or task is always a 'product' (not necessarily tangible, an intervention could also be the 'product'), often with innovative characteristics. Thus a design and development approach is used as a systematic, methodical approach to solve problems with 'makeable' solutions. In this case, apart from academic competencies design competency is needed as well (see Fig. 3.3). Design competency can be defined as the capability to recognise critical incidents/problematic situations in the professional practice as design problems and design & develop 'doable' solutions, applying methodological approaches.

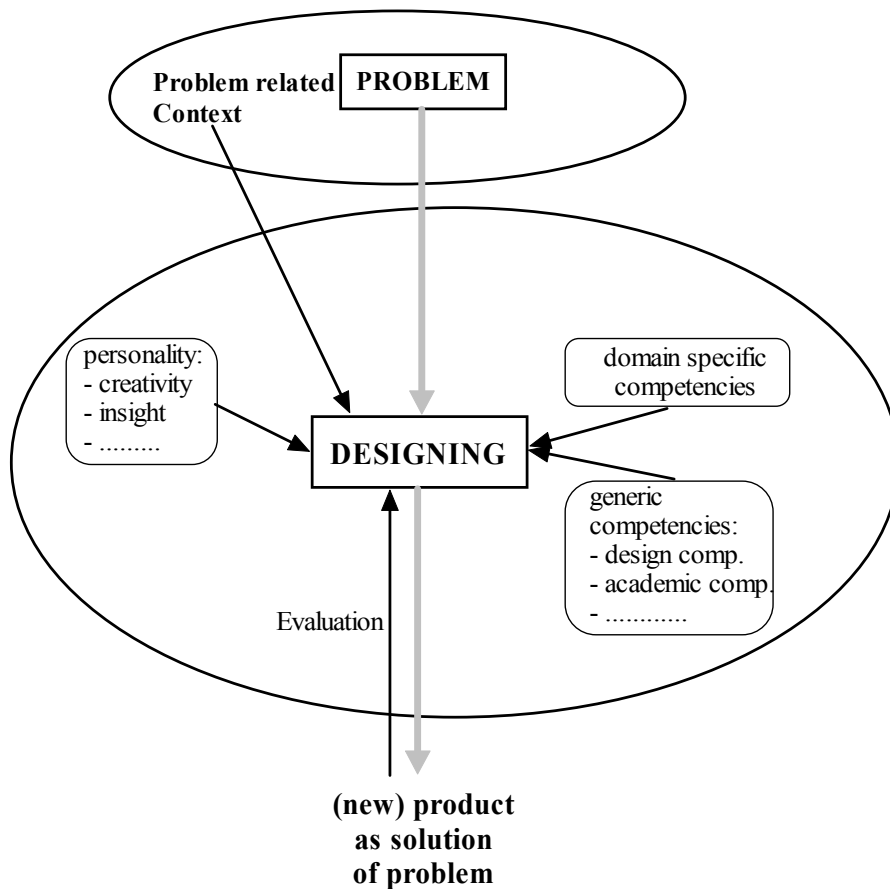


Figure 3.3. Competencies in the 'design approach'

3.6 GENERIC COMPETENCIES

3.6.1 What are generic competencies

Schlusmans, Slotman, Nagtegaal and Kinkhorst (2000) state that competence-based education is more than just learning to perform occupational tasks. Various authors emphasize the development of 'general skills' (Jochems & Schlusmans, 2000), 'general behaviour competencies' that transcend occupation or profession (Te Lintelo, 2000), 'general and reflective skills' (Everwijn, 2000) or 'key competencies' (Hooyer & Nedermeyer, 2000).

In the previous section the concept of 'generic competencies' was introduced based on the classification of Everwijn (1996) and distinguishing between domain-specific competencies and generic competencies (cf. Down, Fechner & Lilly, 1997; Gonczi, Curtain, Hager, Hallard & Harrison, 1995; Lilly et al., 1996). Hager (1996), using the term 'key competencies' in stead of 'generic competencies' states: "Key competencies occur in complex clusters along with other more specific competencies.... Any significant unit of work activity can be seen as embodying simultaneously both specific skills and several of the key competencies" (p. 2-3).

Generic competencies have been defined as competencies that are needed in all content domains in professions (Kearns, 2001; Prinsloo, 2001) or curricula (Bryce & McCurry, 1999) and can be transferred, that is, utilised in new occupational or life situations (Holmes, 2001; Oliver & McLoughlin, 1999). Several authors emphasise the conceptual confusion on generic competencies (Brown, 1998b; Cornford, 2001; Kearns, 2001) by referring to the many different terms that describe the same concept (Holmes, 2001; Lankard Brown, 2002; Marsh, 1997; Streumer & Kämäräinen, 1998), but do not mean the same (Drummond, Nixon, and Wiltshire, 1998; Oliver & McLoughlin, 1999). Holmes (2000), cited in Cooper (2002) states: "There are a variety of terms composed of various combinations of the words: personal - transferable - generic - course - key, together with the words: capabilities - abilities - competencies - skills".

Bennett, Dunne and Carré (1999) use the term 'core skills' and add that the term 'skills' is often interchanged with competences, capabilities, attributes, elements or learning outcomes, sometimes incorporating levels and sometimes not, thus creating a great "semantic confusion" (Bennett, et al., 1999, p. 74). This is illustrated by the confusion on the term core skills, used in the UK context, interpreted by lecturers as those skills that are central to a discipline, as opposed to the cross-disciplinary, generic skills (Dunne, 1995, cited in Bennett, et al., 1999), while this term officially is referring to generic competencies. The use of the term skill, e.g. in 'employability skill' implies that cognitive competencies can be treated as psychomotor skills and be practised and perfected in a limited number of contexts for subsequent widespread application (Barrow, 1987, cited in Hyslop-Margison,

2000). This is labelled a logical error by Hyslop-Margison (2000) of the type 'category mistake' (Ryle, 1949, cited in Hyslop-Margison, 2000). The use of the term 'generic competencies' overcomes this the objection of Hyslop-Margison.

The term 'enabling' skills or competencies, facilitating the acquisition of more specific competencies (Hager, 1996; McDonald, 2000 cited in Kearns, 2001) refers to the meta-cognitive characteristics of some generic competencies.

As stated above, for the purpose of this study the following definition will be used: *Generic competencies are competencies that are needed in all content domains in jobs or professions and can be transferred, that is, utilised in new occupational or life situations.*

The notion of 'coping with life' (life-skills) appears in DeSeCo (Defining and Selecting Competencies) documents where the term 'key' is explained as "critical and important" for coping with complex demands and challenges across a wide spectrum of social activity and for a successful life and a well-functioning society (Rychen & Salganik, 2002). In a survey of key competencies in countries of the European Union by Eurydice, the information network on education in Europe, mention is made of "core attributes needed to participate effectively in political, economic, social and cultural activities are being pursued at national and international level" (Eurydice, 2002, p. 11). The Eurydice report states that a key competency

"...must be necessary and beneficial to any individual and to society as a whole. It must enable an individual to successfully integrate into a number of social networks while remaining independent and personally effective in familiar as well as new and unpredictable settings. Finally, since all settings are subject to change, a key competence must enable people to constantly update their knowledge and skills in order to keep abreast of fresh developments" (Eurydice, 2002, p. 14).

The DeSeCo project identifies four analytical elements to conceptualise 'key competencies' (Rychen & Salganik, 2000):

1. Key Competencies are multifunctional, can be used to solve multidimensional problems in various contexts.
2. Key Competencies are transversal across social fields and the various sectors of human existence.
3. Key Competencies refer to a higher order of mental complexity. A variety of research suggests that people have the potential to gradually reach higher levels of mental complexity throughout the course of their life span.
4. Key Competencies are multidimensional. They are composed of "know-how", analytical, critical and communication skills as well as common sense.

3.6.2 What competencies are generic?

A brief review of the developments in USA, Australia, UK and some other European countries will help to answer the question what generic competencies can be identified or what competencies are generic.

According to Cornford (2001) the concept of generic competencies (named 'generic skills') was already introduced in the 1950s and related to an effective social functioning and life long learning (cf. Smith Stanley & Shores, 1957). However, most large-scale, government-induced developments started in the 1990s.

In the USA the Department of Labour (DOL), commissioned in 1988 a study of the essential generic skills required by employers to the American Society for Training and Development (ASTD). Apart from the empirical underpinning, through functional analysis (done as well by the Australians and the British) the US researchers also used findings from a range of disciplines, including cognitive science (Carnevale, Gainer & Meltzer, 1990).

16 skills were identified, grouped under:

- learning to learn, also called 'foundation skills';
- academic basics (reading skills, writing skills, computational skills);
- communication;
- adaptability, including creativity skills;
- personal development, including a range of personal attributes;
- group effectiveness;
- influencing skills, including leadership skills.

Later work was done by the SCANS Commission (Secretary's [of Labour] Commission on Achieving Necessary Skills). SCANS established three foundation areas: Basic Skills, Thinking Skills and Personal Qualities which underpin five workplace competencies in the areas of Resources, Information, Interpersonal, Systems and Technology (SCANS, 1991). The US approach which integrates workplace skills with personal attributes, values and basic skills is broader than the Anglo/Australian approach to key generic skills where the focus is on outcomes and performance, and aspects such as personal attributes are played down (Cornford, 2001; Kearns, 2001).

In Australia the Mayer committee was set up in 1991 to follow up the work of the Finn Committee on 'key competencies'. The Mayer committee proposed seven key competencies: Collecting, analysing and organising information; Communicating ideas and information; Planning and organising activities; Working with others and in teams; Using mathematical ideas and techniques; Solving problems; Using technology (Mayer, 1992) and made a comparison with comparable work in the USA, the UK, and New Zealand. The following definition of key competencies was formulated by the Mayer committee:

"Key competencies are competencies essential for effective participation in the emerging patterns of work and work organisation. They focus on the capacity to apply knowledge and skills in an integrated way in work situations. Key competencies are generic in that they apply to work generally rather than being

specific to work in particular occupations or industries. This characteristic means that the key competencies are not only essential for effective participation in work but are also essential for effective participation in further education and in adult life more generally" (Mayer, 1992, p. 5).

Some observations were made by Kearns (2001) while comparing the approaches to generic competencies in the various countries mentioned above. On the issue of 'values and attitudes' it is observed that these are excluded in the Mayer key competencies, but appear in the US approach that integrates workplace skills with personal attributes, values and basic skills. Kearns (2001) is critical on the absence of personal attributes in the Mayer report and compares it with 'designing a car without an engine to drive it' (p. 16). Another issue concerns 'cultural understanding' that was originally included by the Finn committee (Finn, 1991), but was left out by Mayer, arguing that it was a body of knowledge and not a competency (Mayer, 1992). Kearns (2001) proposes a broader framework of generic competencies, including at least:

- the learning competency (learning to learn);
- personal attributes and values, including autonomy, adaptability, self-understanding, confidence and self-esteem, and emotional intelligence;
- enterprise, innovation, and creativity;
- cultural understanding.

Debate exists about the inclusion of values and attitudes under the rubric of generic competencies (Hyslop-Margison, 2000 who uses the term 'generic employability skills'). One problem concerns what attitudes and whose attitudes should be developed or 'conveyed' to the students (Coombs, 1988, cited in Hyslop-Margison, 2000). In relation to 'adaptability' Hyslop-Margison rejects the labelling of "a positive attitude toward change" as a skill. There is nothing inherently positive or negative in the concept of change and "...asking students to develop a positive attitude toward generalized change is arguably an ideological strategy designed to condition them to accept passively the lives of occupational instability that accompany current labour market conditions" (Hyslop-Margison, 2000, p. 70). In fact only attitudes that directly relate to acquiring knowledge and understanding and attitudes that are implicit in the fundamental principles and institutions of a liberal democratic society (Coombs, 1988, cited in Hyslop-Margison, 2000), are ethically allowed, when talking about attitudes as aspects of generic competencies. Kearns (2001) notes the emergence of an interest in the role of values in the generation and use of knowledge citing Davenport and Prusak (1998), and Nonaka and Takeuchi (1995) who state that knowledge, unlike information, is about beliefs and commitment. Chappell and Hager (1994) write: "Often different occupational

values conflict, and complex judgements have to be made between competing values. A competent practitioner must therefore have the capacity to recognise and operationalise the shared values of the occupation, yet, at the same time, to make wise judgements when these values and principles come into conflict in the complex reality of work" (p. 15).

According to Lankard Brown (2002), the Australian list added 'cultural understanding'. However, a report on a meeting of ministers in the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA, 1996) states that the decision was taken that 'cultural understanding' would not be an eight key competency but that cultural understanding would be embedded in the other seven key competencies.

Nevertheless, the current concern for a 'workplace culture' and the accelerating globalisation have brought cultural understanding once more to the fore. Foundation skills (basic skills) and 'learning competency' are also becoming more and more important in the 'new economy' according to Kearns (2001). The need to add key competencies to the Mayer list was also shown by Gow and McDonald (2000) who extracted from the rating of an extensive list with 'virtual attributes' by employers and education experts four factors: adaptability to changing work environments, cross-cultural competence, accountability and business management skills. They equate these to literature findings of life-long learning, cultural understanding and entrepreneurial competencies.

In the United Kingdom the term 'key skills' is currently in use, but various synonyms still appear or have been used in the past, such as core skills, transferable skills, generic skills, common skills. (Ryan, 1991, cited in Marsh, 1997). In the early 90s the National Curriculum Council produced a list of 6 skills to be included in the curriculum for 16 - 19 year olds (Marsh, 1997). The 1996 Dearing Review of post-16 Education recommended that key skills should be available across both work-based and academic routes (NCIHE, 1997). Key skills are defined as a range of essential skills that underpin success in education, employment, lifelong learning and personal development. Since 2000 a qualification can be obtained for the key skills of in communication, application of number and information technology (IT). Assessment comprises both an internal (portfolio) and an external (test) component. The other three key skills are: working with others, improving own learning and problem solving.

The developments in South Africa have been influenced by the educational co-operation with Australia. Generic competencies are called Critical Cross-field Outcomes and have been designed by the South African Qualifications Authority (Prinsloo, 2001). The list of generic outcomes is, again, similar to that in the other countries:

- Problem-solving;
- Team work;
- Self-organisation and – management;
- Information evaluation;
- Communication;
- Use of science and technology;
- Inter-relatedness of systems;
- Learner and societal development.

In the debates on 'new skills/competences/qualifications' in European countries the naming of competencies may be grouped into the following three strands: (a) 'key skills', mainly in the UK; (b) 'key/core competencies', in Denmark, France and the Netherlands; and (c) 'key qualifications', mainly in Germany (Kämäräinen & Streumer, 1998).

Developments in Germany and the Netherlands are described by Brown (1998a), and include the introduction of 'key qualifications' (Eurydice, 2002; Mertens, 1974; Van Zolingen, Blockhuis, Streumer, & Nijhof, 1997). Mertens (1974) proposed a focus on the development of key qualifications in order to improve the flexibility of students on the labour market and postulated four groups of key qualifications:

1. Qualifications giving depth to fundamental skills (analytical reasoning, critical thinking);
2. Qualifications with a high horizontal transfer value (e.g. information management skills);
3. Qualifications providing breadth (e.g. knowledge of information technology);
4. Qualifications for life-long learning.

Van Zolingen et al, (1997, p. 3) provided a comprehensive definition of key qualifications as 'the knowledge, insight, skills and attitudes that are part of the durable core of an occupation or a group of related jobs, with the possibility of transfer to other, new jobs within that occupation and of innovations within that occupation, which contribute to the development of a person's occupational competence and facilitate transitions within the career.' An extensive specification was given by Van Zolingen et al. (1997) of the knowledge, insight, skills and attitudes that make up key qualifications.

Brown (1998a) also mentions, in the Dutch context, Onstenk who introduced the concept of 'core problems', those problems and dilemmas that are central to the practice of an occupation (Onstenk, Moerkamp, Voncken & Van den Dool, 1990). "Key (core) skills development fits naturally within a curricular approach that utilises core problems as a key learning strategy" (Brown, 1998a).

Nedermeijer and Pilot (2000) discuss the 'core competencies' for higher education, based on the views of the Scientific Council for Government Policy (WRR) and the Council for Professional Higher Education (HBO-council). The WRR (1995) makes a distinction between competencies that should be developed in professional higher education and in academic higher education. In brief, an graduate from academic higher education has the capability to do research that crosses the frontiers of scientific knowledge and results into 'new knowledge' (cf. Mathijssen-Jansen, 1999). A graduate from professional higher education will have the capability to solve practical problems that, for example, arise in the designing of products. However, it also recognised that problems in the new economy are becoming more and more complex, leading to the need for more 'academic competencies' in professional higher education, and, vice-versa, more aspects of the 'world of work' into academic higher education (NCIHE, 1997; Nijhof, 1998; Teichler, 1998). Another sign of the narrowing gap between these two forms of higher education is the emergence of 'development research' that links the need for a scientific approach to designing products or interventions with the creation of new (practical) knowledge (cf. Van den Akker, 1999).

The HBO-council (HBO-raad, 1999) identified nine key competencies for professional higher education:

1. Broad professionalisation: able to realise occupational tasks as beginning professional.
2. Multi-disciplinarity and integration: able to integrate knowledge, skills and attitudes in professional roles.
3. Application of scientific principles in the solving of practical problems.
4. Transferability: able to apply knowledge, skills and insight in different professional contexts.
5. Creativity and complexity in acting: knows how to handle ill-defined problems for which no known solutions are available.
6. Problem-oriented working: able to define and analyse problems autonomously.
7. Methodical and reflective acting and thinking: able to plan and to reflect during and after acting.
8. Social-communicative competence: able to communicate with others and to cooperate.
9. Management: able to realise simple management and leadership tasks.

Returning to the ideas of Everwijn (1996) that form the basis for the conception of generic competencies, used in this study, Nedermeijer and Pilot (2000) refer to the classification of educational objectives by De Groot (1980) that led Everwijn to the classification of competencies in four 'competence areas' (see Table 3.3).

Table 3.3. *Generic competencies after Everwijn (1996)*

| | |
|--|--|
| Domain-specific competencies | Disciplinary Integrated or cross-disciplinary |
| General competencies | Problem solving Communication Policy-making and assessment Information management Social interaction and leadership |
| Reflective competencies | Self-knowledge Self-regulation (orientation, planning, monitoring, assessment, evaluation) Reflection-in-action (observing on-the-spot, criticising, restructuring and assessing the intuitive understanding of phenomena) |
| Basic (supportive) competencies | Literacy and numeracy |

De Groot (1980) classified educational objectives in a matrix with two dimensions: learning of rules and exceptions, and learning about the world and about yourself (see Table 3.4).

Table 3.4. *Classification of educational objectives (De Groot) and competence areas (Everwijn)*

| Educational Objectives | Rules | Exceptions |
|-------------------------------|-----------------------------|-------------------------------------|
| About the world (External) | Basic competencies | Domain-specific competencies |
| About yourself (Internal) | General competencies | Reflective competencies |

Adapted from Nedermeijer and Pilot (2000).

The classification of Everwijn (1996) shows some similarity to that of the International Labour Organisation, ILO (1993) that distinguishes:

- Foundation skills including literacy and numeracy.
- Basic skills including analytical skills such as calculation and problem solving.
- General skills which are transferable between jobs such as computer skills.
- Specific skills which are specific to an employer.

A definition of generic skills might cover the first three levels in this framework or could be restricted to the second and third levels.

Nijhof and Remmers (1989) distinguished three types of skills for life-long learning in relation to employability: basic skills, core (or common) skills, and transition skills (involving meta-cognition and self-regulation). In the Everwijn classification general competencies, reflective competencies and basic competencies could be grouped under 'generic competencies'. In later publications (e.g. Everwijn, 2000) the competence area of 'basic competencies' has been included by Everwijn in the area of general competencies.

Thus, generic competencies have their place next to the domain-specific competencies that cover the various disciplinary aspects of a profession and involve domain-specific content knowledge and skills. Many institutions of Higher Education have defined and described these generic competencies, sometimes under the name of 'graduate attributes' (Down, Martin, Hager & Bricknell, 1999). Trier (2002) did a review of 12 countries, of which 10 European (Scandinavian and from Western-Europe, but not UK) and USA and New-Zealand on the use of generic competencies in curricula in general and vocational education. He grouped the frequencies of mentions of generic competencies under three headings:

High:

- Social Competencies/Co-operation;
- Literacies/Intelligent and applicable knowledge;
- Learning Competencies/Lifelong Learning;
- Communication Competencies.

Medium:

- Value Orientation;
- Self-Competence/Self Management;
- Political Competence/Democratic Participation;
- Ecological Competence/Relation to Nature.

Low:

- Cultural Competencies (aesthetic, creative, intercultural, media);
- Health/Sports/Physical Competence.

Many of these competencies are also mentioned by the working group of the European Commission that suggested eight principal domains of key competencies (European Commission, 2002): communication in the mother tongue, communication in foreign languages, ICT, numeracy and competencies in maths, science and technology, entrepreneurship, interpersonal and civic competencies, learning to learn, and general culture.

Trier (2002) observed in his review that sometimes broad definitions were used for social competencies, sometimes narrow (working together). In some countries communication and social competencies are combined into one category. Another observation was that communication has a cognitive/instrumental/ technical aspect (being able to write, to transmit information) but also an emotional aspect (being able to convince, to listen).

Self competence/self management can be seen at an action level (acting independently) or on the level of subjective awareness (developing and expressing a sense of oneself). Trier mentions the observation in the New-Zealand report that

the discourse on the self as an 'autonomous actor' is largely a traditional Western paradigm and that in other societies the behaviour of an individual is always positioned within the context of the individual's collective responsibility.

A summary of the various generic competencies chosen in a number of countries and in the Faculty of Education at the UEM is presented below in Table 3.5. The choice of a set of generic competencies for the curriculum in the Faculty of Education will be discussed later, in Chapter 7.

In the Eurydice survey of key competencies in Europe an explicit reference to the development of key competencies in the curriculum is identified for England and Wales, for Scotland, for the French speaking part of Belgium and for Portugal (Eurydice, 2002). Portugal uses the term 'competências essenciais' and defines them as: The body of general and subject-specific knowledge and skills considered essential for all citizens in today's society.

Table 3.5. *Generic competencies in selected countries and in the Faculty of Education at UEM*

| Generic competency | USA (SCANS) | Australia (Mayer) | UK (NCC) | South Africa | UEM |
|---|---------------------------|--|---|-----------------------------------|-------------------------|
| Name | Workplace competencies | Generic competencies Key competencies | Generic skills Core skills Key skills | Critical cross- field outcomes | Generic competencies |
| Communication | | x | x | x | x |
| Problem solving/Research | | x | x | x | x |
| Improving own learning | | | x | x | x |
| Numeracy | | x | x | | |
| ICT | | | x | | x |
| Social and economic understanding (systems) | x | | | x | |
| Using technology | x | x | | x | |
| Resources: allocating time, money, materials, space and staff | x | | | | |
| Interpersonal skills | x | x | x | x | x |
| Information management | x | x | | x | x |
| Planning and organising activities | | x | | | x |
| Learner and societal development | | | | x | |
| Leadership | | | | | x |
| Design | | | | | x |

Sources: Kearns (2001), Prinsloo (2001), UEM (2001).

3.6.3 The issue of transferability

An important characteristic of generic competencies is that they can be transferred, that is, utilised in new occupational or life situations. Transfer occurs whenever prior learned knowledge and skills affect the way in which new knowledge and skills are learned and performed. When later acquisition of knowledge and skills or performance is facilitated, transfer is positive. When later acquisition or performance is impeded, transfer is negative. (Bransford, Brown & Cocking, 2000; Cormier & Hagman, 1987; Broad & Newstrom, 1992; Perkins & Salomon, 1996).

The issue of transferability of generic competencies has a strong relation with the question how context-bound competencies are. Many authors stress that generic competencies are context-bound or have to be acquired and developed in context (e.g. Down et al., 1999; Hager, 1996; Stasz et al., 1996). A car mechanic and a brain surgeon may both be excellent problem solvers but one would not be too happy when a car mechanic showed up to perform a surgery on your brain. Some authors even claim that it is not possible to talk about generic competencies (e.g. Lankard, 1996). "Generic competencies are domain specific: skills cannot be divorced from context" (Pennington 1993, p. 10 cited by Candy, Crebert & O'Leary, 1994 p. 62).

A distinction is often made between near transfer, where there is a small distance between the contexts in which the competency has to be used and far transfer in case of very different, new contexts (Salomon & Perkins, 1988). On the mechanisms of transfer Perkins and Salomon (1996) distinguish 'low-road' and 'high road' transfer. Low-road transfer reflects the automatic triggering of well-practised routines in circumstances where there is considerable perceptual similarity to the original learning context. High-road transfer requires deliberate cognitive action, that is, mindful abstraction of skill or knowledge from one context for application in another (Perkins & Salomon, 1996).

A further distinction can be made between that what is transferred (transferable skills according to Levy, 1987, cited in Brown, 1998b) and the ability to realise the transfer: transfer enabling skills or transferring skills (Bridges, 1994, cited in Bennet, Dunne & Carré, 1999; Levy, 1987; Shepherd, 2000), being meta-skills or meta-competencies. Hager (1996) refers to situational understanding when he states: "...perhaps it is not so much the key competencies that transfer, as growing understanding of how to deal with different contexts" (p. 4). Oates (2001), cited in Rychen and Salganik (2002) states that effective performance is a function of dialectical interaction between the existing skills and strategies of the individual on one hand and the features of the new situation on the other hand. Thus, "...the concept of transfer is better thought of as a process of adapting existing skills in order to perform in a new, unfamiliar context - rather than as a process of transfer of existing skills" (Oates, 2001 in Rychen & Salganik, 2002, p. 13).

For the development of the ability to transfer two conditions are required: context-specific knowledge and general skills have to be brought together and the approach to learning has to encourage transfer (Brown, 1998b; Cornford, 2001). This includes the learning of reflection on the continuing process of competence development in relation to the use of competencies in specific contexts (Brown, 1998a). Adkins (1997) proposes 'detached content-independent strategies' for the development of transfer capacity. Such strategies are taught separately from content and are generic in nature, and, according to Adkins, they support a variety of learning tasks and academic subjects. Earlier, in section 3.4.1 Hager's criticism on such an approach has already been mentioned (Hager, 1996).

The important role of building up a solid knowledge base, having substantial domain-specific content knowledge is central to expert's problem-solving strategies (Chi et al., 1988), characterised by high road transfer (cf. Perkins & Salomon, 1996; Bransford et al., 2000; Hyslop-Margison, 2000). Occupational skills development which develops just the knowledge required for performance can fail to give a sufficient base for future learning (Brown, 1998b). On the other hand, next to domain-specific knowledge, a more 'general knowledge' is also important for expert performance (Salomon & Perkins, 1989).

When transfer issues are handled with a 'Bo-peep' approach (Salomon & Perkins, 1988) in which transfer is thought to take place almost automatically ("Let them alone and they'll come home wagging their tails behind them" [Salomon & Perkins, 1988]), the criticism by Hager (1993) and Gonczi (1994) of the 'generic skills approach' is valid. This criticism was discussed earlier in section 3.4.1. Generic competencies should, however, be developed with the aim of 'far transfer' (Everwijn & Palm, 1993) in which the professionals have learnt how to use the acquired knowledge and skills in new, atypical situations. The term 'mindfulness in learning' (Solomon & Globerson, 1987; Perkins & Salomon, 1996) is sometimes used to characterise a learning strategy where skills are not learned as a routine but also reflection takes place on the principles, theories and strategies behind the (generic) skills. Everwijn and Palm (1993) advocate a synthesis between context-specific knowledge and skills and generic competencies (cf. Brown, 1998b). This implies the application of generic strategies in interaction with domain-specific competencies. Necessary for transfer is a conscious abstraction of the specific (decontextualisation) and a purposeful translation of abstract goals into the specific situation (contextualisation). Van Oers (1998) defines transfer as a process of continuing recontextualisation. Principles (statements on what conclusion belongs to a certain set of data) and strategies (statements of what activity is appropriate for what situation) have to be applied in different specific contexts in order to facilitate far transfer (Bransford, et al., 2000; Everwijn & Palm, 1993; Perkins & Salomon, 1996). This implies as well the development of schemas (Heskett, Andrews & Chandler, 1989), networks (Simons,

1990), or maps (Soden, 1993) as organising tools. Other conditions of transfer, mentioned by Perkins and Salomon (1996) are explicit abstraction of principles from a situation, meta-cognitive reflection on one's thinking processes and using metaphors or analogies as a bridge between old and new material or situations.

Another view on the question of how to promote the development of transfer capability claims that research supports the 'Good Shepherd theory' of transfer, meaning that transfer is facilitated when it is 'shepherded' - nurtured and mediated, using learning activities and teaching styles that are likely to foster it (Blagg, 1993, cited in Bennett et al., 1999). Two techniques for such a nurturing are 'hugging' and 'bridging' (Salomon & Perkins, 1988). 'Hugging,' means teaching to better meet the resemblance conditions for low road transfer. It involves connecting past learning to present, and present learning to future situations. Examples are simulations, problem-based learning). 'Bridging' means to meet better the conditions, for high road transfer. The teacher helps the students to build a bridge from the context of their present learning to other contexts of potential application by helping them see the connections between the two (cf. Bransford et al., 2000). Examples are brainstorming and using analogies. Thus, rather than expecting students to achieve transfer spontaneously, one "mediates" the needed processes of abstraction and connection (Delclos et al. 1985; Feuerstein, 1980, cited in Salomon & Perkins, 1988). The meta-cognitive aspects of transfer are emphasised by Adkins (1997) who states that successful transfer is dependent on students being able to effectively control and monitor their learning (cf. Boekaerts, 1999; Bransford et al., 2000). He mentions four elements of metacognition:

- Metamemory, including knowledge about memory systems and memory strategies.
- Metacomprehension, involving the recognition of what is missing and knowing how to take remedial action to ensure successful comprehension.
- Self-regulation refers to meta-cognitive adjustments students make concerning errors.
- Schema Training, assisting learners in generating their own cognitive structures.

3.6.4 Generic competencies and the curriculum

In the above some words have already been devoted to the development of transfer capability. In this section a more general look will be given to the incorporation of generic competencies in the curriculum, including programmes and courses in Higher Education. The criticism on competence-based education that states that a competence-based approach leads to narrow, behavioural checklists, enabling bureaucratic control over workers, can be countered through the introduction of generic competencies in the curriculum (Hager, 1999).

In fact the inclusion of generic competencies in the curriculum of Higher Education programmes is expanding. Down et al. (1999) argue that generic competencies should be integrated into the curriculum and not addressed as a separate discipline or 'taught' in separate courses or workshops:

"As argued, such integration needs to be built into the total teaching and learning approach of the university and to shift the focus from knowledge and skill acquisition to a holistic, integrated and contextual experience which builds professional competence through enhancing the students ability to put their learning to work. Whilst discipline knowledge is an essential element to professional competence, it needs to be enriched through the development and generic capabilities and their integration onto transformative, observable practice" (p.11).

However, the need for generic competencies should not be overestimated according to Teichler (1998). He states that there are many indications that the need for general knowledge is endemically overestimated because employers have often no knowledge of specific competencies and because generic competencies surface across jobs and can be found in many job descriptions and are, in this way, more 'visible'.

The question of how to develop generic competencies and how to create learning environments that best promote this development is still an issue of debate and research (Delors & Draxler, 1999; NSTF [National Skills Task Force], 2000; Unwin, Wellington, Fuller & Cole, 2000, cited in Kearns, 2001). Nevertheless, some indications and directions can be given as guidelines for the design of curricula that promote the development of generic competencies.

Bransford et al., in their book on how people learn, outline the research findings on the differences between competent problem solvers and beginners who are less proficient. Beginners have less organised knowledge. their fragmented knowledge remains isolated from the conditions or situations in which conceptual knowledge or procedural skills should be used. They also lack the know-how, *usable knowledge*, knowledge that is applied to appropriate situations (Bransford et al., 2000). These results confirm once more what was stated about transfer in the previous section: context-specific knowledge and general skills have to be brought together and the approach to learning should actively encourage transfer (Brown, 1998b; Cornford, 2001; Kegan, 1999). Thus, the knowing that and the know-how are two distinct but interdependent domains (Bennett et al., 1999). Or: "..one cannot opt for performance knowledge without also understanding that one has 'acquired' propositional knowledge in the bargain, and vice versa" (Fenstermacher, 1996, cited in Bennett et al., 1999).

The design of curricula that include the development of generic competencies could be assisted by observations made by Hager (1999). He writes that generic competencies:

- are overlapping/interrelated, rather than being discrete entities with their own clearly identifiable performance levels (cf. Rychen & Salganik, 2002);
- must be contextualised in authentic or simulated environments (cf. Giddens & Stasz, 1999, cited in Lankard Brown, 2002);
- should be viewed both as processes (involving acquisition of enabling or underpinning knowledge) necessary for higher order learning and workplace performance *and* as outcomes or products;
- are developed throughout life and with lifelong relevance (cf. Ryan, 1997).

Various models exist for the development of generic competencies in educational programmes or courses. Nisbet (1990) makes a distinction in two approaches: specially designed (stand-alone) programmes and infusion of generic competencies throughout the established curriculum. The programmatic approach has the danger of placing generic competencies outside the discipline-based curriculum or treating it as another, extra discipline. This is also the comment of the report of the Dutch education Council (Onderwijsraad, 2002) on the use of 'key qualifications'. Transfer is very difficult and the development of transferring competencies will be enhanced when the development of generic competencies is integrated in as many disciplines as possible (Everwijn, 1996; Kegan, 1999; Kelly, West & Dee, 2001).

Three approaches are mentioned by Drummond, Nixon and Wiltshier (1997) cited in Bennett et al. (1999) who distinguish embedded or integrated development, parallel or stand alone development - often called bolt-on courses, and work placements or work based projects. Bennett et al. (1999) refine this classification and introduce five elements of course provision in higher education: disciplinary content knowledge, disciplinary skills, workplace awareness, workplace experience and generic skills. Based on these five elements and research of the practices of 32 lecturers in 16 departments in 4 institutions of higher education they describe six patterns of 'generic skill provision'.

Kearns (2001) mentions that recent research has emphasised that not enough is known about how competence is acquired, so that it is not possible to give a definitive answer to the integrated or stand-alone question. Institutions (in the UK) could be plotted on a delivery continuum based on the extent to which they are approaching key skills holistically or as a 'bolt-on' addition to their normal activity (Unwin et al., 2000, cited in Kearns, 2001).

Based on a literature search and a multiple case-study at three Institutions for Higher Education in the Netherlands, Timmers (2001) recommends to structure learning opportunities for the development of generic competencies along a 'learning trajectory' in which integration/infusion takes place together with stand-alone activities. Depending on the type of generic competency an 'interrupted learning

trajectory' could be chosen, e.g. for communication or information management, or a 'continuous learning trajectory', e.g. for problem solving, in which students are continuously stimulated to develop a certain generic competency.

Specially designed, stand-alone programmes may contribute to the development of 'general' skills, but they are 'weak' when it comes to specific applications (Nisbet, 1990). In infusion, specific skills are taught which are 'strong' in their context but tend to be 'weak' in more general application. Cooper (2002) mentions the risk that skills that are embedded in the curriculum may become "invisible" (Dröge, 2001) or "dissipated" (Atkinson 2001; Jasinski, 1996). Brown (1998) states: 'Development of generic competencies is often seen as the responsibility of everyone, and hence in practice of no-one in particular.' (p. 166). Furthermore, teaching of generic competencies is often seen as a distraction in the drive for better research ratings (Gubbay, 1994). Even when the teaching of such skills is claimed, it is often not evident in course planning, teaching methods or assessment documentation (Bennett et al., 1999).

Another problem might be the semantic confusion amongst students when dealing with generic competencies (Kneale, 2001, cited in Cooper, 2002). Therefore, the use of a common language should be encouraged to help make transferable skills more visible to students. Such a language might be used in course materials, in making transferable skills more explicit in teaching delivery; in commenting on transferable skills in feed-back, and in engaging students in debate about problematical aspects of the transferability of skills.

Some examples of instructional approaches to the acquisition and development of generic competencies are (Nisbet, 1990):

- Modelling, for example, the teacher talks aloud while working through a problem or composing a letter or report or poem.
- 'Cognitive apprenticeship' (cf. Stasz et al., 1992). Paris (1988), cited in Brown (1998b) states: "Instruction should demonstrate what strategies can be used, how they can be applied, and when and why they are helpful" (p. 314).
- Co-operative learning, in its many forms, that allows students to explain their reasoning to each other (and thus clarify it for themselves) and to learn from each other's errors (cf. Moy, Brown, Winchester, Stone & Schwenke, 1996; Oliver & McLoughlin, 1999).
- Discussion is a well established method, but it must involve analysis of the processes of argument if it is to be effective in teaching thinking.
- Forms of Socratic questioning (Why do you say that, can you explain, are there arguments against?).

Underlying all these methods is the principle of meta-cognition, or self-regulation (cf. Boekaerts, 1999; Pintrich, 1999).

An example of projects that aim to promote the development of meta-cognition in students is the project "Key skills: Connecting learning, development and work" of the British Open University

(http://www.open.ac.uk/StudentWeb/keyskills/connections_frame.html). In this project skills development is promoted through raising self-awareness and identifying opportunities for improvement within an individual's own context.

Approaches to achieve this are

- using problem-solving approaches to learning, promoting systematic ways of tackling tasks, making conscious links between previous experiences and bridge across contexts, thus connecting learning and experience;
- stimulate monitoring and reflection on the way they learn;
- encourage the challenging of own ideas through dialogue, monitoring and reflection.

The project advocates the use of a selective portfolio and professional dialogue as alternative forms of assessment.

Poortman (2001) when discussing the general structure of a learning trajectory for the 'design competency' mentions Romiszowski's (1996) general sequencing tactics (cf. Posner & Rudnitsky, 1997):

1. From simple to complex;
2. From know to unknown;
3. From particular to general;
4. From concrete to abstract.

Van der Sanden et al. (2001) advocate 'elaborative sequencing'. This starts with a simplified but complete and application oriented model of the content and competence-area. Then the complexity is increased and the already presented model functions as the thread throughout the course.

In a literature search Cotton (1993) summarised the findings of 63 documents on the development of "employability skills". In some cases employability skills are synonymous to generic competencies. For example, the Employability Forum of the British Keele University states: "Employability skills can also be referred to as 'key skills', 'transferable skills' or 'generic skills'. They can be defined as skills that can be utilised over a wide variety of tasks/situations within all degree subjects, jobs and life experiences."

(http://www.kusu.net/clubs_RenderPage.asp?clubid=5263&pageid=5249). In other cases there is a more direct link to the world of work. For example: "Employability skills are those basic skills necessary for getting, keeping and doing well on a job."

(<http://www.aces.edu/crd/workforce/publications/employability-skills.PDF>).

Cotton talks about 'non-technical abilities' and quotes a definition by Sherer and Eadie (1987): "Employability Skills are not job specific, but are skills which cut horizontally across all industries and vertically across all jobs from entry level to chief executive officer." (p.16).

Some of the conclusions of the analysis by Cotton (1993) were:

- Employability skills are best learned when they are included among instructional goals and explicitly taught (cf. Marsh, 1997; Stasz et al., 1992).
- In school settings employability skills are best learned when classrooms replicate key features of real work settings and student tasks approximate those performed by workers in those settings (cf. Marsh, 1997; Stasz, 1998; Stasz et al., 1992). Other authors want to bring the students to the workplace, promoting situating learning in meaningful contexts (Brown, Collins & Duguid, 1989; Stasz, 1998; Seagraves, Kemp & Osborne, 1996).
- In classes that effectively teach employability skills, instructors assume the role of facilitators and coaches rather than lecturers and order givers, requiring students to take much of the responsibility for their own learning.

3.7 COMPETENCE-BASED EDUCATION

In chapter 3.1 the choice for a competence-based approach to learning has been supported by an overview of developments in science, society and economy. This section will start with relating some theories of learning and recent findings of the cognitive sciences to the concept of competence. The results of the review are indications of the characteristics of competence-based education from the viewpoint of the cognitive sciences.

3.7.1 Learning and competence development

The question "What is learning?" has been approached from many sides, with, at the moment, a prominent place for the findings from neuroscience and the views on situated learning. Relevant findings of neuroscience are listed by Marchese (1997) as follows:

- Body, mind, and brain exist in dynamic unity.
- Our brain is a social brain; the search for meaning is innate. Learning to-do is part of learning to become and to belong. (OECD 2000).
- The brain establishes meaning through patterning. It is not that the patterns are stored in the mind, rather they are in the environment and our brain interacts with the environment to produce the appropriate pattern, that is, to act

intelligently (Gonczi, 2001). It is a mind which does not contain knowledge but is knowledgeable (Bereiter & Scardamalia, 1996), that is knows how to create and to use knowledge when and where needed. Bransford et al. (2000) state that cognitive changes do not result from mere accretion of information, but are due to processes involved in conceptual reorganisation.

- Emotions are crucial to patterning (cf. Gonczi, 2001). In other words, thinking has social-emotional origins.
- Learning involves conscious and unconscious processes.
- Complex learning is enhanced by challenge, inhibited by threat.
- Every brain is uniquely organised, with resulting differences of talent and preference.

Marchese (1997) argues that, from evolutionary studies, we know that 'apprenticeship' is the most natural way of learning. In other words, the most important learning is always situated in practice. Gonczi (2001) states:

"Essentially I believe that we should be coming to the recognition that the best way to prepare people for professional practice is through some form of apprenticeship - an educational process in which the exercise of judgement and the ability to act in the (professional) world emerge out of the complex of interactions to be found a community of practice. The interactions combine cognitive, emotional and bodily processes in the social and cultural setting of the workplace. That is, real understanding is essentially a result of social rather than individual activities" (p. 2).

Boreham and Samurçay (1999) discuss various cognitive approaches to competence, or what drives competent performance. They mention information processing, 'productive systems' theory and connectionist models (Rumelhart & McClelland, 1986) but claim that these models lack (still) the ability to capture the dynamics of transformed and complex work situations. The situated learning approach of Lave and Wenger (1991) defines learning as increasing levels of participation in a community of practice. For the conceptualisation of competence this theory looks promising. Situated cognition is a powerful metaphor for human learning that incorporates elements of everyday cognition, informal learning, authentic learning experiences, and cultural influences (Brown, Collins, & Duguid, 1989). The most important knowledge for performance is tacit (informal, implicit) and resides within. Knowledge is created in a relevant "community of practice," and newcomers become contributing practitioners through rites of entry termed "legitimate peripheral participation" (Marchese, 1997), which can be described as active and gradually increasing participation in communities of practice, which results in learning. However, the situated cognition paradigm has been criticised as

well, because not each encountered situation produces spontaneously structured knowledge (Boreham & Samurçay, 1999; Gonczi, 2001).

Novel conceptions of learning, constructivist philosophies and new technologies have led to the emergence of new learning environments "which are based on constructivist psychological and philosophical principles, team-based, often interdisciplinary, oriented towards the solution of complex, real-life problems, and utilising a variety of technological means" (Salomon, 1998, p. 3). Salomon also mentions the 'situatedness' of knowledge and distinguishes between situated constructivism, where socially shared knowledge is constructed and the more 'cognitive-developmental' constructivism where individual attainments can be carried away and utilised in new situations as partly abstracted, decontextualised knowledge and skill. The construction of knowledge is a process that sometimes occurs individually, and sometimes together with others. The meaning of knowledge has changed. It is not so much acquired for its own sake, but rather accessed and constructed when needed to solve a problem or design something useful. However, this does not exclude the building of generalisable knowledge ('cognitive residue' in the words of Salomon, 1998). Knowledge is, therefore, a social construction in the dual sense of being a verb denoting a process as well as being a noun denoting an object the learner comes to possess.

The ideas of situated cognition led Brown et al. (1989) to propose an epistemology of knowledge that puts activity and perception before conceptual representation - not the other way around, as it is in classrooms. This does not mean that we do away completely with propositional, codified knowledge but rather that we must rethink its connection to the world of practice and the tacit knowledge which develops through acting in and on the world (Boreham & Samurçay, 1999; Gonczi, 2001). This stance, applied to CBE, also answers the criticism on CBE that there is an 'inattention to thinking' (Stone, 1996), and that factual, abstract, and decontextualised knowledge is a useful tool in solving real-world problems.

Promising 'pedagogies' that promote situated learning and that are in accordance with the recent findings in the cognitive sciences (Marchese, 1997), are similar to those mentioned already for the acquisition and development of generic competencies and, in general, those for competence-based education (see section 3.7).

Gonczi (2001) formulates the consequences of the 'new' thinking about learning and the consequences of the results in neuroscience and the cognitive sciences for 'professional education' (see also Box 3.10):

1. The knowledge content of the traditional disciplines is not broad enough and does not lead to sufficient capacity for professional performance.
2. Problem-based learning in which the student is gradually exposed to more ill-defined, complex problems, is an excellent way in professional education to prepare for the world of work. There is no place for a transmission approach to learning. This does not mean that traditional disciplinary knowledge cannot be introduced but that it should be taught in such a way that it can be applied.
3. A new professional education views experience of professional practice as essential for the acquisition of some of the knowledge and performance capacity required for professional practice.
4. A new professional education emphasises the acquisition by learners of diverse generic competencies. This can be done best through the knowledge building undertaken during work in the community of practice.

Bransford et al. (2000), in their book on how people learn, mention in their conclusion eight factors that affect the development of expertise and competent performance . Box 3.10 gives these eight factors.

Box 3.10. Factors affecting the development of expertise and competent performance

1. Relevant knowledge.
2. Experts relate the knowledge they possess to new tasks (useable knowledge).
3. Relevant knowledge brings people to go beyond information and think in terms of problem representations and to relate various kinds of information.
4. Knowledge influences the ways in which people represent problems. Multiple representations may make the solving easier or more difficult.
5. Experts have well-organised knowledge structures. they know what knowledge is needed and where to get it.
6. Different knowledge domains have different structures. Thus an in-depth grasp of the area is needed.
7. Competent learners and problem solvers monitor and regulate their own processing and change their strategies as necessary.
8. The study of ordinary people under everyday cognition provides valuable information about competent cognitive performances in routine settings.

Source: Bransford et al. (2000), p. 237-238.

Motschnig-Pitrik and Holzinger (2002) advocate a 'Rogerian' approach, that is based on the hypothesis that students who are given the freedom to explore areas based on their personal interests, and who are accompanied in their striving for solutions by a supportive, understanding facilitator not only achieve higher academic results but also experience an increase in personal values, such as flexibility, self-confidence and social skills (Rogers, 1983). This approach fits best under the constructivist paradigm, that they compare with the behaviourist and

cognitive paradigms. They summarise the differences in a succinct way: "In brief, the main goal of constructivism is competence, not knowledge as in cognitivism or achievement as in behaviourism" (Motschnig-Pitrik & Holzinger, 2002, p. 163).

3.7.2 The characteristics of competence-based education

Based on the descriptions of CBE by a number of authors (Bontius et al., 2001; Griffioen, 2002; Jochems & Schlusman, 2000; Poortman, 2001; Schlusmans et al., 2000; Van der Sanden et al., 2001) a list of characteristics can be given that, together, form the 'archetype' of an ideal competence-based curriculum.

▪ Competence-based education is oriented to the professional practice

Aspects are:

- Competencies with the related tasks and situations or problems from the professional practice are point of departure.
- The curriculum is based on the professional profile of the professions that the programme is related to.
- Sufficient attention for orientation on and development and innovation of profession and professional practice.
- Permanent reflection on profession and professional practice.

CBE is based on the future occupational practice of the graduate. The curriculum has an integral set-up in which the profession is central (Beile, P.M, 1997; Boyatzis, Leonard, Rhee & Wheeler, 1996; De Bie & Mostert, 2000). Field and Drysdale (1991) indicate as one of the characteristics of competence-based training that the programme content is based directly on the skills needed to do a job.

▪ CBE is learner-centred and the learning process is central

Aspects are:

- Learning process regulated by student.
- Learning process is put centrally.
- Depending on the entry level (already developed competencies) an appropriate/ personal curriculum is composed.
- Learning by doing.
- Learning to learn.

Van der Sanden et al. (2001) emphasise the importance of self-regulation, including, motivation and self-confidence.

An essential aspect in competence-based training (and also important for CBE) is that students only need training for those competencies, which they cannot demonstrate yet (Beile, 1997; Kirschner et al., 1997). Filius and De Zeeuw (1999),

cited in Griffioen (2002), advocate a combination of an approach where the profession is taken as point of departure and from there the competencies to be acquired are described. The individual worker is central and, based on his 'competence status' (already acquired competencies) the competencies are defined that still have to be acquired and developed. Other aspects of a learner-centred approach in CBE are the use of individualised materials, flexible learning time and a continuous feedback to the learner (Field & Drysdale, 1991).

▪ **In CBE the role of the teacher is that of a 'cognitive guide'**

Aspects are:

- Teacher has a guiding role.
- Teacher demonstrates, makes competencies visible.
- Teacher uses scaffolding.

Teachers encourage students to engage in active inquiry and make explicit their tacit assumptions . "A constructivist teacher is more interested in uncovering meanings than in covering prescribed material" (Kerka, 1997, p. 1).

The involvement of a teacher in the learning process of learners has been described as 'process-oriented teaching' (Bolhuis & Kluvers, 1998). It is characterised by:

- a gradual move to self-regulation, getting students slowly used to independent learning;
- self regulation is partly dependent on sufficient disciplinary content knowledge and skills;
- attention for the emotional side of learning (self-confidence, motivation, etc.);
- learning processes and results are seen as social phenomena, in which social skills and co-operative learning are central (Van der Sanden et al., 2001).

Another important aspect of the functioning of teachers/academic staff is that they are learning professionals in a learning organisation (Van der Sanden et al., 2001). The development of competencies requires a change in their role as teacher, involving a change in their beliefs system (Fullan, 1992; Verloop, 1995). At the same time they need support from colleagues and from the management. Communication and exchange of experiences is a very important aspect of this support (cf. Fullan & Hargreaves, 1992).

▪ **CBE has a constructivist approach**

Simons (1999), cited in Griffioen (2002), states that in socio-constructivist learning and work environments the development (spontaneous and stimulated) of competencies plays a central role. Griffioen (2002) uses the metaphor of the network of steel in reinforced concrete to emphasise that the constructivist paradigm together with the concepts of competence forms the backbone of

competence-based education (c.f. Lankard, 1996). Kerka (1997) suggests that a constructivist learning environment makes transfer more effective between learning and work. She mentions situated learning and cognitive apprenticeship as suitable learning models as well as reflection in action (Schön, 1983). A whole range of constructivist methodologies can, therefore, be used in CBE, such as co-operative learning, portfolio assessment, and visual tools such as brainstorming webs, thinking process maps, concept mapping, and ICT and multimedia (Hyerle, 1996 cited in Kerka, 1997; Salomon, 1997).

▪ **CBE has learning environments focussed on the development of competencies**

Aspects are:

- Development of competencies is central.
- Descriptions are given of the specific and generic competencies that will be acquired and developed by the students during the programme.

Disciplinary content is not any more the criterion for arranging the curriculum, but the competencies that should have been acquired and developed by the end of the education programme (Kirschner et al., 1997; Mathijssen-Jansen, 1999). In this sense one could speak of designing and developing the curriculum 'backwards', because the knowledge and skills are determined by the competencies that are needed by a competent professional and not by the disciplinary 'body of knowledge'.

Competencies are only acquired in a realistic context or authentic learning environment (Herrington & Oliver, 2000). Mathijssen-Jansen argues against the learning of isolated knowledge and skills and later integration. She speaks of rich (powerful) learning environments (c.f. Lodewijks, 1995), where learning is a process of contextualisation (from theory to situation, from general to specific) and of decontextualisation (from situation to theory, from specific to general). This formulation does not exclude the teaching of theory (c.f. Gonczi, 2001; Griffioen, 2002; Mulcahy, 2000), for example through a lecture, but always links this teaching to contextualisation or application (Down et al., 1999). In the end students need to have developed 'heuristics' to evaluate a situation with help of disciplinary knowledge and to deal with that situation effectively (Mathijssen-Jansen, 1999). Kirschner et al. (1997) distinguish in a 'study environment' two aspects: a task environment and a knowledge environment (that includes the 'tools' for performing the task). The development of competencies is done through activities that can be labelled 'learning tasks'. A description of learning tasks is given by Moerkerke (1996): The student will, based on a problem in a meaningful context, carry out a series of actions in order to get the desired result. In dealing with the problem the student can use various aids, will have to use theory and methodology while the performance of the student will be assessed based on quality criteria.

Learning tasks that have a strong link with the professional practice are described by Van Puffelen, Ter Wee, & Jager (2001) and named 'learning practices'. This 'producing learning' is embedded in a meta-network of guidance and counselling of students, promoting their personal growth and social development as well as the development of reflective competencies. Gonczi (2001) sees experience of professional practice as essential for the acquisition of some of the knowledge and performance capacity required for professional practice and advocates a very substantial work placement or 'dual learning' (cf. Kessels, 2000).

▪ **CBE includes the development of generic competencies**

Aspects are:

- Generic competencies are integrated throughout the whole curriculum.
- CBE stimulates the transfer capacity.
- Focus on innovations and problem solving and the explication (definition) of problems.
- Self-reflection and self-assessment play a fundamental role.

An integration is needed between specific and generic competencies (Everwijn, 1996). Students need to have the capability to ask the right questions in new, not common situations. The competencies related to this are: analysis, problem solving, communication, judgement and decision (Mathijssen-Jansen, 1999). Dison and Rule (1996) emphasise the creation of appropriate learning environments that include discussion- oriented and problem-based approaches to learning. In such learning environments a gradual shift (e.g. through a learning trajectory [Timmers, 2001]) is realised from being teacher-dependent and narrowly focused on facts and procedures to the point where students can learn autonomously (Disan & Rule, 1996; Gonczi, 2001) and have become 'creative learners' (Ellström, 1998). Creative learning, in the taxonomy of Ellström (1998) corresponds to what others have called double-loop learning (Argyris & Schön, 1978), or expansive learning (Engeström, 1994). In this type of learning the learner has to use his or her own authority not only to evaluate outcomes or chose methods, but also to define the problem or the task at hand, i.e. to diagnose the situation (Ellström, 1998). A strong relation between work and learning implies 'connected learning', i.e. learning to work and learning to think (Parnell, 1996, cited in Lankard,1996). Connecting the content of knowledge with the context of application enables students to expand the "...ability of the thinking brain to solve problems and to assimilate that knowledge in a way that can be useful in new situations" (Gonczi, 2001; Parnell, 1996, p. 20, cited in Lankard, 1996). This necessitates the learning of meta-cognitive skills and self-evaluation.

▪ **In CBE assessment focussed on competencies**

Aspects are:

- Mainly assessment of competencies, rather than knowledge and skills.
- Assessment is both formative and summative and forms an integral part of the process of the development of competencies.

Assessment is the process of getting hold of evidence by one or a number of means and making judgements of the evidence in order to make inferences about an individual's competence (Mitchell, 1989). In general terms the means to collect evidence can be described as follows (Van Diggele & Straetmans, 2002; Mitchell, 1998):

- collecting evidence naturally occurring in the workplace;
- setting up particular activities structured within the workplace;
- using simulations in some form of artificial environment;
- using questioning techniques.

The evidence has essentially two forms: performance or knowledge (Mitchell, 1989). Performance is the first choice while assessing knowledge serves to fill the 'evidence gap', left by insufficient opportunity to assess performance. Emphasising the central place of the learner in CBE another way of describing assessment would be to talk about the 'proof of competence' that the learner has to give. In other words, it is the responsibility of the learner to demonstrate competence through performance from which the competence can be inferred.

Performance assessment is described by Wangsatorntankhun (2001) as a dynamic process calling for students to be active participants, who are learning even while they are being assessed. The term embraces both alternative assessment and authentic assessment (Wangsatorntankhun, 2001). Performance assessment is carried out by giving the learner a clearly defined task and a list of explicit criteria for assessing the performance or product. Criteria are often given in the form of rubrics that can be either analytic (specification of parts) or holistic (looking at overall performance).

Assessment in CBE can be diagnostic, formative and summative. Important is that that the student has become more competent (Griffioen, 2002). This makes formative assessment a very important element of CBE. Combinations of assessment are preferred including self-assessment and peer-assessment (Biggs, 2002; Griffioen, 2002; Mathijssen-Jansen, 1999). Prinsloo (2001) mentions on-the-job tests, observation, simulations, written examinations, continuous assessment, integrated assessment, portfolios, performance appraisals, self and peer assessment, etc. Often qualitative assessment methods will be applied that could vary from the well-known checklist approach (Ling, 1999). Performance in complex and dynamic (work) situations can be done through workplace situations, assessed

through expert observation (and peer- and self-observation). The assessment and development centres, that have been in use in work situations to assess competencies are now also introduced in Higher Education (Eringa, Rietveld & Zwaan, 2000). The assessment centre method uses a combination of groups- and individual exercises, tests and simulations (cf. Van Beirendonck, 1999). Gonczi (1994) emphasises methods which assess a number of elements of competence and their performance criteria simultaneously and, in general, a broad base for providing evidence from which to infer competence. Because formative assessment is important, a complete record of development of competencies should be recorded for each learner (Field & Drysdale, 1991), for example through a portfolio that also can stimulate reflection by the student (Griffioen, 2002).

The choice of assessment methods should, according to Hager (1995) be guided by the criterion which method is most capable of assessing competence in a holistic manner. Characteristics of such a holistic assessment are:

- assessment is problem oriented;
- assessment is interdisciplinary;
- assessment is embracing actual practice;
- assessment is covering groups of competencies;
- assessment is focusing on common circumstances;
- assessment is demanding analytical abilities;
- assessment is combining theory and practice.

In general competence-based assessment in a context-rich environment has a high degree of relevance and validity (Klarus, 2000), provided the availability of competent assessors.

In an integrated system, all aspects of teaching and assessment are tuned to support high level learning. Constructive alignment (CA) is such a system (Biggs, 2002). The learner constructs meaning through relevant learning activities while the teacher sets up the appropriate learning environment in which all elements are aligned to the development of the required competencies. Aligning assessment and learning activities or competence development is very important because students learn what they think they'll be assessed on, not what's in the curriculum (Biggs, 2002). Dochy and Moerkerke(1997) state: 'As assessment changes, learning and teaching will change also.' (p. 415).

In competence-based assessment standards play an important role. Individuals are described as competent if they can meet or surpass the prevailing standard of 'adequacy' for a particular activity (Beile, 1997; Mansfield, 1989; Mitchell, 1989). Standards are sometimes called 'performance standards'. Given the complex and dynamic nature of professional work, a decision must be made as to what combinations of tasks, attributes and contexts need to be examined to arrive at overall competence (Hager et al., 1990).

The use of performance standards or competence-based standards has a number of advantages, such as making the profession explicit, providing means for self-reflection and self-improvement, and facilitating the development of transferable generic skills (Marsh, 1997). Marsh also mentions disadvantages, especially for occupational standards or competence standards that are defined nation-wide, for example in Qualification Frameworks. He mentions the danger of a levelling down to minimum standards (deskilling) and the killing of creativity of teachers due to the uniformity in the standards.

Storey (2001) gives as an example of performance standards the British National Occupational Standards that contain:

- performance criteria - how you know that the outcome is of the right quality;
- range - situations and contexts to which the standards applies;
- knowledge specification - what the individual needs to know, understand and apply to achieve the outcome;
- evidence requirements - types and sources of evidence required to prove that the outcome has been achieved.

Storey cites Eraut and Cole (1993) who make a distinction in providing evidence of performance (the activities in the workplace) and evidence of capability (the cognitive processes, concepts and theories that underpin these activities). They support in this way the integrated, holistic of competence and competence assessment of Hager (see section 3.5.1). In the early stages of courses foundational knowledge and a range of enabling skills, which provide the basis for the future development of occupational competence, need to be acquired and assessed accordingly (Scheeres & Hager, 1994). Later the performance as proof of competence becomes more important.

In CBT assessment is criterion-referenced (Field & Drysdale, 1991; Ramsay, 1993). Although standards and criterions can be described it is the judgement of the teacher, trainer or supervisor that will determine the level of performance or proof of competence. It is important not to interpret competence standards too narrow, as just descriptions of desired behaviour, because that would signify behaviourist approaches in which competencies are renamed behavioural objectives (Ramsay, 1993). Standards need not to be assessed in a dichotomous way (pass or fail). Competency standard can be seen as a particular point on a continuum of more or less competent performances (Ling, 1999).

Summarising the following characteristics of a competence-based assessment model can be given (Klarus, 2000):

- Judgmental approach of competence proofs.
- Authentic assessment.

- Alignment of assessment. It follows the same order as in a professional situation: planning, execution, evaluation, improvement.
- Integrated assessment. Integration of theory and knowledge, knowledge through application. Competencies appear as actions where declarative, procedural and conditional knowledge are integrated.
- Criterion-referenced assessment.
- Assessment depends on competency requirements, not on a the learning path.

▪ **In CBE curriculum development is based on the elaboration of profiles and identification of competencies**

One aspect is:

- Domain-specific knowledge and skills are determined by the competencies that are needed by a competent professional and not by the disciplinary "body of knowledge".

Components of a CBT programme include identifying the competencies, designing training and assessment (Beile, 1997; De Bie & Mostert, 2000).

▪ **Other characteristics of a CBE**

Scheeres and Hager (1994) write that a competence-based curriculum can be situated on a continuum between two extremes, a task-based view and a generic view.

A task-based view of competence tends to assume that the units and elements of the competency standards are the units of curriculum content and that these units and elements are finished products. On the other hand, in the generic view the actual curriculum content hardly matters, as long as generic attributes are being fostered and developed (as, for example, is done at Alverno College, 1985). The success of this college proves that the generic view does not necessarily lead to the education and production of generalists as suggested by De Bie and Mostert (2000). A position between the extremes implies a focus on major tasks to be performed and on the underpinning knowledge, skills and attitudes (Scheeres & Hager, 1994). In general competency standards, as a guide to actual teaching activities, will be more useful in the later, rather than the earlier stages of a course, implying that a competence-based approach, according to Scheeres and Hager can start with learning the tools (knowledge, skills, attitudes) before applying them. Competency standards indicate for the earlier parts of an education or training programme the necessary knowledge, abilities, skills and attitudes and for the later part they specify the outcomes that should be attained by the graduates. However, there is not a one to one relationship between competency standards and curricula.

Griffioen (2002) mentions as problematic issues in the development and implementation of CBE:

- The lack of implementation capacity. This includes as well the resistance of learners against the fact that they are made fully responsible for their own development.
- Too much attention for reflection and analysis of the learning process, leaving no time for learning itself. In terms of transfer Griffioen (2002) states that reflection is not necessary for low-road transfer, the automatic triggering of well-practised routines in circumstances where there is considerable perceptual similarity to the original learning context (Perkins & Salomon, 1996).
- Sometimes a learner cannot cope with the complexity of a task in a realistic context. This may be caused by problems of the learner with partial tasks or the wrong sequencing of tasks in the curriculum. Promoting reflection and meta-cognition in varying tasks and contexts may help and, at the same time, contribute to the development of transfer competencies (Salomon & Globerson, 1987).

An example of design guidelines for competence-based curricula, is given in Box 3.11, where De Kleijn described design criteria for, in his words, learning environments for 'learning to learn' in the context of the Education Faculty Amsterdam (EFA), an institute of professional higher education.

Box 3.11. *Design criteria for a competence-based curriculum*

1. Point of departure are processes or problems of the profession.
2. Content knowledge (the 'body of knowledge') of the profession is used as a tool for the analysis, diagnosis and action in order to solve professional problems. Choices can be justified with theoretical and methodical models related to the profession.
3. The 'construction' of learning lines (similar to Timmers' learning trajectories, see section 3.6.4):
 - Professional practice/ apprenticeship;
 - Skills practice (e.g. micro teaching);
 - Project or problem oriented line;
 - One or more conceptual lines;
 - Counselling and guidance in study path and for a career.
4. Students are stimulated to regulate their learning processes to an increasing extent. Students are responsible for the final results (proof of competence).

Source: De Kleijn (1998).

3.7.3 Professional education, competence-based education and higher education

The gap between vocational education and general, academic education (e.g. higher education) is becoming smaller. There is a growing debate about the social relevance of higher education, including links between higher education and the world of work (Teichler, 1998). The term 'professional education' is not reserved for

vocational education but implies that also in higher education a preparation should take place for competent performance in a profession. Graduates are described as 'beginning professionals'. Professional education is concerned with the workplace not merely as a site of valid knowledge production and transmission, but as one which is equally valid to institutional knowledge production (Gonczi, 2001; Leathwood & Phillips, 2000). Down et al. (1999) state: "As argued, such integration needs to be built into the total teaching and learning approach of the university and to shift the focus from knowledge and skill acquisition to a holistic, integrated and contextual experience which builds professional competence through enhancing the students ability to put their learning to work" (p. 11).

The importance of the workplace as 'learning site' is also emphasised by Kessels (2000) in his defence of dual learning that he describes as a combination of learning and working, based on a learning-labour contract. Work is part of the academic curriculum, the student is employee and the work floor is a place for academic education. Kessels (2000) concludes with the following points:

- Knowledge-intensive organisations are rich learning environments.
- They create a variety of knowledge and skills.
- Dual learning signifies the new student knowledge-worker.
- The search for Truth can never be an alibi for isolation.
- Co-operation with the world of work will revitalise the academic world.

Teichler (1998) mentions an international comparative survey on the academic profession undertaken in the early 1990s in various American, Asian and European countries, in which academics considered "preparing students for work" and "helping to resolve basic social problems" almost as important as "promoting scholarship and research" and "protecting free intellectual inquiry".

According to Wolf (1989) there is no bifurcation between competence and education. "There is no contradiction between adopting a competency-led approach and teaching generalisable and higher-order skills"(Wolf, 1989, p. 40). Thus, in general education the generic cognitive competencies only get substance through (vocational) contexts (Debling, 1989; Hager, 1997) and in vocational education competencies related to the profession cannot be developed without a substantial (general) knowledge base (Hager & Hyland, 2003). An integrative, holistic view of professional education will, therefore, include aspects of general and of vocational education (Franklin, 1997; Lankard, 1996) "Though experts views differ as regards the composition of knowledge most desirable for coping with future challenges from the world of work (some note a continuous need for specialised knowledge), some advocate a shift towards general education, some point out the growing role of interdisciplinary knowledge), views converge that higher education cannot

confine its educational role to the transmission of knowledge, but rather should opt for a more holistic approach" (Teichler, 1998, p. 25).

3.7.4 Competence-based education and other forms of student-centred education

There are various other approaches to teaching and learning that have characteristics in common with CBE. The most important ones are briefly discussed below:

Problem-based learning (PBL)

Characteristics of PBL are the learning in the context of problems, the learning process is self-directed and co-operative learning takes place. However, the final control is with the teachers who decide on the problems, based on what they think should be learned and developed (Griffioen, 2002). PBL puts, in comparison with CBE, more emphasis on the didactics for the (collectively) solving of problems, while CBE emphasises the character of the problems that should be solved, namely the core problems of the professional world (Van den Bosch, 2001; Van der Klink et al., 2002).

Project-oriented learning (POL)

In POL learning takes place within projects that often have a relation with the professional practice (Griffioen, 2002). They consist of partial assignments, the realisation of which are the responsibility of the student. There is no full control and responsibility and therefore POL does not correspond to a competence-based approach, although it can be used as a methodology within CBE (Griffioen, 2002).

Case-based learning

Griffioen (2002) advocates case-based learning as a very suitable method for CBE because:

- a concrete practical problem can be approached from different perspectives;
- learners can analyse a practical situation on their own, using their own arguments;
- learners learn to apply theoretical and practical arguments on a specific situation and to make choices;
- all assignments related to a case are authentic because they are based on a realistic practical situation;

- cases are suitable for the development of specific and generic competencies (problem solving, communication, attitudes, information management);
- cases are very suitable for interdisciplinary approaches, because that occurs also in the professional practice.

Outcomes-based Education (OBE)

The terms 'competence-based' and 'outcomes-based' are used interchangeably (for example by Hager, 1997). OBE and CBE have a common assessment philosophy, an emphasis on the student's demonstration of what he knows and is able to do, not on completing a pre-determined set of courses (Baldwin & Arias, 1994). There is also emphasis in OBE on the individual pathways to achieve learning outcomes. In practice OBE has shown often a narrow, vocationalist approach, as exemplified in the criticism on the South African OBE (Kraak, 1999). As discussed before in section 3.5.1 the integrated conceptualisation of competence leads to an approach to teaching and learning not only based on outcomes, but also on underlying cognitive attributes. Although also in OBE broad conceptions of outcomes can be used (Kraak, 1999), terms like 'generic outcomes/skills' are more associated with CBE.

3.7.5 Competence-based education in Sub-Saharan African countries

Developments in Sub-Saharan Africa that have something to do with competence-based education are very recent and until now hardly documented in the research literature. Musonda (1999) describes a teacher education reform experiment in Zambia directed towards a 'competence-based curriculum aimed at developing, broadening and deepening the pedagogical and professional competencies of the trainees through active methods of study' (Ministry of Education, 1996, p. 2, cited in Musonda, 1999). The experiment suffered serious implementation problems, mainly because the 'tutors' in the new programme had not grasped and accepted the concepts of CBE. In South Africa an outcomes-based approach has been adopted, covering the whole education system. Various implementation problems have delayed the full-scale introduction of OBE. A South African information site on the WWW writes on OBE

(http://www.safrika.info/ess_info/sa_glance/education/edufacts.htm): "When the African National Congress (ANC) came to power, Curriculum 2005 was implemented as a flagship education policy of the new government. Its cumbersome, overdesigned nature and extreme departure from the traditional training received by teachers led the government to commission a simpler, reworked version - Curriculum 21."

Further developments in the region are mostly related to vocational education and training and the creation of Quality Frameworks. In August 2000 the German GTZ (Gesellschaft für Technische Zusammenarbeit [Corporation for technical co-operation]) organised a workshop in Dar Es Salaam, Tanzania, with the title: 'Introduction of Competence-Based Education and Training (CBET) to reform Technical/Vocational Education and Training (TVET) Systems in East and Southern Africa: Status, Challenges, Perspectives (GTZ, 2000). Participating

countries were Swaziland, Malawi, Kenya, Namibia, Zimbabwe, Mozambique, Uganda, Tanzania and Botswana. From the proceedings of the workshop it becomes clear that these countries have just started on the road to CBE and that most of them are working first on a National Qualifications Framework. Some relevant conclusions of this workshop:

- Most countries embarked on the reform process based on CBET at about the same time.

On the generation of standards:

- There are differences in understanding / interpretation of meanings of key terminology, hence, there is a need to establish a common understanding.
- Most countries focus reform on the Vocational Education and Training sub-system.

On curriculum development:

It was noted that:

- standards (unit or occupational) are to be used as the starting point;
- key is how to translate standards into learning/ training programmes;
- if the curriculum development, which is the implementation stage of CBET, is not done well, its effect would be precarious;
- countries are at different stages of standards development; and
- there is a need for CBET curriculum examples.

3.8 IN CONCLUSION

From the above review of the literature a number of observations or statements can be 'distilled' as a basis for the curriculum of post-graduate programmes in the Faculty of Education at the Eduardo Mondlane University (UEM) in Mozambique. Although this chapter has covered many aspects of the competence concept and of competence-based education, literature about the design, development and implementation of a competence-based curriculum has not been discussed. This is done in Chapter 4 of this study.

In the concluding part of this chapter a number of questions are formulated that are based on the literature reviewed above and that may guide the reconstruction and analysis of the design, development and implementation process.

The present society can be characterised as becoming more and more complex, dynamic and knowledge-intensive. This requires professionals who are able to respond confidently and expertly to new situations and problems, and who, next to solid domain-specific knowledge and skills, also have the ability to acquire knowledge and know-how that is just-in-time and on-the-spot.

General, academic (higher) education is, therefore, becoming more professional or profession-oriented, implying that a curriculum with a competence-based approach could be an appropriate choice.

In order to conceptualise 'competence' and 'competency' the view is adopted that the competence concept is flexible and can be depicted as an entity with moveable boundaries (Stoof et al., 2002). Therefore, choices are made in order to delineate the boundaries of the competence concept used in this study. A first choice is that competence is used as an individual trait. From the seven meanings of competence, presented by Weinert (1999), three relate to the holistic competence concept that is used in this study: competence as a combination of cognitive abilities and motivation, resulting into action; competence as a set of key competencies or 'generic competencies'; competence as a set of 'meta-competencies'.

The following 'dimensions' of competence clarify the concept (see Section 3.3.4):

- *Personal versus task characteristics*: a clear distinction is made between *competency* as a personal capability and *competence* as the capacity to perform according to a standard.
- *Individual versus distributed competence*: the focus is on individual competence.
- *Specific versus general competence*: the use of 'key occupational task' and the related 'core competency' implies a more general competence concept. At the level of competence-based education and training more specificity is needed in the form of domain-specific and generic competencies.
- *Levels of competence versus competence as level*: in this study the view is adopted that there is a gradation in being competent.
- *Teachable versus non-teachable competence*: competencies can be learned (acquired and developed) but not all competencies are 'teachable'.

With respect to related terms the following delineation of the competence concept has been made in this study (see Section 3.3.4):

- *Competence versus performance*: performance is what is directly observable, whereas competence is inferred from performance.
- *Competence versus qualification*: qualification is taken as being related to certification, representing an official proof of the competence of a person.
- *Competence versus capability and ability*: in this study the term competency is defined as an 'capability' and competence as 'capacity'. This is more based on convenience than strong semantic arguments.
- *Competence versus knowledge, skills and attitudes*: the question what underlies a competent performance involves more than knowledge, skills and attitudes. Two important aspects are the personality of the performer and the context in which the task is performed.
- *Competence versus expertise*: expertise can be seen as a level of competence.

In general much of the criticism is directed at a behaviourist approach of competence where competent behaviour is 'cut up' in small tasks and competence is acquired through mastery of all of these tasks. The later cognitivist and especially constructivist approaches lead to a more holistic and integrated view on competence. Some important questions (and answers) related to the criticism are (see Section 3.4):

- *How to deal with the conceptual confusion?*
Making choices as summarised above can clarify much conceptual confusion.
- *How to avoid a behaviourist approach?*
Adopting an integrated approach to competence in which competence is conceptualised in terms of knowledge, abilities, skills and attitudes displayed in the context of a carefully chosen set of realistic professional tasks. Also, that any description of competence should take account of context and personal characteristics when outlining how competence and performance are related.
- *How to deal with the criticism that the competence approach leads to generalists and that fundamental and specialist knowledge is neglected?*
Combining an information-rich subject-matter content with an experience-rich context of application.
 - *How to deal with the criticism on flawed assessment in competence-based education?* Competence does not have to be assessed on a one level basis (either you have it or not) but on the basis of a continuum of levels of competence.
- *How to avoid that competence-based education and training become an instrument for control by politics and 'private capital'?*
A broader, integrated concept of competence avoids behaviourism and is a democratic and emancipating way of looking at work, at what makes good work and how to learn to do a good job.

In the search for a competence conception that avoids a behaviourist view and, on the other hand, a pure generic view in which competence can be developed through generic attributes only, the integrated view of Gonczi, Hager and Oliver (1990) is taken as point of departure (see Section 3.5.1). In the integrated view performance and attributes (knowledge, skills, attitudes) are integrated. Competency is defined as a complex combination of attributes (knowledge, attitudes and skills) that underpins some aspect of occupational performance (Hager, 1996).

Implications of this integrated view on competence are:

- Competence is inferred from performance.
- Competence should capture the richness of the professional practice.
- There is a manageable number of core competencies that characterise a profession.

- There is more than one way to realise a complex occupational task.
- The integrated approach offers a powerful device for improving the content and learning environment, including assessment of the curriculum.
- There is a joint control over the curriculum by the profession and the education provider.
- Competence is demonstrated over time, for example through portfolios. Assessment needs careful planning.
- By integrating attributes and tasks, the richer conception of competence integrates general and vocational education.

The essential elements in the description of the competence concept are (see Section 3.5.2):

- the capability;
- to choose and use (apply);
- an integrated cluster of knowledge, skills and attitudes;
- with the intention to perform a role or realise a task;
- in a specific (work) context;
- according to a certain standard;
- taking into account personal characteristics such as motivation and willpower.

The competence model that is used for the curriculum of the faculty is, thus, based on a definition of competency that encapsulates an integrated, holistic view of the competence concept (see Section 3.5.3).

Competency is defined as: the capability to choose and use (apply) a combination of knowledge, skills and attitudes with the intention to realise a task in a certain context, that includes personal characteristics such as motivation, self-confidence, willpower.

Competence is the capacity to realise 'up to standard' the key occupational tasks (see below) that characterise a profession. A *competent* professional shows a satisfactory (or superior) performance. *Key occupational tasks* are the tasks that are characteristic for a profession. A profession could be described by 20 - 30 key occupational tasks or 'work roles'. The competencies that are needed for the realisation of (key) occupational tasks can be classified as *domain-specific competencies*, including disciplinary and cross-disciplinary competencies, and generic competencies. *Generic competencies* are competencies that are needed in all content domains in jobs or professions and can be transferred, that is, utilised in new occupational or life situations (see Section 3.6).

They are, together with domain-specific competencies, the capabilities that underpin the realisation/performance of a task. In many countries generic competencies (under a plethora of names) have been included in the curricula of general and

vocational education. The lists of generic competencies in different countries are quite similar. For the curriculum of programmes in the Faculty of Education at the UEM a set of generic competencies has been defined that can be classified in three groups: general generic competencies (e.g. communication), meta-competencies (e.g. reflection) and basic competencies (e.g. numeracy). Generic competencies are only 'applied' in a certain context and developing generic competencies is best done by consciously applying them in a variety of contexts. A solid knowledge-base is one of the conditions of transfer, the expression or application of competencies in new, previously unknown situations. Other conditions for successful transfer include explicit abstraction of principles from a situation, meta-cognitive reflection on one's thinking processes and using metaphors or analogies as a bridge between old and new material or situations. There are various 'strategies' to include the development of generic competencies in the curriculum, ranging from stand-alone, bolt-on courses to complete infusion in disciplinary content-based courses. A promising strategy is the design of a learning trajectory, a set of learning opportunities, organised throughout an educational programme.

The acquisition and development of competencies requires learning environments that have the characteristics of competence-based education (CBE). These characteristics can be used to determine the quality of a curriculum that claims to be competence-based. They can be considered to be the 'pillars' of the 'ideal' curriculum for educational programmes in the Faculty of Education and can be summarised as follows (see Section 7.3.2):

- CBE is based on the future occupational practice of the graduate.
- In CBE curriculum development is based on the elaboration of profiles and identification of competencies.
- CBE includes the development of generic competencies.
- CBE has learning environments focussed on the development of competencies.
- CBE fits in the (social) constructivist paradigm, meaning that individuals construct their own knowledge in interaction with their physical and social environment.
- CBE is learner-centred and the learning process is central (learning to learn and to think).
- In CBE the role of the teacher is that of a 'cognitive guide'.
- In CBE assessment is focussed on competencies, not separately on knowledge and skills.
- In CBE curriculum development is based on the elaboration of profiles and identification of competencies.

In the following chapters the design, development and implementation of a competence-based curriculum for the Faculty of Education will be 'reconstructed'. The result of this study is then one of the 'examples' that is asked for in the Southern African Region, where curriculum-reform in the direction of CBET has started but much design and development of competence-based curricula still has to take place.

Based on the review of literature a number of questions can be formulated that guide the exploration and analysis of 'process and product' during the design, development and implementation of the curriculum, especially in the phases of formal, perceived, operational, experiential and assessed curriculum. The format of the questions is based on a study of twelve pilot experiments in Dutch schools involving a competence-based approach to competence-based vocational education (Van der Sanden et al., 2001).

A. On the content of the programmes:

1. Does the development of the programmes start with the formulation of a professional profile? If yes, how is this done?
2. Is a graduate profile formulated? Does this profile contain competence standards?
3. Are domain-specific and generic competencies formulated for the programmes?
4. Does the content follow from the formulated competencies? Is it clear how this was done?
5. Is there integration of the content between courses in a programme or between programmes? How is the integration realised?
6. How is the relation with the professional practice maintained?

B. Characteristics of the learning environment:

7. What didactic approaches are used?
8. Are teachers functioning as 'cognitive guides'? How are they doing that?
9. How are students supported in creating their own learning environment?
10. How are students encouraged to reflect on their learning experiences?
11. How are differences addressed in the pace of development between students?
12. How are authentic learning situations created?
13. How is a variety of contexts created in the learning environment?
14. Is the acquisition of knowledge related to the solving of practical problems (just-in-time knowledge)? How is this done?
15. How is the acquisition and development of generic competencies addressed in the various courses?

16. Is transfer of generic competencies promoted? If yes, how?
 17. What is the role of ICT in the programmes?
- C. *On assessment*
18. Is there authentic assessment, focussed on competencies? If yes, how is this done?
 19. Does formative assessment provide feedback to the students about the development of their competencies?
 20. Is a student portfolio included in the assessment. How is the portfolio assessed?
- D. *Professional development of staff and management:*
21. Is reflection taking place by staff on their professional practice? How?
 22. Are the competencies of staff assessed and developed? How?
 23. How is the processes of competence development and professional development of staff managed by the faculty leadership?

CHAPTER 4

Development and implementation of an innovative curriculum: a literature view

In Chapter 3 a review has been given of the literature on competence and competence-based education. The subject of this study is the reconstruction and analysis of the design, development and implementation of a competence-based curriculum in the Faculty of Education at UEM. This chapter, therefore, reviews selected literature on curriculum development, educational design and on managing change. Because the curriculum development process took place with the collaboration of experts from Dutch partner universities, actors from different cultures met each other in the context of an international project. A separate section is devoted to the role of culture in project implementation and in communication. An elaborate discussion falls outside the scope of this study, but a discussion of the literature on relevant issues will help the reconstruction and analysis in the later chapters.

In Section 4.1 concepts of curriculum and curriculum development are presented. An important step in the design and development of a competence-based curriculum is the needs assessment. Section 4.2 addresses the role of a needs assessment, with special emphasis on its relation with the formulation of professional profiles. Implementation of an innovative curriculum requires managing a change process. In Section 4.3 the characteristics of change processes are discussed as well as the monitoring and managing of change. Section 4.4, addresses the role of culture in the international project of setting up the Faculty of Education at UEM, involving the UEM as the principal actor and the three partner universities from the Netherlands. Finally a brief summary of the literature findings and a conclusion are given in Section 4.5 in relation to the curriculum development process that is reconstructed and analysed in this study.

4.1 ON CURRICULUM AND CURRICULUM DEVELOPMENT

The term 'curriculum' is ambiguous and open to many interpretations (Jackson, 1992). However in all definitions curriculum is seen as a plan. For example Taba (1962) introduced the notion of 'plan for learning' (cf. Van den Akker, 1998). Posner

and Rudnitsky (1980) talk about a plan that guides the process of instruction. To them curriculum is not a process, but represents a set of intentions, intended learning outcomes. Walker (1990) defines a curriculum as: "The curriculum refers to the content and purpose of an educational programme together with their organisation" (p. 5). Marsh and Willis (1999) define: "Curriculum is an interrelated set of plans and experiences which a student completes under the guidance of the school" (p. 5). In this study the definition of Walker is used, emphasising that curriculum is a plan with certain elements or aspects on which decisions have to be taken.

Klein (1991) defines curriculum (implicitly) as: decisions dealing with the goals, content, materials, and evaluation procedures, at least in part, that students experience while they are at school. She gives seven 'perspectives' or levels of decision making: academic, societal, formal, institutional, instructional, operational and experiential. These levels overlap largely with the curriculum representations of Goodlad et al. (1979), adapted by Kessels (1993), as discussed in Chapter 1. Klein names nine curriculum elements on which decisions should be taken. These elements return, in an extended form, in the 'curricular spider web' of Van den Akker (2003), that has ten 'spokes'. Just as pulling one thread/spoke in the web will also affect the others, the ten curriculum aspects have a synergetic relation and should be aligned in all curriculum manifestations. The ten curriculum aspects in the curricular spider web are rationale, goals/objectives, content, learning activities, roles of teaching staff, materials & resources, ways of grouping, time, space, and assessment. The fact that all elements of a curriculum should be tuned to support high level learning is described by Biggs (2002) as 'constructive alignment'. Constructive alignment refers to a learning environment that supports the learning activities appropriate to achieving the desired learning outcomes (Biggs, 2002).

Curriculum development has changed, over the years, its emphasis from content to practice (Clandinin & Connelly, 1992). The design and development of 'learning environments' is nowadays an important aspect of curriculum development, signifying as well the importance of constructivism in the educational thinking of today.

The conceptualisations and models in educational design and development have, in parallel with the increasing emphasis on process aspects, included more and more social aspects next to the technical aspects of educational design (Visscher-Voerman et al., 1999). Four perspectives (paradigms) are distinguished by Visscher-Voerman et al. (1999) that may guide the designers of educational interventions (products and programmes), with the observation that they are usually not limiting themselves to just one paradigm in their design and development practice. The four paradigms or 'rationalities' are:

- instrumental paradigm: goals and outcomes function as guidelines during the development process;
- communicative paradigm: development is done on the basis of consensus amongst stakeholders on what the problems are and what curriculum should be developed in order to solve the problems;
- pragmatic paradigm: the rapid development and try-out of 'prototypes' in iterative cycles leads to products that each time better respond to the ideal product specifications; and
- artistic paradigm: educational design and development are artistic undertakings, where the designer during the whole process of development and implementation carefully observes and evaluates his actions and responds expertly to what comes up during development and implementation.

The quality of educational programmes in terms of their impact is, according to Kessels (1993, 1999b), to a large extent determined by 'consistency' of the curriculum. Internal consistency refers to the "...logic contingencies" (Kessels, 1999b, p. 61) between the various elements of the curriculum and is equivalent to the concept of 'alignment' (cf. Biggs, 2002), mentioned above. External consistency refers to the coherence of perceptions of stakeholders on what the problem is for which an intervention (e.g. educational programme) is needed and how it should be solved. Internal consistency is reached through a 'systematic approach' (Kessels, 1999) that corresponds to the instrumental paradigm mentioned above. It implies the "...logical design sequence of orientation, design, development, evaluation and implementation" (Kessels, 1999, p. 62). External consistency is reached through a 'relational approach', corresponding to the communicative paradigm. It implies the involvement of stakeholders in the design and development process, thereby revealing their perceptions on the main goals of the process and on how they should be achieved.

The reconstruction and analysis of the development of a curriculum for the Faculty of Education at UEM, that is presented in the following chapters in this study, show that from the beginning a communicative approach has been followed. This implied as well the intention to aim for a high external consistency in the design and development of the educational programmes for the faculty.

Internal consistency was aimed for through presenting the curriculum design and development process to the 'actors' as a logical sequence of steps. In the case of the design and development of a competence-based curriculum the sequence was as follows:

- Conducting a needs assessment in the orientation phase. This might include job analysis and task analysis, although some authors state that task analysis is only

effective in case of 'technical' jobs and not for the more complex activities of professionals (cf. Hall & Jones, 1976).

- Formulating a professional profile. This includes a description of the profession in terms of key occupational tasks. Sometimes the position of the profession with respect to related professions is given, as well as expected future developments in the profession.
- Formulating a graduate profile. Based on the professional profile the core competencies are defined that a graduate should have as a 'graduate professional'. The final outcome levels (levels of development of core competencies) are linked to the professional profile and to the curriculum. The final levels are described in terms of 'outcomes' (competency standards).
- Formulation of the domain-specific and generic competencies that relate to the core competencies of the graduate profile.
- Design and development of the learning environments that are appropriate for the development of the competencies mentioned above. Important is that assessment is developed to get evidence on the competencies that follow from the graduate profile. Content follows from there and not from the collected wisdom in the various disciplines that contribute to the educational programme. Stanton (1989) states that in an appropriate model for competence-based education assessment comes before the learning programme. This design process, starting with the outcomes and then 'working backwards' has been described as 'backward designing' (cf. Wiggins & McTighe, 2001).

The needs assessment did not only address the formulation of professional profiles as is explained in the next section. Another purpose was the seeking of a justification for starting a new Faculty of Education as well as soliciting the opinion of stakeholders on various aspects of the faculty and its educational programmes.

4.2 CURRICULUM DEVELOPMENT WITH THE PROFESSION AS POINT OF DEPARTURE

In Chapter 3 it has been argued that competence-based education has the profession as point of departure. In Figure 3.2 the road was depicted from professional profile and graduate profile to curriculum profile. In this section literature is reviewed on this road from profession to curriculum.

4.2.1 Role of a needs assessment in curriculum development

A needs assessment can be carried out for various reasons and in many different contexts. In the case of the Faculty of Education at UEM the context of the needs assessment was the process of design and development of the curriculum for the various programmes in the Faculty of Education. More specifically, it played an important role in the front-end analysis that preceded the formulation of the first design proposals and subsequent development activities. Kaufman (1979) and Witkin (1984) mention the importance of a needs assessment in educational planning. Moseley and Heany (1994), mention the "...importance of needs assessment as the first step of successful institutional planning and as a key preliminary step for long range planning" (p63).

In line with McKillip (1987) who outlines, amongst others, the following purposes for a needs assessment: advocacy (in funding requests), description for understanding or academic purposes, planning for decision making about programme planning, the leading questions for the needs assessment in the Faculty of Education at UEM were defined as:

- *What is the legitimisation for the start of educational programmes in the Faculty of Education?*
- *What professional profiles can be described for these two programmes?*
- *What contributions can be given to the description of the curriculum structure?*

Stufflebeam, McCormick, Brinkerhoff, and Nelson (1985) defined four views on needs assessment, that cover to a great extent the various aims of the needs assessment for the Faculty of Education at UEM:

The *discrepancy view* in which a need is perceived as a gap or discrepancy between the present situation, performance, etc. and a desired state (see also Kaufman, 1972). The discrepancy view is more related to issues of improvement of existing programmes often in terms of 'performance' and therefore less relevant here.

The *democratic view*, in which need is seen as a change or direction desired by a majority of some reference group. This view was reflected in the objective to solicit the opinion from stakeholders on the desirability of four educational programmes in the Faculty of Education at UEM.

The *analytic view*, in which need is seen as a direction that leads to predicted improvement, given sufficient information about the current status. The needs assessment of the Faculty can be considered analytic in its objective to establish directions for the curriculum of the programmes based on information on professional profiles and the related attributes or competencies.

The *diagnostic view*, need is seen as "...something whose presence will be beneficial and, consequently, the absence of which proves to be harmful" (Stufflebeam et

al.,1985, p8). The needs assessment of the Faculty was also 'diagnostic' because it aimed to find evidence that an absence of the educational programmes could impede the development of the educational sector and that their presence would lead to an improvement of the quality of education in Mozambique.

In a broader definition of needs assessment Young (1994), referring to Witkin (1984), describes a needs assessment as a "...preliminary examination of a situation to determine the potential for an educational program as a solution to a problem or a response to a need in the labour market or community" (p. 1). This covers sufficiently the three relevant 'Stufflebeam' views mentioned above.

4.2.2 From professional practice to curricula

Van der Klink, Bos and Boon (1999) describe the road from professional practice to curricula using the scheme of Onstenk and Moerkamp (1991). These authors characterise a professional profile by tasks and by qualifications. The definition of the tasks includes the 'organisation of the labour/profession and the developments in the profession'. Through occupational analysis the professional profile can be formulated. Occupational analysis leads always to a description of the 'tasks' of a job or occupation, but some authors include also competencies in the description (Bayly & Merrit, 1995; Brown, 1999; Lankard, 1996).

Onstenk and Moerkamp introduce, next to the professional profile, an 'education and training profile' that describes the aims and structure of education and training programmes. This profile becomes the basis for the curriculum profile. The subsequent stages, from professional practice to curricula, are characterised by Brandsma (1993) as 'The Royal Track'. It is a methodology for the identification of changes in the qualification demands in a profession and the translation of these into curriculum change.

Brandsma (1993) is rather critical on the use of professional profiles to define a curriculum. She states that there is no one-to-one relation between a professional profile and a curriculum. In many professions this relation is rather 'diffuse', but in some, like health, law, accountancy and education more straightforward. Problematic is also the time-consuming character of The Royal Track, in a context where the developments on the labour market are going faster and faster (cf. Simons, 2000). This means that curriculum change is always lagging behind the developments in society. However, shorter, more rapid methods can be applied that might provide adequate and timely responses to changes in society and professions (see Drok, 1998). Schlusmans et al. (2000) advocate a 'wisdom of practice' approach and a permanent communication with the world of work to define what competent graduates should be able to show. Simons argues for social

constructivist approaches leading to learning environments that are based on the 'lack of predictability of the future' and prepare for life-long learning. Brandsma's argument that often much emphasis is put on professional, domain-specific competencies and that generic, transferable competencies are often left out is also noticed by other authors. This has led to more attention for integrated approaches in occupational analysis (Baily & Merritt, 1995; Brown, 1998; Lankard, 1996), for example the Occupational Competency Analysis Profiles, designed by the Ohio State University (1995).

Most of the present methods used in occupational analysis aim to describe tasks and 'underpinning' competencies. The ILO (1993) defines occupational analysis as the "Action that consists of identifying, by observation and study, the activities and technical factors that make up an occupation. This process includes the description of those tasks that must be fulfilled, as well as the knowledge and qualifications required to perform with efficacy and success a determined occupation".

Various attempts have been made to categorise the various approaches and methods of occupational analysis. Blackmore (1999) categorizes the approaches in terms of role, function and skill. He then analyses them exploring the various values, beliefs and assumptions, expressed through: focus of approach, disciplinary base, assumptions about human interaction, nature of organizations and the nature between knowledge, understanding and performance. Van der Klink et al. (1999) give a useful overview of methods that are used to define a professional profile:

1. Methods aiming at a precise description of tasks (critical path analysis, critical incident analysis, analysis of the 'structure of action') The disadvantage of these methods is their narrow attention for isolated tasks and not a holistic approach.
2. Survey under graduates of an educational institution with respect to their present functions. The danger is that much data is obtained without a clear structure that makes it useful for, e.g., curriculum revision.
3. Consultation of experts in a DACUM (**D**evelop **A** **C**urriculum) approach or through a 'curriculum conference'. In DACUM the emphasis is on key tasks in a professional area (cf. Norton, 1996; Brown, 1998), the curriculum conference consults experts on the relevance of a curriculum in relation to the labour market and the 'world of work' (cf. Mulder, 1992).
4. Collecting information about future developments in a professional area.
5. Attention for the more generic 'key competencies' that are transferable to new situations in- and outside the profession. Professionals and human resource officers are questioned through interviews and workshops in which the Delphi technique is used (see van Zolingen, 1995).
6. Description of a profession in terms of 'core problems' that have a productive dimension, an organisational dimension and a social-cultural dimension. It is a

holistic approach with promises for the design of cases or situations in a learning environment (Onstenk, 1997).

As is explained in Section 7.4.4, the method of using key tasks to allow a description of professional profiles can be characterised as a modified DACUM method. Concerning the needs assessment and related steps on the road to formulating a curriculum for the Faculty of Education at UEM, it can be concluded that through the needs assessment it was tried to formulate tasks and 'underpinning' competencies for the professions related to the educational programmes for the faculty. The expert views and the academic vision on the professions were also sources of information in the formulation of professional and graduate profiles, especially in cases where the response through the needs assessment was poor in quantity and quality.

4.3 ON CURRICULUM IMPLEMENTATION

The implementation of a curriculum implies change. How to manage change processes is the subject of a wealth of literature (e.g. Fullan, 2001; Hall & Hord, 2001; Van den Akker, 1993; Verspoor, 1989). Most literature discusses large scale curriculum reform at macro and meso level, or curriculum implementation at micro level. In the context of this study the meso level is most important, because it addresses the implementation of a new curriculum at the level of a faculty, or departments, in a university. However, the study aims also to offer insight in factors and actors at other levels, starting from the meso-level.

Van den Berg and Vandenberghe (1999) link the innovation process in education to four 'functional areas':

1. The *innovation content*, characterised by 'student respecting education' and includes 'authentic learning' and co-operative learning. Competence-based education, although not mentioned by them, covers these dimensions and is certainly student respecting.
2. The *organisation*, characterised by a 'cultural-individual perspective' implying, amongst others, transformative leadership.
3. The *teacher*, characterised by the meaning that he gives to his work situation (cf. Fullan, 2001). That meaning is a combination of beliefs and pedagogical content knowledge. Fullan (1993, p.131) states: "Understand the subjective world -the phenomenology- of the role incumbents play as a necessary precondition for engaging in any change effort with them".
4. *Interventions* that take place 'in dialogue' and involve small steps, attention for concrete materials and methods and staff development/coaching.

These notions will return in the literature below that will be reviewed under three headings: characteristics of educational change processes, monitoring change and managing change.

4.3.1 Characteristics of change processes

It is possible to recognise three phases in the process of educational change (Fullan, 1991, 2001). They are:

1. *initiation*: deciding on an agenda and beginning the work;
2. *implementation*: putting the innovation into action, in context; and
3. *institutionalization or continuation*: seeing the innovation in place and integrated into the daily life of the institution.

It takes usually three to five years before a change has been implemented and has been institutionalised. In the change process the implementation phase is, according to Verspoor (1989) the phase that most critically affects the project's success and should be given top priority.

During the initiation phase of the change process three aspects play a role, according to Fullan (1991). These aspects are also recognisable in the implementation phase and can be described by the following questions:

1. Is there a link between the need for the change, the clarity of the innovation implied by the change, and the utility for the 'users'? Fullan calls this 'relevance'.
2. Is the organisation ready to adopt the given innovation? At the level of the individual members of the organisation (for example teaching staff) the question is whether they have the capacity in terms of knowledge, skills and beliefs. There are various instruments available to indicate their level of 'development' (see below at Section 4.4.2). At the level of the organisation the question is if the change is compatible, with the culture of the organisation, and if enough resources are available.
3. Is there enough support to sustain the change process?

The three aspects are also recognisable in the 'key factors in the implementation process' (Fullan, 2001). Fullan mentions nine factors that are related to the implementation process that are categorised into:

1. The characteristics of the change.
2. Local roles (e.g. of leadership and of teachers).
3. External factors.

Rogan, Grayson, Van den Akker, Ndlalane, Dlamini and Aldous (2002) use these aspects in their proposed 'theory of implementation' that is based on three constructs: profile of implementation, capacity to innovate and outside support.

Practitioners, in considering their subjective meaning of change, that is, how the change will affect them, will eventually acquire a 'new meaning of change' (Fullan, 2001). Important is that the change should have practical outcomes for them (practicality ethic, cf. Doyle & Ponder, 1977-1978; Huberman, 1983). In this practicality ethic three considerations play a role. 'Congruence' describes how well the innovation will fit the teachers' situation. 'Instrumentality' indicates the operational meaning of the change that should be understood by teachers before they can make a judgement. 'Cost' refers to the investment teachers make when they engage in an innovation, and the returns. Many innovations have a 'false clarity' (Fullan, 2001), meaning that they are much more difficult to implement than they appear and are, therefore, often superficially interpreted. When the development of a new meaning is not supported and unclear innovations are mandated, 'painful unclarity' is experienced (Fullan, 2001).

The objective reality of the change also comes into play. Fullan (2001) emphasises the multi-dimensionality of innovations and distinguishes at least three components in implementation of innovations: the possible use of new materials, the possible use of new teaching approaches, and the possible alteration of beliefs. Hall and Hord (2001) describe in the Concerns Based Adoption Model (CBAM) how, during the process of change individuals first are concerned about themselves and are in need for information how the change will affect them. When they get more oriented on the task, they need time to practice the innovation. In their final stages of concern they are interested in the impact of the innovation and begin to refine what they are doing.

In the end the practitioners' prime interests are in the adaptiveness and longevity of the innovation (Cuban, 1988). In other words, they want to put their own signature on the innovation and be sure that it will last for some time.

There are many barriers to educational change, exemplified by a list by Watson (2001):

- Curriculum integration/change is a complex process and difficult to learn.
- Many educators feel isolated and alone during the change process.
- Time to experiment, explore and study innovations is essential but rare in schools.
- Ownership is critical to success, but often lacking. Fullan (2001) remarks that it takes time to develop ownership and that a more directive approach may be needed in the early stages of implementation.
- Administrative support is essential, but often lacking as well.

4.3.2 Monitoring change

Various authors introduce the concept of profiles as instruments to assess, sometimes in a quantifiable way, the degree of implementation (cf. Hall & Hord,

2001; Rogan, et al., 2002, Van den Akker & Voogt, 1994). Profiles can help to monitor the implementation of change and help to evaluate the 'fit' between the innovation and the teacher and the school (Stiegelbauer, 1994), leading to effective adaptations, if needed. Van den Akker and Voogt (1994) discuss the development of innovation and practice profiles as measurement approaches of the operational curriculum from the point of view of the designers and as it is operationalised in the classroom. Procedures and instruments for the use of profiles include:

1. The CBAM model (Hall & Hord, 2001). An interview instrument measures the 'configurations of an innovation in practice' (see below).
2. Construction of innovation profiles, based on measurement of a number of curriculum dimensions. Based on the original intentions of the developers a level of correspondence is determined (Leithwood & Montgomery, 1982).
3. Practice profiles are used to determine the degree of implementation. (Loucks, Bauchner, Crandall, Schmidt & Eiseman, 1982).

Van den Akker and Voogt (1994) advocate direct observation of lessons in stead of interviews, sometimes accompanied by video-taping lessons.

The use of innovation profiles is sometimes seen as an exponent of the 'fidelity approach' rather than mutual adaptation or enactment (cf. Snyder, Bolin & Zumwalt, 1992), meaning the aim to keep the actual innovation as close as possible to the intended one. Nevertheless, innovation profiles can also have a function in formative assessment and guide the adaptation of an innovation.

Rogan et al. (2002) propose three constructs on which a 'theory of implementation' can be based: profile of implementation, capacity to innovate and outside support. The profile of implementation resembles the innovation profile of Van den Akker and Voogt (1994) and reflects the extent to which the ideal curriculum has been implemented and put into practice. The profile has, in the context of Science and Mathematics education, four dimensions and seven 'levels' (cf. Rogan et al., 2002).

The capacity to innovate tries to describe the factors that support or hinder the implementation of an innovation in schools. Dimensions of the capacity to innovate are, in the context of the South African education system, the presence of physical resources, teacher factors, learner factors and school ecology and management. Capacity to innovate resembles Fullan's 'readiness', described above (cf. Fullan, 1991, pp 63-64).

Outside support also implies a certain influence, to put pressure on the innovation process. Fullan (2001) talks about a balance between pressure and support in promoting the implementation of an innovation.

The concerns based adoption model (CBAM) was presented in 1987 by Hall and Hord in their book "Change in schools, facilitating the process". In a revised version

(Hall & Hord, 2001) they take into account the decades of experience with the model that is still in use in the USA. The CBAM has various instruments:

- *Innovation configurations*. Simply a series of descriptions of what the innovation looks like, on a continuum with non-implementation at one end, to perfect implementation on the other.
- *Stages of Concern*. How teachers feel about and perceive a change will in large part determine whether or not change actually occurs in the classroom. There are seven stages that range from Stage 0-Awareness, where a teacher is merely becoming aware of an innovation without any particular concern, to Stage 6 - Refocusing, where much time and effort have been put into a change, and now there is deep reflection about more universal benefits of it.
- *Levels of Use*. A method for determining how much and how well a change is actually being implemented in the classroom. Specifically, there are eight levels identified by the authors that are classifications of how people act or behave with a change. The stages range from 'non-use' to 'renewal,' where an experienced user re-evaluates the quality of use of the innovation and seeks to modify it or seek alternatives to better meet the needs of his students.

Rogan et al. (2002) when discussing profiles of implementation refer to a model of De Feiter, Vonk and Van den Akker (1995), that was adapted from a model of Verspoor and Wu (1990), that in turn, was based on the ideas of Beeby (1966). The model uses three dimensions: teacher characteristics, curriculum characteristics, school (organisation) characteristics. Each dimension has four levels, named 'unskilled', 'mechanical', 'routine', and 'professional'. As a fourth dimension possibilities are described for each level to develop schools and teachers in order to progress through the levels or 'stages of development'.

4.3.3 Managing change

Verspoor (1989), when talking about innovations to improve the quality of education in developing countries mentions two factors that influence whether programmes succeed to reach and sustain their educational objectives:

1. technical validity: will the change in fact produce the expected improvement in student learning? (cf. Rossi et al. (1999) who talk about 'theory failure' of an intervention).
2. quality of implementation; deficiencies in the implementation strategy may result in a non-application of the change in the classroom (cf. Rossi et al. who talk about 'implementation failure').

The most common situation is a " ...poor implementation of what was probably a reasonable idea" (Verspoor, 1989, p 128).

Hall and Hord (2001) list as 'principles' for the implementation of change:

1. Change is a process, not an event. [Paraphrased from "Change is a journey, not a blueprint" (Fullan & Miles, 1992)].
2. An organisation does not change until the individuals within it change. Beer, Eisenstat and Spector (1990) state that people learn new behaviours primarily through their interactions with others, not through front-end training designs. Stiegelbauer (1994) states that research shows that the more contact occurs, especially one-to-one supportive contact (Hall & Hord, 1987) and group problem solving or *process analysis* discussions (Miles, 1992), the more likely it becomes that independent individuals will take on the change. As Rogan et al. (2002) state, all role players, but especially those who are most directly involved, need the opportunity to reconceptualise the intended changes in their own terms and context (cf. Verspoor, 1989). Thus, during the implementation coaching of teachers is very important. Various interventions are possible (cf. Griffioen, 2002): school seminars, coaching, intervision, training of teams (school-related interventions) and supervision and evaluation of classroom practice (individual interventions).
3. Although both top-down and bottom-up change can work, a horizontal perspective is best (cf. Fullan, 1994). Beer et al. (1990) state: "Instead, effective revitalization occurs when managers follow a critical path that obtains the benefits of top-down as well as bottom-up change efforts while minimizing their disadvantages" (p. 69).
4. Administrator leadership is essential to long-term change success (cf. Fullan, 1985; Van den Akker, 1993). Managers of successful programmes try to stay as close as possible to the implementation process in the classrooms (Verspoor, 1989) and attend, for example, workshop training sessions related to the implementation (Berman, McLaughlin, and associates, 1979). They also see the importance of regularly collecting implementation information followed by reflection.
5. Mandates can work. Fullan (2001) advocates 'pressure and support'. This implies a focussed and continuous in-service and coaching (Fullan, 1985).
6. Facilitating change is a team effort (cf. Fullan, 1985; Van den Akker, 1993). Little (1981) gives the following aspects that promote school improvement:
"Teachers engage in frequent, continuous and increasingly concrete and precise *talk* about teaching practice.
Teachers and administrators frequently *observe* each other's teaching, and provide each other with useful ... evaluations of their teaching.
Teachers and administrators plan, design, research, evaluate and prepare teaching materials together.
Teachers and administrators teach each other" (pp.12-13, emphasis in original).

7. Appropriate interventions reduce the challenges of change.
8. The context of the school influences the process of change.

The principles 2, 3, 4, 6, and 8 could also be grouped under the heading "change is systemic" (cf. Stiegelbauer, 1994; Verspoor, 1989). Verspoor emphasises the importance of strengthening institutions and organisational structure, including developing a capacity for innovation management.

An additional principle is the adage "Think big, start small" (Fullan, 2001). Beer et al. (1990) in their research of corporate change found that small isolated 'pockets of change' led eventually to a change in culture that pushed for more change. Van den Akker (1993) emphasises a stepwise introduction of an innovation (cf. Griffioen, 2002; Verspoor, 1989). This should go hand in hand with a systematic formative evaluation. Rogan et al. talk about a 'zone of feasible innovation. Implementation should go just ahead of existing practice and should be done in manageable steps. It also means that the capacity to support innovation should be developed concurrently with the enrichment of the profile of implementation.

In earlier publications Fullan (1985) has mentioned the important role of external resources, both physical and human (cf. Rogan et al., 2002; Verspoor, 1989). "Change programs do not run themselves; change is resource hungry" (Stiegelbauer, 1994, p. 9). Especially in the initial stages of implementation there is need for clear and tested lesson materials (Fullan, 1985; Van den Akker, 1993), although human resources (teachers and facilitators) are as important as materials. Another important aspect of change is that it involves also an alteration of belief systems of the practitioners (Griffioen, 2002; Rogan, 2002; Stiegelbauer, 1994). Fullan (2001) states: "...changes in beliefs and understanding ... are the foundation of achieving lasting reform" (p.45). A change in culture is the basis for structural changes. "This leads to the interesting hypothesis that reculturing leads to restructuring more effectively than the reverse" (Fullan, 1994, p. 6). Druckman and Bjork (1994) write: ". . . what has become apparent to us is that specifying the techniques and innovations that do and do not have the potential to enhance individual and team performance is only part of the battle. Without an organizational culture that fosters the changes needed to implement those innovations, proposals for change, however credible their source or convincing the evidence, will have little effect."

In conclusion of this section, the literature on characteristics of innovation process and the monitoring of change provides various useful tools for the reconstruction and analysis of (especially) the implementation of a competence-based curriculum

in the Faculty of Education. Although in this study no quantitative measurements have been used to elaborate a 'profile of implementation', various qualitative data have been used to identify characteristics of the implementation process and the capacity for innovation. It has been a continuous concern of the designer-researcher and the Dutch curriculum expert that the implementation of innovative aspects of the curriculum should occur in manageable steps.

4.4 THE ROLE OF CULTURE

4.4.1 Introduction

The quality of working relationships among 'users' of the innovation is, as outlined above, very important for the success of the implementation of change. "Collegiality, open communication, trust, support and help, learning on the job, getting results, and job satisfaction and morale are closely interrelated" (Hocog Inos & Quigley, 1995, p.4). This quotation comes from an American context and one could pose the question whether this statement would be valid as well in another cultural context, for example in Mozambique. The context of the design, development and implementation of the curriculum for the Faculty of Education was even more complicated because it involved actors from another continent, usually with more expertise and definitely with another cultural background. Therefore, in the reconstruction and analysis of the curriculum development process, attention should be paid to the role of culture. The following quotation illustrates well the fact that culture plays an important role in the context of work and professions (cf. Cusworth & Franks, 1993): "There is a major problem with the "if it works for us, it'll work for you" mentality being peddled around the Third World by IT-multinationals, international consultants and aid donor agencies" (Heeks, 1999, p. 70). Cusworth and Franks (1993) emphasise that culture is not only a term that is related to nations or people or tribes, but that organisations and institutions also have their culture. Lave and Wenger (1991) talk about the 'cultural ecology of communities of practice'.

In international projects communication is intercultural, because project managers often come from different countries with different cultures (cf. Rozendal, 2002). The co-operation in such projects often fails due to a poor intercultural communication (Kidd & Robins, 2000). Scollon and Scollon (1995) state that intercultural communication is inter-discourse system communication. They distinguish involuntary discourse systems (involving culture, age, gender) and a number of voluntary or goal-directed systems, related to the profession and the aims of the organisation or institution where the profession is practised. In the context of work

professionals are using both types of systems that are often competing and result in complex behaviour (Bannink, 2001).

The sections that follow will briefly discuss the concepts of culture, 'African culture', culture and management in Africa and ways to improve intercultural communication.

4.4.2 What is culture?

Cusworth and Franks define culture as: "The shared norms and values of the local population and the way in which it arrives at decisions and executes individual and collective action" (Cusworth & Franks, 1993, p. 25). Hofstede (1994) sees culture as mental programming; patterns of thinking, feeling and acting are mental programmes or, as the subtitle of his book says, 'software of the mind'. Thus, culture is defined as: "..the collective programming of the mind which distinguishes the members of one group or category of people from another" (Hofstede, 1994, p. 5). It is similar to the concept of 'habitus' of Bourdieu (1985). Culture can be characterised by symbols, heroes, rituals and values as underlying constructs for practices, symbols being the most 'superficial' and 'values' the deepest rooted construct. Based on a large survey of 115 000 workers in a multi-national company (IBM) Hofstede (1994) identified four dimensions through which cultural differences can be identified (and quantified):

1. Social inequality, including the relationship with authority (power-distance).
2. The relationship between the individual and the group (collectivism/individualism).
3. Concepts of masculinity and femininity: the social implications of having been born as a boy or a girl.
4. Ways of dealing with uncertainty, relating to the control of aggression and the expression of emotions (uncertainty avoidance).

After the economic successes of the 'Asian tiger' countries a fifth dimension was added that had to do with long term versus short term orientation, or 'Confucian dynamism' (Hofstede & Bond, 1988).

4.4.3 On African culture

Talking about an African culture, including an African world view, should be done with caution (cf. Igusi, 1997). "Statements about an 'African world view', including characteristics like harmony in nature and the universe, centrality of religion, unity between spiritual and material aspects of existence, may be too general" (Kramsch, 2002, p. 277). Another consideration about the discourse on culture is that "...culture is a Western concept with a complex and often contradictory history..." (Van Staden,

1998, p.15), involving "...disciplines - such as anthropology, sociology, and psychology- emerged in Western modernity that are historically Eurocentric and therefore historically implicated in Western rationality" (Thornton, 1988, p.23).

A culture profile of Africa along the four dimensions of Hofstede (1994), should therefore be considered with care, but could be useful in clarifying cultural differences between an African country, such a Mozambique and a European country, such as the Netherlands.

African countries score high in power distance, while Western European countries have a much lower power distance

(cf. <http://www.pittstate.edu/mgmkt/culture.html>). Iguisi (1997) describes how in the African extended family authority is distributed according to position within the kinship group. More authority also means more responsibility for the members of the family, or community. Leaders make their own decisions, sometimes assisted by a council of elders (Iguisi, 1997). Therefore, according to Iguisi (1994) the Western models of 'participatory management' and 'consultation' do not apply in Africa. At the same time African countries are highly collectivistic and their cultures reinforce extended families and collectives where everyone takes responsibility for fellow members of their group. European countries are much more individualistic. Iguisi (1997) mentions the strong family loyalties that also lead to strong religious and ethnic loyalties. "African societies are 'we' societies, and 'we' societies oppose 'them'. Ingroups suppose and oppose outgroups" (Iguisi, 1997, p.27). Sub-Saharan African cultures are feminist, meaning that they have a greater ambiguity in what is expected of each gender. Both men and women are equally concerned with the quality of life. Western European countries are usually masculine, with more distinct expectations of male and female roles in society (cf. Iguisi & Hofstede, 1993). In terms of uncertainty avoidance African countries score at a medium level, meaning a certain preference for formal rules to avoid uncertainty. In Europe levels of uncertainty avoidance differ with, for example, the Netherlands scoring at the same level as African countries. Table 4.1 on the next page gives some data, obtained from the Hofstede instruments.

Although one should be aware of the apparent differences between countries in regions and continents one could perhaps summarise the differences with the description of the Netherlands with the 'mental image' (cf. <http://www.itim.org/4ab.html>) of the network model. This is characteristic for a highly individualistic, 'feminine' society with a low power distance. Everyone is supposed to be involved in decision-making. Mozambique could perhaps be characterised by the 'pyramidal organisation', built on loyalty , hierarchy and implicit order and found in societies that score high on power distance and uncertainty avoidance.

Table 4.1. Scores on four culture dimensions

| | Power distance | Individualism | Masculinity | Uncertainty avoidance |
|--------------|-----------------------|----------------------|--------------------|------------------------------|
| East Africa | 64 | 27 | 41 | 52 |
| West Africa | 77 | 20 | 46 | 54 |
| South Africa | 49 | 65 | 63 | 49 |
| Africa | High | Collectivistic | Feminine | High |
| Netherlands | 38 | 80 | 14 | 53 |

Sources: For Africa: <http://www.pittstate.edu/mgmkt/culture.html>

For the rest: <http://www.itim.org/4aba.html>

Note: East Africa involves in the table Ethiopia, Kenya, Tanzania and Zambia. West Africa involves Ghana, Nigeria and Sierra Leone. South Africa is the country (RSA).

African thinkers refer often to 'Ubuntu' as a form of African humanism (cf. Makhudu, 1993), emphasising empathy, congruence and open communication. "Open communication involves, according to Makhudu, fearlessly establishing direct, open, and honest lines of communication, which in turn involves getting in touch with oneself and admitting, inter alia, to one's biases and prejudices about other cultures and ethnic groups" (Prinsloo, 1998, p. 42). Ubuntu implies "...a person is a person through other persons" (Makhudu, 1993, 40-41) or "I am, because you are".

Onwuejeogwu (1997) compares African philosophy with Western philosophy as the difference between "...linkages of physical continuity, metaphysical solidarity and communality in past, present and future" (p.50), and the dialectic approach linked with empiricism and relationism. Based on the characteristics of humanism and communalism in the 'African mind' he states: "Hence the African man sees nothing wrong in working in small groups under the sun; tilling the soil to the rhythm of singing and drumming" (Onwuejeogwu, 1997, p. 51).

It remains very difficult to narrow these broad characteristics down to personal traits. A person has a cultural background, but also a personal disposition, and functions as well in a socio-economic environment. Nevertheless awareness of cultural differences from both sides could have avoided a number of misunderstandings during the curriculum development process and the installation of the faculty. It could also help explain why certain developments went contrary to the expectations of the designer-researcher and of the Dutch experts, providing an extra 'lens' for the analysis of the curriculum development process. A further step, beyond just awareness, would be to engage in inter-cultural communication as briefly discussed in Section 4.4.5.

4.4.4 Culture and management

Management functions are affected by cultural paradigms (Iguisi, 1997). Iguisi's view is an example of the 'culturalist' school of thought, that argues that management principles are determined by a relative culture (Cobern, 1996) in contrast to the 'culture-free' or 'universalist' school of thought.

Iguisi (1997) observes that subordinates from different societies react differently to superiors and will experience different organisational rules considering rights and duties. Cusworth and Franks (1993) distinguish three organisation cultures, important for the implementation of projects in developing countries.

- Power culture. Decisions are made based on personal preferences rather than on procedures. Control and leadership take place from the centre of the organisation and members are often in various ways linked to the leader(s).
- Bureaucratic culture. Work is done according to rules and procedures and decisions are taken along a strong hierarchical road in which the leadership has the final word. Organisation processes are not flexible and members of the organisation are more busy following the right procedures than the realisation of project aims.
- Task culture. Rules and procedures serve the realisation of project aims and objectives and are, therefore, flexible. Expertise is more important than personal power or place in the bureaucratic structure.

Lukes (1977) already emphasised that in developing countries politics is much more interwoven with the daily activities of people than in the industrialised countries.

In institutions, such as the UEM the prevailing organisation culture can be characterised by power culture and bureaucratic culture, rather than task culture.

In a 1995 seminar on 'Culture dimensions to appropriate management and sustainable development in Africa' management experts, mainly African, discussed the influence of culture on management in Africa. It was observed that "...projects more or less function as long as they are managed by expatriate experts -who in doing so exceed their roles- but they flounder after having been transferred to locals" (Iguisi, 1997, p. 18). And: "The African elite is not equipped enough to understand the obligations imposed on him by Western cultures in which he has been socialised and the traditional environment in which he is born and raised, thus, making his ability to contribute something original to the development of his society limited" (Iguisi, 1997, p. 18).

Causes of the current economical and political problems in Africa might be found by analysing the colonial history of Africa (cf. Van der Veen, 2002). On the other hand, "...before the coming of the colonizers, pre-colonial Africa had its own ways

and sentiments about political, economic, management and administration infrastructures. What are these ways and sentiments and how resilient are they compared with the systems introduced by the colonial powers?" (Iguisi, 1997, p. 35). The participants of the 1995 seminar concluded:

"Besides the influence of the traditional African culture, there is an adverse influence of post-colonial political and administrative 'contemporary' cultures in Africa characterised by absenteeism, greed, laziness, eye-service, nepotism, embezzlement which does not provide a profitable atmosphere for effective economic, political and social development and growth of organizations and institutions in Africa" (Chumbow & Iguisi, 1997, p. 13).

The recommendations of the seminar on culture and management in Africa included the suggestion of 'hybridisation' of Western and African values, after an identification of the growth-positive and growth-negative culture values of Western systems to be adopted. Thus, "...Africans should borrow from the Western models and streamline them with the African cultural values" (Chumbow & Iguisi, 1997, p. 11).

One example of 'hybridisation' was the recommendation to adopt a paternalistic managerial leadership, because the African society generally is very paternalistic and hierarchical. The moral implications, however, were also emphasised: "...in the traditional family structure, authority is not only exercised for productive ends only; the leader who gives orders is as well concerned with the welfare of the subordinates and their families" (Iguisi, 1997, p. 38). Therefore, this could be named a recommendation for a 'social paternalism'.

4.4.5 Intercultural communication

As mentioned above many internationally co-ordinated projects often fail because of a poor intercultural communication between members of the project (Kidd & Robins, 2000). A 'hidden dimension' in intercultural communication is stereotyping (Shahid, 1994). Improving intercultural communication always requires reflection, that is, stepping outside one's culture in order to view one's cultural roots from 'neutral ground' (cf. Kramsch, 1993; Shahid, 2003). However, that may signify, in itself, a culturally influenced procedure.

One way to take this outside stance in order to look at one's culture can be through 'cultural therapy', introduced by Spindler and Spindler (1994) as a way to make cultural misunderstandings and conflicts visible and to reflect on them. "One's culture as well as the 'other's' culture becomes a 'third presence', removed somewhat from the person, so that one's actions can be taken as involuntary 'caused' by one's culture, rather than uniquely determined by one's personality" (Spindler, 1999, p. 466).

Kramersch (2002, p. 283) warns for the 'universalist claims of intercultural communication' as a panacea for all conflicts in a globalised world: "To realize how much intercultural communication itself is typical of a certain Anglo-Saxon culture, discourse and worldview, proponents of intercultural communication would have to confront the inequalities among cultures, the inevitability of conflict, and the tragic dimensions of human action."

4.5 CONCLUSION

During the design and development of a curriculum as a plan for learning (Taba, 1962) decisions have to be taken on a number of issues. In this study the ten curriculum elements of Van den Akker (2003) have been used to analyse the curriculum as product of the design, development and implementation activities. All these aspects should be 'tuned' to each other in a state described by Biggs (2002) as 'constructive alignment'.

An important aspect of the curriculum development process is the design, development and implementation of learning environments. Because a competence-based approach implies a constructivist approach (see Section 3.7.2), learning environments should promote self-directed and co-operative learning accompanied and guided by the teaching staff. This is perhaps best expressed by the question from the instrument to evaluate the competence-based character of a curriculum: "How are students supported in creating their own learning environment?" (see Section 3.8).

For the design and development of a competence-based curriculum various approaches/rationales/paradigms are available (see Section 4.1), of which the communicative approach leads to external consistency in the development process. This approach has been applied throughout the design, development, implementation and evaluation of the curriculum, although the designer-researcher experienced a diminishing room to manoeuvre throughout the curriculum development process.

The communicative approach implied a common understanding of the problems to be solved and the strategies to address these problems. Internal consistency in the design and development of the curriculum was aimed at by following a systematic approach, involving a logical sequence of steps, starting with a needs analysis. Via the formulation of professional profiles and graduate profiles the core competencies would then be determined that graduates of an educational programme should have developed at the end of the programme. The content and assessment would then be determined based on the domain-specific and generic competencies needed for these core competencies (backward designing).

The needs assessment served various purposes in the design and development of the new, innovative, competence-based curriculum, namely legitimisation of the educational programmes of the faculty, elaboration of professional and graduate profiles and a further contribution to a description of the curriculum structure.

The literature mentions, apart from professional profiles and graduate profiles in certain contexts, several possibilities to determine what the key occupational tasks are in a profession and what the related core competencies. The expert opinion and the vision on the professional field served as another point of departure for curriculum decisions. Thus needs assessment, expert opinions and a literature review contributed to the formulation of an appropriate set of key tasks and competencies.

Curriculum implementation implies change, whether it concerns an implementation 'from scratch' or a curriculum reform. A description of the state or level of change can be given in a profile of implementation (cf. Rogan et al., 2002). In this the characteristics of the implementation process and the capacity for innovation are described in the next three chapters, based on (mainly) qualitative data.

It was recognised by the designer-researcher and co-designers that the important actors in the success of an implementation (capacity for innovation) would be the teachers/lecturers, and important factors their knowledge and skills, beliefs, and willingness to change. They were, as much as possible, provided with possibilities to learn, to try out the innovations, to develop themselves. Clear examples (exemplary materials) were not readily available in the initial stages of a change process, but resource materials were provided whenever possible. A strong and supportive leadership is required that keeps a balance between pressure and support (Fullan, 2001). This aspect is an important point of analysis in this study. Outside support and sufficient resources are also important factors in the implementation of an innovation. The role of the Dutch partner universities is, therefore, also extensively reconstructed and analysed in the next chapters.

In international projects the culture that the members of the project bring with them is an important factor in the realisation of the project. In the case of the setting up of a Faculty of Education at the UEM, the Mozambican University was supported by a Dutch funded project, involving co-operation with three Dutch universities. Although generalisations should be made with care, it is clear that the Dutch culture differs from the Mozambican culture on a number of dimensions. In terms of the four Hofstede (1994) dimensions African societies have a high power distance, are collectivist, can be characterised as feminist and have a high degree of uncertainty avoidance. Western European countries are the opposite. Intercultural

communication requires the ability to reflect on one's own culture and analyse it as an outsider together with the partner from the other culture. The critical observations made at a seminar on African culture and management (Iguisi, 1997) prove that this reflection is not only a typical 'Western construct'.

Culture is an aspect that pervades substantive aspects of the curriculum as well as the processes of design, development and implementation. Cultural aspects will be discussed during the reconstruction and analysis of the curriculum development process when important and appropriate. This will often be the case when socio-political aspects of the curriculum development process are discussed. The reflection on culture and cultural differences between Africa and 'the West' is continued in the final chapter of this study.

CHAPTER 5

Research design

The research design of this study involves development research, mainly through a reconstructive approach. The design, development and implementation of a competence-based curriculum at the Faculty of Education of the Universidade Eduardo Mondlane (UEM) can be explored from various viewpoints, observed through various 'lenses' and analysed with various instruments. This triangulation in the study serves the validity of the conclusions, which, in turn, gives weight to the generalisability of the findings.

Building on chapter 1, Section 5.1 introduces the purpose and significance of the study once more and repeats the two main problem statements as aims of the study. A model that is derived from evaluation research is presented as one of the viewpoints to explore the design, development and implementation process and the 'products'. This study is a case study and therefore a short section, 5.2, is devoted to characteristics of case study research. Within the case study design, development research is the main approach for this study, and 5.3.1 expands on its characteristics. The researcher was also the designer, but participated as well in the process as a staff member and member of the commission that managed the 'installation of the faculty'. The change in roles of researcher, designer and staff member during the curriculum development process has, as is explained in 5.3.2, been the reason to apply a mainly reconstructive approach in this study. Measures have been taken to compensate for possible conflicting roles and are mentioned in 5.5. The other viewpoints from where the process can be described and analysed are discussed in 5.4. Although the 'line of the story' will be reconstructive, formative research has taken place as well and is discussed in 5.5. Section 5.6 provides details about the scope of the study, that is, what period the study will cover and what aspects of the design, development and implementation of the curriculum will be analysed and reflected upon. Finally, the data collection and analysis methods are summarised in 5.7.

5.1 INTRODUCTION

Designing, developing and implementing a competence-based curriculum in a new context, starting with nothing but ideas, was seen as a unique chance to describe as

closely as possible the process and perform an analysis and reflection on the reconstruction of products and process of the curriculum development. Therefore, an additional purpose of this study is to get an understanding of the extent to which competence-based education could be realised in a developing country like Mozambique and to describe and analyse the factors that influenced the design, development and implementation process. At the same time, use could be made of the state-of-the-art knowledge about learning, development of competencies and the 'engineering' of learning environments for such learning and development. Inherent to a 'development research' approach (see Section 5.2) is that the conclusions of this study should include 'lessons' for universities and other institutions for Higher Education in Mozambique, and in other developing countries that would wish to develop their curricula in a similar direction.

In the introductory chapter of this study (Section 1.3) the significance of this study has been summarised as the contribution to an improvement of the quality of education in Mozambique by training academic educational professionals and as a contribution to the knowledge about design, development and implementation of competence-based higher education in the context of a (Southern) African country. Chapters 1 and 2 have outlined the context of the study as the newly re-opened Faculty of Education at UEM, a Mozambican university. Based on the context analysis that will be continued in Chapter 6, two aims have been formulated for the study:

1. *to determine how competence-based education and training of education professionals could contribute to improving the quality (effectiveness, efficiency and relevance) of education in Mozambique;*
2. *to determine what are the characteristics of an effective competence-based curriculum for the Faculty of Education at the Eduardo Mondlane University in Mozambique, and how such a curriculum can be designed, developed and implemented.*

The (re-)opening of the Faculty of Education and the administering of its competence-based education programmes can be seen as interventions, with the ultimate aim of improving the quality of the education system in Mozambique. Therefore, the first aim as formulated above refers to the potential impact of the interventions, or, the 'distant outcomes' (Rossi et al., 1999). Because an intervention should have acquired certain stability before the impact can be evaluated (Rossi, Freeman & Lipsey, 1999), distant outcomes cannot be assessed directly after an intervention has been implemented, but might be inferred from the immediate outcomes of the education programmes. Assessment of the immediate outcomes of the programmes implies 'programme implementation assessment', that is the

evaluation of the activities and operations of the programme (Rossi et al., 1999) as well as assessment of programme theory, described by Rossi et al. (1999) as "...a set of assumptions and expectations of how the programme should conduct its business and attain its goals..." (p.65). The assessment of the (immediate) outcomes of the programme/intervention in relation to the characteristics of the programme and its assumed effectiveness, is addressed through the second aim, described above. This is also the case for the assessment of the outcomes in relation to the implementation of the programme.

In section 5.7 both research aims shall be 'translated' into operational questions and an overview will be given of the research methods that are employed in order to answer these questions.

5.2 A CASE STUDY RESEARCH DESIGN

Because this study follows an approach in which describing and understanding of a process in a specific context are most important, it can be characterised as a case study. In a situation when the focus is on 'what' questions (description), when there is not much literature and the existing knowledge base is poor, *exploratory* case study research is the favoured approach (Yin, 1994). Yin (1994) states that "...case studies are preferred when 'how' or 'why' questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context" (p.9). Although 'exploration' plays a role in this study, its main aim is the explanation of 'events' through analysis and reflection involving products and process. This is, in Yin's terms, an *explanatory* approach. In this study the 'how' and 'why' of design, development and implementation events are described and explained through substantive aspects of the 'produced' curriculum, through the principles and procedures, used during the development process and through socio-political aspects ('actors' and 'factors') that influenced the curriculum development process. Exploration and explanation are both used in a reconstructive development research approach where the aim is to identify and describe principles of design, development and implementation (see Section 5.3). Therefore, we could speak here of a 'reconstructive case study'.

The study takes the curriculum as a whole in the design and development phase and in the implementation of the common core part of the post-graduate programme. Therefore, in terms of Yin (1994) we could characterise this study as a holistic single case study. The question of generalisability, especially from a single case is dealt with extensively by the proponents of case study research (cf. Hamel, Dufour, & Fortin, 1993; Stake, 1995; Yin, 1994). Important is that generalisation is

not done to the population -statistical generalisation-, but to the theory -analytical generalisation- (cf. Yin, 1994). This is also a characteristic of development research (cf. Van den Akker, 1999, who writes: "...readers need to be supported to make their own attempts to explore the potential transfer of the research findings to theoretical propositions in relation to their own context" [p. 12]).

Yin (1994) emphasises the rigour that should be applied when doing case study research, including the different types of validity and reliability (see also section 5.5). Data are called 'sources of evidence' to support propositions or explanations. Stake (1995) and Yin (1994) mention at least six sources of evidence, of which the first five have been used in this study: documents, archival records, interviews, direct observation, participant-observation and physical artefacts.

A reconstructive case study involves reconstruction, analysis and reflection of process and product, in this case of the design, development and implementation of a competence-based curriculum. As outlined above this study uses, therefore, a reconstructive development research approach where the aim is to identify and describe principles of design, development and implementation. Before addressing the study in more detail, development research and its application in this study will be discussed in more detail.

5.3 THE ROLE OF DEVELOPMENT RESEARCH IN THIS STUDY

5.3.1 What is development research?

Development research has received a growing interest recently. An example is the January/February 2003 issue of 'Educational Researcher', a publication of the American Educational Research Association, that discusses various aspects of 'the role of design in educational research'. The seminal chapter on 'Developmental Research' of Richey and Nelson (1996) in the Handbook of Research for Educational Communications and Technology and the book 'Design approaches and tools in education and training (Van den Akker, Branch, Gustafson, Nieveen & Plomp, 1999) are representative for writings on development research in the USA and Europe. Design research (e.g. Bereiter, 2002), design experiments (e.g. Brown, 1992), formative research (e.g. Walker, 1992) and other names are used to describe the approach that in this study is labelled: 'Development Research' (cf. Van den Akker, 1999).

Walker and Bresler (1993) introduce development research as a: "...disciplined inquiry conducted in the context of the development of a product or programme for the purpose of improving either the thing being developed or developers'

capabilities to develop better things of his kinds, or both" (p. 2). Seels and Richey (1994) define 'developmental research' as "the systematic study of designing, developing and evaluating instructional programs, processes and products that must meet the criteria of internal consistency and effectiveness" (p. 127). Obvious in both definitions are the systematic, scientific approach to design and development and the outcomes of the design and development process in the form of physical products (e.g. learning materials) or an intervention (e.g. a curriculum or a training programme). In the school of thought developed at the University of Twente in the Netherlands (cf. Van den Akker & Plomp, 1993; Van den Akker, 1999) development research has been defined as:

"...a problem oriented, interdisciplinary research methodology, aimed at:

- reducing uncertainty of design decisions;
- generating concrete recommendations for quality improvement;
- testing general design principles;
- stimulating professional development."

(Van den Akker, Van den Berg, Nieveen & Visscher, 1998).

Van den Akker (1999) describes two main types of development research (cf. Richey and Nelson, 1996):

- *Formative research*. "Research activities are carried out during the entire development process, aiming at optimising the quality of the product as well as generating and testing design principles" (p. 6). Comparable to Type 1 studies (Richey & Nelson, 1996) involving situations in which the product design, development and evaluation in a particular context is described and analysed. Roles of researcher and designer coincide during the major part of the development process (Van den Akker, 1999).
- *Reconstructive studies*. "Research activities are conducted sometimes during but oftentimes after the development process, aiming at articulating and specifying design principles" (p. 6). Reconstructive studies are comparable to Type 2 developmental studies (Richey & Nelson, 1996). These studies are "..oriented toward general analysis of either design, development, or evaluation process as a whole or any particular component" (Richey & Nelson, 1996, p. 19). Researchers are not involved in the design and development processes but study them in order to come to design and development principles (Van den Akker, 1999).

The author of this thesis was involved in the curriculum development process as designer and as staff member, to different extents and with changing importance of roles (see Section 5.3.2). Nevertheless, the study that is described in this thesis, took place after the researcher-designer had physically withdrawn from the faculty and the curriculum development process and could, therefore, still be labelled 'reconstructive study'.

The 'development process' mentioned in the above description of formative research starts with a 'pre-phase', involving a needs and context analysis. In the main phase cycles of design, development and formative evaluation are taking place while in a 'post-phase' a summative or semi-summative evaluation usually ends the development process (cf. McKenney, 2001; Nieveen, 1997). The term 'semi-summative' refers to the fact that a real summative evaluation or impact evaluation can only be done after some time and is not part of the development process. The design, development and formative evaluation phase involves, certainly when physical products are the outputs of the process, cycles where prototypes of the products are improved in an iterative way. Criteria for the quality of the products are (Van den Akker et al., 1998):

- All components of the educational intervention are properly linked to each other (internal consistency).
- They are reflecting state-of-the-art knowledge ('content-validity').
- They have demonstrable added value.
- They are usable for the target group in real practice ('usability or practicality')
- They are effective ('effectiveness').

In the case of educational programmes as 'products', Kessels (1993) mentions internal and external consistency as quality criteria, as explained below in more detail.

Criteria for the quality of the development process in a (formative) development research approach are (Van den Akker et al., 1998):

- Homogeneity of the notions of parties involved on what the problem is and how it can be solved by means of educational interventions (external consistency).
- Articulation of rationale and theoretical basis for design decisions.
- Delivery of empirical evidence for usability and effectiveness.
- Systematic reflection on approach and results, contributing toward expansion and specification of design methodology.

The last three quality criteria are characteristic for a development research approach, but are often not taken into account by designers during their normal design and development practice (cf. Van den Akker, 1999).

A number of recent articles forcefully argue for development research as an alternative to existing research paradigms. Berliner (2002) states that next to the view (recently adopted by the US government) that an orthodox 'scientific' approach to educational research is the way to go (cf. Feuer, Towne & Shavelson, 2002), there is a need for 'local knowledge' to deal with particular problems. This

involves amongst others design experiments, and action research (Berliner, 2002; Sabelli & Dede, 2001). Bereiter (2002) advocates 'design research' as an alternative to 'decision-oriented research,' which deals with the making of educational choices, and 'conclusion-oriented research,' which is concerned with testing hypotheses and developing theory (cf. Cronbach & Suppes, 1969). Design research is characterised by 'sustained innovative development' (Bereiter, 2002) or 'disciplined progress' (after Whitehead, 1925/1948, cited in Bereiter, 2002). Other authors take the need for more relevance in educational research as a point of departure to argue for development research (MacIsaac, 1996; Reeves, 2000; Van den Akker, 1999). According to MacIsaac (1996) the irrelevance of science education research is the result from limitations in the two prevalent methodological paradigms (quantitative-causal and qualitative-hermeneutic-natural) because neither fits actual instructional practice in the classroom. Van den Akker (1999) writes: "...'traditional' research approaches (e.g. experiments, surveys, correlational analyses), with their focus on descriptive knowledge, hardly provide solutions for a variety of design and development problems in education" (p. 2).

The term 'design research' (or 'design experiments') is one of the names given to development research (Van den Akker, 1999). It also indicates an approach that is oriented to applied research in a micro-setting, often the classroom. Gravemeijer and Cobb (2001) state in a paper on creating suitable learning environments for mathematics learning: "To develop local instruction theories and prototypical instructional sequences, we conduct design research" (p. 3). It is thus concerned with the cyclical process of design and analysis that eventually leads to a local instructional theory that underpins a prototypical instructional sequence (Gravemeijer, 1994). The University of Twente approach (cf. Van den Akker et al., 1999) is more directed at the macro- and meso-level of curriculum, and not so much aimed at the development of local instruction theories within a subject-area. The University of Twente approach aims at supporting the development of prototypical products and formulating general design principles and characteristics for the design, development and evaluation of educational products and interventions (Van den Akker & Plomp, 1993), thus reducing the uncertainty of decision making in development processes of curriculum programmes and materials (Van den Akker, 1999). Notwithstanding these differences there is a considerable overlap between design experiments, aimed at local instruction theories, and the development research approach of the University of Twente (cf. Armanto, 2002; Fauzan, 2002), as shown by a number of characteristics for design research, extracted from the recent issue of *Educational Researcher* (Volume 32, no. 1):

1. Design research is carried out by or in close collaboration with designers. It also involves a close collaboration with the practitioners (cf. Bereiter, 2002; Gardner, 2002; Reeves, 2000; Walker, 1992).
2. Design research is inherently interventionist (cf. Cobb, Confrey, diSessa, Lehrer & Schauble, 2003). This means frequently crossing the boundary between observer and actor (Bereiter, 2002).
3. Design research is guided by some vision of as-yet-unrealised possibilities and is characterised by emergent goals – that is, goals that arise and evolve in the course of cycles of design and research (Bereiter, 2002). Cobb et al. (2003) talk about the prospective and reflective aspects of design experiments.

Typical for design experiments at the level of instruction are the following characteristics:

1. The purpose of design experimentation is to develop a class of theories about the process of learning and the means to support that learning (Cobb et al., 2003). The authors talk about 'learning ecology'.
2. Although design experiments are conducted to develop theories and not to just empirically fine-tuning a development process, the theories are 'relatively humble' and target domain-specific learning processes. Rather than being 'grand theories of learning' these theories are accountable to the activity of design, that is, they have to inform prospective design (Cobb et al., 2003).

One of the aims of this study is to find out what a competence-based curriculum for the Faculty of Education at UEM should look like, how it should be developed and how implemented. A development research approach is most appropriate in dealing with this problem statement because development research provides methodological directions for the design, development and implementation process, reaching quality and consistency in the final product, in this case a competence-based curriculum for the Faculty of Education (see also section 5.5). Another argument in favour of using a development research approach is that it could lead to 'generalisation', that is, characteristics of product (a competence-based curriculum for the Faculty of Education at UEM) and procedural guidelines (for the design, development and implementation of the curriculum) that could be transferred to other contexts. The curriculum characteristics and procedural guidelines obtained from reconstruction and analysis of the design, development and implementation of the curriculum in the Faculty of Education could assist other faculties in- and outside Mozambique in designing and developing their own competence-based curricula.

The following section explains why a mainly reconstructive approach is applied in this study, although formative research also took place during the process.

5.3.2 A (mainly) reconstructive approach

In development research the researcher is often also the designer. It was pointed out in chapter 1 that, because of the strong interventionist character of development research the roles of researcher (observer) and designer (actor) could interfere. In this study, the researcher was also designer and a member of staff - and, therefore, subject and object during the design, development and implementation of a competence-based curriculum in the Faculty of Education. In his role of staff member the designer was, as member of the Installation Committee (see Chapter 6), co-responsible for the setting up of the Faculty of Education. As member of the Centre for Academic Development (the former STADEP) he participated in the organisation of staff development activities in- and outside the faculty and as lecturer he designed and developed the ICT-courses for the first group of students in the Faculty of Education.

The three roles of designer, researcher and member of staff can be presented in scenarios that lead to different development research approaches. The scenarios are represented in Tables 5.1 - 5.3.

Table 5.1. *Roles in the process: Full control and participation*

| | Designer | Researcher | Staff member |
|----------------|-----------------|-------------------|---------------------|
| Design | + | formative | + |
| Development | + | formative | + |
| Implementation | + | formative | + |

Note: '+' means full control or full participation.

In the scenario presented in Table 5.1 the designer has the final word, but also participates fully as member of staff. It represents one extreme on a continuum, where scenario 2 (Table 5.2) represents the other extreme. In terms of development paradigms, Visscher-Voerman, Gustafson and Plomp (1999) identified four perspectives on educational design and development: instrumental, communicative, pragmatic and artistic. In the scenario presented in Table 5.1 the communicative and artistic approach are most appropriate to accommodate the roles of designer and member of staff. In the communicative approach (or deliberative approach to curriculum development [Walker, 1990]) in which consensus amongst stakeholders precedes decision making, the designer can also fully participate as a member of staff. Also in the artistic approach or connoisseurship (Eisner, 1979) in which the designer makes the decisions based on his 'artistic' sense of contexts and situations, the role of fully participating staff member can enrich the knowledge of the situation. The scenario of Table 5.1 is, for the designer and researcher roles, similar to what Richey and Nelson (1996) label a

type I approach. The designer can fully engage in the role of formative researcher, that is, perform all research activities aimed at optimising the quality of the intervention as well as testing design principles (Van den Akker, 1999). The researcher/research team "...deepens its understanding of the phenomenon under investigation while the experiment is in progress" (Cobb et al., 2003, p. 12). In order to communicate findings to the research community a comprehensive and systematic record of data is necessary (Cobb et al., 2003).

In the scenario of Table 5.2 the researcher has no role as designer and is also not involved in the design, development and implementation process as member of staff.

Table 5.2. *Roles in the process: No direct involvement*

| | Designer | Researcher | Staff member |
|----------------|-----------------|-------------------|---------------------|
| Design | - | reconstructive | - |
| Development | - | reconstructive | - |
| Implementation | - | reconstructive | - |

Note: '-' means no control or no participation.

Richey and Nelson (1996) label this a type II approach to development research. The emphasis is on reconstruction, characterised by research activities during and after the process, aimed at articulation and specification of design principles (Van den Akker, 1999). In some cases the researcher may be called in as a formative evaluator in the process, but often the reports of these external consultants are seen as interventions by the designers and implementers. Because of different beliefs, expectations and experiences designers and implementers 'won't listen'. "Evaluators are trying to reform the reformers! And nobody likes to be reformed, least of all reformers" (Walker, 1997, p. 135).

Often the real scenario lies somewhere between these extremes. And often the scenario may change during the process. The scenario that applies to this study is given below and is further illustrated in Chapters 7 and 8.

The table below shows a (reconstruction of the) diminishing role of the researcher as designer. As will be further explained in Chapters 7 and 8, the design decisions were increasingly taken out of the hands of the designer and got diffused and diluted in the higher and middle level leadership in absence of a clear management structure. As a member of the Installation Committee (pertaining to his role as member of staff) the designer was fully involved in all decisions about the establishment of the Faculty of Education and the development of its curriculum. This was the case during the design phase and, to some extent, during the development phase of the curriculum. Involvement as member of staff during the implementation of the

curriculum was less, because the designer, although responsible for ICT-courses in the educational programmes of the Faculty of Education, did not belong to one of the three subject groups but to the Centre for Academic Development that operated more on the periphery of the Faculty of Education.

Table 5.3. *Roles in the process: the Faculty of Education scenario*

| | Designer | Researcher | Staff member |
|----------------|-----------------|-----------------------------|---------------------|
| Design | + | formative reconstructive | + |
| Development | ± | formative reconstructive | ± |
| Implementation | - | formative reconstructive | ± |

Legend: '+' : full control or full participation,
 '-' : no control or no participation,
 '±' : indicates a partial control and participation,
 A smaller font size indicates a diminishing role.

The diminishing influence as designer, coupled with the occurrence of events that could not be foreseen by the researcher-designer make a reconstructive research approach most plausible. This approach is, in the scenario as summarised in Table 5.3, the most appropriate way to describe and analyse the design, development and implementation process. Cobb et al. (2003) use the term 'retrospective analysis' in which the "...historical or retrospective explanation....provides a trustworthy account of the process whereby a series of events can be seen as part of an emergent and potentially reproducible pattern". (p.12).

Thus, this study will be mainly reconstructive, telling the story and explaining the how, when and why. Embedded in the reconstructive approach will be accounts of formative evaluations, aimed at keeping the curriculum as close as possible to the ideal curriculum and creating internal and external consistency (see section 5. 5).

As depicted in Table 5.3 the contribution of formative research to this study was most outspoken during the earlier phases of the process. Van den Akker (1999), when speaking about the roles of designer and researcher in formative research notes that the role of the 'critical researcher' becomes stronger at later stages of the development process, taking more distance from the process than as 'creative designer' who is much more interventionist. The shift in Table 5.3 towards a more reconstructive approach as development and implementation proceed is in line with Van den Akker's observation.

In section 5.5 the interference of one role with another is discussed as well as the possible danger of bias as researcher, because of the other roles. Triangulation could prevent bias and increase the validity of the conclusions. Triangulation involves the application and combination of several research methodologies or the

collection of various types of data in the study of the same phenomenon (Denzin, 1994). In analogy with the triangulation used by a surveyor to exactly locate the position of a landmark, triangulation in social science research is used to increase the validity of statements (explanations) about a phenomenon.

5.4 A COMPARISON WITH OTHER APPROACHES TO DESCRIBE AND ANALYSE CURRICULUM DEVELOPMENT

Evaluation plays a crucial role in design, for example the design of educational interventions. In the generic design model (cf. Verhagen, 1999), implementation plays a role as well in the design and development phases, for example through the early piloting of prototypes of products or elements of an intervention.

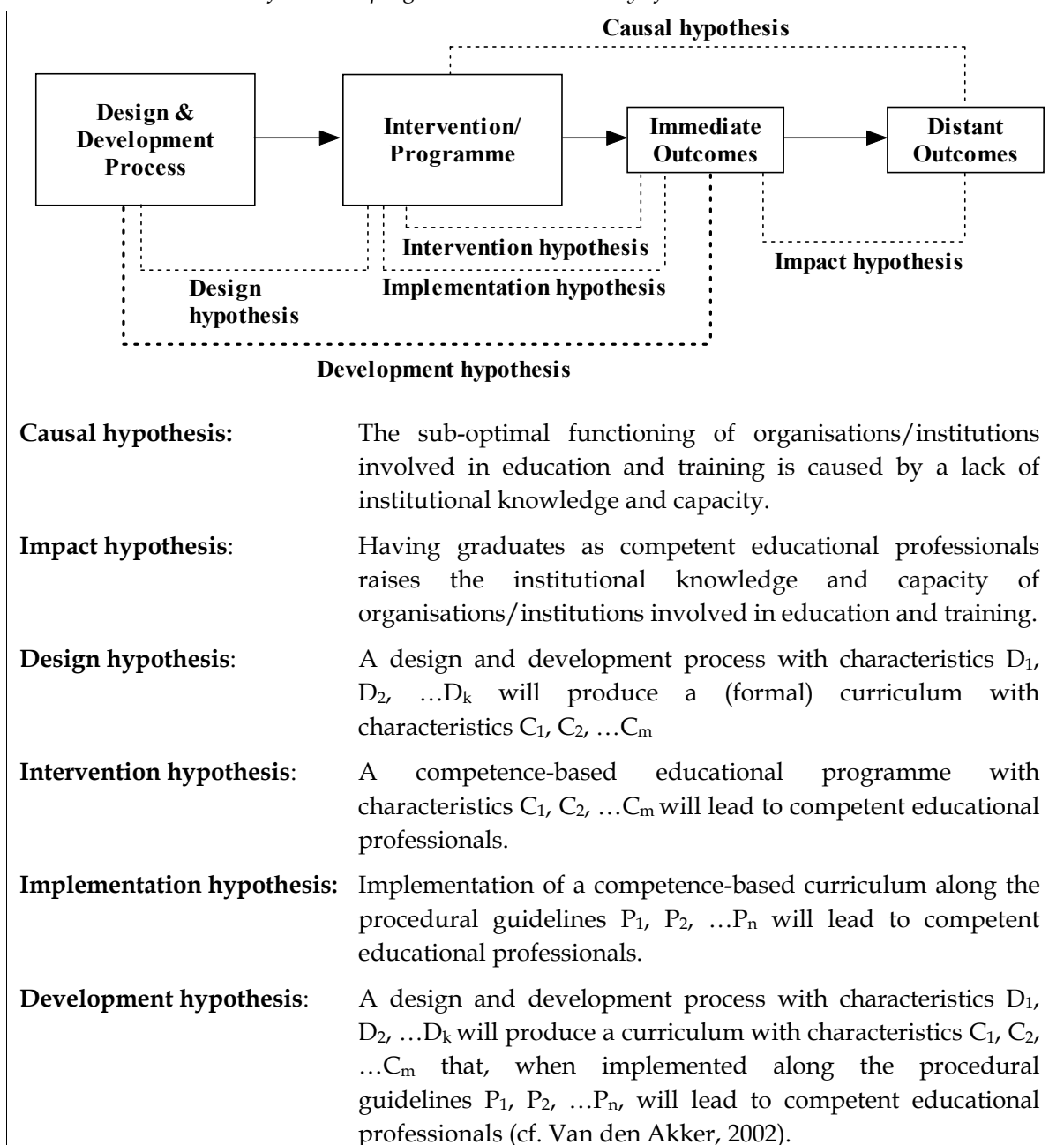
Evaluation has a central role as formative evaluation during all phases of the design and development process and as summative evaluation after the use of the final product or implementation of the intervention. The name 'formative research' (Reigeluth & Frick, 1999; Van den Akker, 1999; Walker, 1992), that is sometimes used for development research, is another reference to the importance of (formative) evaluation in design, development and implementation in education. The reconstruction and analysis of the design, development and implementation of a curriculum in the Faculty of Education should, therefore, involve evaluation of the process itself, but also indicate when formative evaluations took place during the process, what the outcomes were of such evaluations and what was done with these outcomes.

The approach of Rossi et al. (1999), based on evaluation research, provides a methodology that conceptualises the design, development and implementation of an intervention in a particular way. The intervention/programme is represented in a model, based on a set of assumptions and expectations (hypotheses) about how the programme relates to the social benefits it is intended to cause and what characteristics of the programme will lead to the expected outcomes. This is called programme theory where theory is "...a particular conception or view of something to be done or of the method of doing it" (Rossi et al., 1999, p. 98-99).

- For the Masters programmes at the Faculty of Education a model can be presented, adapted from the Rossi, Freeman and Lipsey model (Rossi et al., 1999). The resulting model (see Box 5.1) describes the evaluation taking place during the design, development and implementation of an intervention. The question why the programme or intervention is necessary can be formulated as a '*causal hypothesis*' (Rossi & Freeman, 1993), relating the programme's actions to the intended social benefits. In other words, the causal hypothesis relates the

intervention to the (social/educational) problem that it intends to solve, or states the cause of the problem in terms of the lack of intended social benefits. A difference with the original model of Rossi et al. (1999), apart from using a different terminology, is the addition of the design and development of the intervention as a separate step. The *development hypothesis* links the design and development of the curriculum (as product) together with the implementation of the curriculum to the intended output and (immediate) outcomes of the intervention.

Box 5.1. Evaluation hypotheses in the design, development and implementation of Masters programmes in the Faculty of Education at UEM



The development hypothesis, therefore, includes

- the assumptions and expectations about the intervention, expressed through (product) characteristics C_1, C_2, \dots, C_m , or through the *intervention hypothesis*;
- the assumptions and expectations about the design and development process, expected to lead to the intervention with the intended characteristics, expressed through procedural guidelines D_1, D_2, \dots, D_k , or through the *design hypothesis*; and
- the assumptions and expectations about the implementation process, expressed through procedural guidelines P_1, P_2, \dots, P_n , or through the *implementation hypothesis*.

The formulation of the development hypothesis resembles to some extent Van den Akker's heuristic statement, formulated as:

" If you want to design curriculum X [for purpose/function Y in context Z]

- then you are best advised to that curriculum the characteristics C_1, C_2, \dots, C_n [substantive emphasis];
- and to do that via procedures P_1, P_2, \dots, P_n [procedural emphasis];
- because of (theoretical/empirical) arguments A_1, A_2, \dots, A_n " (Van den Akker, 2002, p.46).

This heuristic statement combines the design and intervention hypothesis with an emphasis on the intervention or programme. The development hypothesis includes as well the implementation hypothesis. It means that even a programme with all the required characteristics can fail to lead to the intended outcomes (implementation failure).

Finally, in the model the *impact hypothesis* links the immediate outcomes of the programme to the final social benefits/change (distant outcomes). As mentioned before, the impact hypothesis can only be verified after the programme has been running for some time. Longitudinal research as done, for example, in Alverno College (Mentkowski & Associates, 2000) addresses the impact hypothesis. For the Faculty of Education regular contacts with employers of the graduates might provide useful data that could serve to prove or reject the impact hypothesis.

The model presented in Box 5.1 offers the opportunity to explain why the programme or intervention led or did not lead to the immediate outcomes as expected. Rossi et al. (1999) talk about *implementation failure* and *theory failure*. When the immediate outcomes are not as they were expected to be, the intervention could have the intended characteristics but is not implemented as intended (implementation failure). It could have the intended characteristics and be

implemented as intended, but still not have the intended immediate outcomes (theory failure). Another possibility is that the characteristics of the intervention are not as intended because of deviations in the intended design and development, which could be called *development failure*.

In the above the role of formative evaluation is most important. Summative evaluation, even when done in a systematic way and using various research methods from the social sciences, does not necessarily lead to more understanding of the intervention. Evaluation could, for example, be done to see if an intervention 'works', as a basis for further policy decisions, such as the continuation or not of a programme. Questions as: "*Why* does it work or not work?" bring evaluation research close to development research. The phrasing of the various hypotheses in Box 5.1 is meant to facilitate the reconstruction and analysis of the design, development and implementation process of the competence-based curriculum in the Faculty of Education.

It is possible to identify in the evaluation model of Box 5.1 the various stages of the curriculum, as described by Goodlad et al. (1979). In section 1.4.1 these stages in curriculum development (van den Akker, 1998) have already been presented and briefly explained. A comparison of approaches to the design, development and implementation of a curriculum is given in Table 5.4. This table shows also in which chapters in this study the various phases are described and analysed.

Table 5.4. Comparison of various models in research on the curriculum design and development in the Faculty of Education at UEM

| Evaluation of the educational programme | Development Research | Curriculum typology | Chapter(s) in thesis |
|---|---|--|-----------------------------|
| | <i>Process aspects</i> | | |
| | <i>Substantive aspects</i> | | |
| <p>Causal Hypothesis: The sub-optimal functioning of organisations/institutions involved in education and training is caused by a lack of institutional knowledge and capacity.</p> | Context/front-end analysis Needs analysis | | 2 and 6 |
| <p>Impact hypothesis: Having graduates as competent educational professionals leads to better functioning organisations</p> | | | Not addressed in this study |
| <p>Intervention hypothesis: A competence-based educational programme with characteristics C_1, C_2, \dots, C_m will lead to competent educational professionals.</p> | <p>What might be the characteristics of a competence-based curriculum that results in competent educational professionals for the Mozambican society?</p> <ul style="list-style-type: none"> Why should a competence-based curriculum be developed for the Faculty of Education? <p>What is the quality of the graduates of the competence-based curriculum?</p> | <p>What procedures and principles have been followed during the design of a competence-based curriculum for the Faculty of Education? What role did the various actors play in the curriculum design and what conditions and activities further influenced the design process?</p> | 3 and 6 (design phase) |
| <p>Design hypothesis: A design and development process with characteristics D_1, D_2, \dots, D_k will produce a curriculum with characteristics C_1, C_2, \dots, C_n</p> | <p>What are the characteristics of a competence-based curriculum in the context of the Faculty of Education at UEM?</p> | <p>Assessed curriculum Formal curriculum (<i>Curriculum document, Course outlines</i>)</p> | 7 (development phase) |
| | | | Not addressed in this study |

| | | |
|--|--|---|
| <p>What role did the various actors play in the curriculum development and what conditions and activities have influenced the development of a competence-based curriculum for the Faculty of Education at UEM?</p> | | |
| <p>What procedures and principles have been followed during the implementation of a competence-based curriculum for the Faculty of Education at UEM?</p> | <p>What are the characteristics of the implemented competence-based curriculum in the context of the Faculty of Education at UEM, as operationalised by the staff and experienced by the students?</p> | <p>Perceived curriculum and Operational curriculum</p> |
| <p>What role did the various actors play in the implementation of the curriculum and what conditions and activities have further influenced the implementation of a competence-based curriculum for the Faculty of Education at UEM?</p> | <p>What is the quality of the graduates of the competence-based curriculum?</p> | <p>Experiential curriculum</p> <p>8 (implementation phase)</p> |
| | <p>In what way (to what extent) can the development process and the resulting curriculum be transferred to higher education in countries comparable to Mozambique?</p> | <p>Assessed curriculum</p> <p>Not addressed in this study</p> |
| <p>Implementation hypothesis: Implementation of a competence-based curriculum along the procedural guidelines P_1, P_2, \dots, P_n will lead to competent educational professionals.</p> | <p>Development hypothesis: A design and development process with characteristics D_1, D_2, \dots, D_k will lead to a curriculum with characteristics C_1, C_2, \dots, C_m and the implementation along the procedural guidelines P_1, P_2, \dots, P_n will lead to a 'functional' competence-based curriculum.</p> | <p>(<i>Development plan</i>)</p> <p>9</p> |

5.5 FORMATIVE EVALUATION, CURRICULUM CONSISTENCY AND RESEARCH RIGOUR

Formative evaluation is conducted (amongst others) "to inform the decision-making process during the design, production and implementation of an educational program with the purpose of improving the program (Flagg, 1990, p. 23). The evaluation methods during a design, development and implementation process differ, depending on the 'design rationale' (Maslowski & Visscher, 1999). Visscher-Voerman et al.(1999) describe four design approaches or 'rationales' (see section 4.3.2) that can be related to formative evaluation approaches (Maslowski & Visscher, 1999). The question what design approaches were used in case of the development process for the Faculty of Education will be addressed through the reconstruction and analysis of the design, development and implementation process (see chapters 6, 7 and 8).

In a deliberative design approach (cf. Walker, 1990) negotiation between stakeholders is thought crucial, characterised by continuous deliberation of means and ends, possibilities and alternatives (Schwab, 1970). After consensus on the outcomes of the program, formative evaluation may be used to compare the preliminary program and intended outcomes. Quality is perceived by the stakeholders as 'extrinsic quality' or 'worth', comparable to external consistency as described by Kessels (1999b), and evaluation serves to assess the 'context-determined' value of the programme (Maslowski & Visscher, 1999) or the congruence between the real and intended outcomes of the programme. The designer should ensure intrinsic quality, that is, the 'merit' of a programme or its 'context-free value', complying with professional standards. Evaluation is described as assessing the degree of fit of aspects of the programme with the design criteria as agreed upon by the stakeholders.

Kessels (1999b) describes quality in corporate education with help of the concept of curriculum consistency and states that this concept leads to an integrated approach to curriculum design that may also be beneficial to general education. He introduces internal consistency as the logical relationships between the elements of a curriculum, such as aims of the curriculum, competencies of students, learning environments and output or outcomes. This is comparable to the ideas of internal quality (Maslowski & Visscher, 1999) and alignment of the curriculum (Biggs, 2002). Internal consistency is best served by a 'systematic approach' to curriculum design (Kessels, 1999b). External consistency involves a coherence of perceptions of all stakeholders of what 'the problem is' and 'how it will be resolved' (Kessels, 1999b). External consistency can be reached through a 'relational approach' (Kessel 1999b), corresponding to the deliberative approach of Walker (1990) named the 'communicative paradigm' by Visscher-Voerman et al. (1999).

Formative evaluation has taken place throughout the design, development and implementation of the curriculum in the Faculty of Education. It involved both staff and students.

The arguments between the quantitative and qualitative research paradigms concerning rigour, validity, consistency and truth have also involved development research. Van den Akker (1999) mentions the "...apparent lack of rigour and control in methodology" (p. 11). Design and development processes have a dynamic character that sometimes hampers controlled experimentation and leads to research designs that are emerging during the design and development process (cf. Thijs, 1999). Development research could be placed under what Creswell (2003) calls 'mixed methods research', that is, using a mix of quantitative and qualitative methods. The related knowledge claims are, according to Creswell (2003) pragmatic knowledge claims arising " ...out of actions, situations, and consequences rather than antecedent conditions (as in post-positivism)" (p. 11).

Shavelson, Phillips, Towne and Feuer (2003) mention the recommendations of a US National Research Council committee that concluded that:

" ...design studies are creative endeavours that hold promise especially for developing and elaborating conjectures and addressing issues of research-based practice; and

....principles of research that apply to all scientific work must apply also to knowledge claims from design studies' (p. 26)

They emphasise the importance of a comprehensive record of the evolving design process (cf. Van den Akker, 1999). Three generic research questions should drive the choice of research methods (Shavelson et al., 2003):

1. What is happening? This involves a rich description using qualitative and quantitative methods.
2. Is there a systematic effect? Shavelson et al. (2003) recommend the use of randomised experiments, when feasible. "The use of experimental studies combined with case (and other) studies of implementation seems appropriate to test the generalisability (and limits) of the effects" (p.28). In development research the use of multiple, randomised experiments is often not possible and Shavelson et al. seem here too rigorous in their attempts to put all (educational) research on a strictly scientific footing. In development research evaluation is done against the criteria or desired outcomes and generalisation is more directed towards usability and practicality than towards unravelling 'the Truth'.
3. Why or how is it happening? Here Shavelson et al. (2003) recommend the use of iterative designs (tryout-redesign-tryout).

Shavelson et al. are referring to design studies in the area of instruction technology with an important role for formative research. In this study of the design, development and implementation of a competence-based curriculum for the Faculty of Education the reconstructive aspect is reflected in Shavelson's generic question one. Shavelson's second question is, as argued above, less relevant for this study because in the reconstructive research approach of this study comparison with other, similar, programmes is not aimed for. The case study approach leads to a generalisation to theory -analytic generalisation- rather than to populations or universes -statistical generalisation- (Yin, 1994). The question of a systematic effect could also be interpreted as a question about the impact of a programme. Can the impact be causally explained by the programme activities and (immediate) outcomes, or are other factors playing a role? In the third question the importance of a formative approach is emphasised in various cycles, until the product has the required characteristics. In case of educational programmes something similar can be done through a systematic, continuous formative evaluation of curriculum elements, e.g. courses or modules, or aspects (e.g. the integration of generic competencies) and the revision of these elements and aspects. This implies a flexible curriculum that can change from year to year as a result of the formative evaluations. The 'why or how is it happening' question is also the guiding question in the analysis and reflection on the reconstructed curriculum development process in case of this study. Technical-professional and socio-political 'lenses' are used for this analysis and reflection (see Section 5.7).

The use of various data sources and various methods in collecting data signified triangulation through "multiple occurrences or representations of the processes being studied" or "a different picture and slice of reality" (Denzin, 1994, p. 6464-6465). This means that the perception of the researcher was shaped by multiple sources of information representing multiple perspectives, thus preventing bias in interpreting the data during the reconstruction and analysis of the curriculum development process. Triangulation, in this sense, does not primarily aim for convergence or completeness (cf. Knafl & Breitmayer, 1989; Massey, 1999). Data triangulation is especially important to avoid a bias in results and conclusions because of interference of the different roles of researcher, designer and member of staff. Therefore, data have been collected in as many ways as possible. A research diary during the implementation of the curriculum also served to keep awareness of which activities could be attributed to which role. A further reflection on the different roles of the researcher is given in Section 9.2.2.

5.6 THE SCOPE OF THE STUDY

The study covers events from the beginning of 1997 to the middle of 2002. This period involves the first steps towards the re-opening of the Faculty of Education, the start of the co-operation with Dutch universities and the needs assessment, design and development of the curriculum until the production of a curriculum document, representing the first part of the formal curriculum (UEM, 2001) for the post-graduate programmes in the Faculty. Thereafter the study involves the Common Core part (from August 2001 to May 2002) for all three programmes. More details are given below where an overview is given of data collection and research methods per phase (or chapter) of the curriculum development process. Table 5.5 gives a summary of the scope of this study, together with a timeline.

Table 5.5. *Scope of the study*

| Year | Phase | Event | Programme | Staff | Students |
|------|-------------------------------------|------------------|------------|-----------|----------|
| 1997 | Context Analysis UEM | | | | |
| 1998 | | | | | |
| 1999 | Context Analysis Dutch Universities | | | | |
| 2000 | Design of Curriculum | Needs Assessment | SME CID | Regularly | |
| | | | | | |
| 2001 | Development of Curriculum | | All | Regularly | |
| | | | | | |
| 2002 | Implementation | Common Core | All | Reg. | Reg. |

Note: SME = Post-graduate programme in Science and Mathematics Education
 CID = Post-graduate programme in Curriculum and Instruction Development
 All = All three post-graduate programmes (including Adult Education)

In this figure the phases represent more or less distinguishable stages in the development process of the curriculum: Context analysis (Front end analysis), Design, Development and Implementation. In the column named 'Event' special events or parts of the programme are indicated. Under 'Programme' is indicated what educational programme was involved in the study at what stage. The last two columns show when staff and students participated in the study.

5.7 DATA COLLECTION AND ANALYSIS METHODS

Referring back to the research aims mentioned at the beginning of this chapter, the first aim is addressed in the conceptual part of this study (Chapter 3) and the contextual analysis is presented in Chapters 2 and 6. At the end of Section 5.3.1 the importance of development research in realising the second aim was already mentioned. The research questions of this study have been presented in Table 5.4. The table also mentions the chapters in which these questions are addressed. This section gives, per chapter that deals with the design, development or implementation of the curriculum, an overview of the research questions involved, the data collected and the methods used to analyse the data.

Chapter 6: Towards a competence-based curriculum for the Faculty of Education

The chapter describes the period May 1997 – May 2000 and includes the context analysis (together with Chapter 2) and the design phase of the curriculum (together with Chapter 3), including the design and development of the needs analysis.

Together with chapter 3 an answer is given on the first aim of this study, mentioned in chapter 1. Phrased as a research question: *How could a competence-based approach to the education and training of education professionals contribute to improving the quality and efficacy of the education system?* The conclusion of the chapter (section 3.8) approximates the description of an ideal competence-based curriculum.

As shown above in Table 5.4 this aim leads to the research question to be answered in the design phase: *What might be the characteristics of a competence-based curriculum that may result in competent educational professionals for the Mozambican society?* It is, in fact, the question about the characteristics of the intended curriculum. Thus, in this chapter the design of the intended curriculum and the formative evaluation related to this phase are presented.

In Chapter 1 the analysis framework based on three viewpoints (lenses) has been mentioned. Substantive questions related to the design phase are related to the various aspects of the intended curriculum. Two questions in this chapter address the rationale of the curriculum:

- Why should the Faculty of Education be re-opened?
- Why should a competence-based curriculum be developed for the Faculty of Education?

Van den Akker (2003) has introduced the metaphor of a (curricular) spider web with ten 'spokes'. Just as pulling one thread/spoke in the web will also affect the others, the ten curriculum aspects have a synergetic relation and should be aligned in all curriculum manifestations (cf. Biggs, 2002). The ten curriculum aspects in the curricular spider web are rationale, goals/objectives, content, learning activities, roles of teaching staff, materials & resources, ways of grouping, time, space, and assessment (cf Klein, 1991).

The technical professional point of view is represented by the research question: "*How should the curriculum design and development process be organised?*", while the socio-political view is phrased through the question: "*What role did the various actors play in the curriculum design and development process influence and what conditions and activities further influenced the design and development process?*"

These questions are answered using the data and research methods presented in Table 5.6, on the next page.

The document database, mentioned in the second column of Table 5.6 was put together from minutes of meetings, important e-mails, official small documents, etc. The documents got, apart from a title and a description a date field and a code of the category in which they were put. A list with the contents of the database is given as Appendix 1 (in Excel format the list can be found as Appendix 5.1). The third column of Table 5.6 gives other documents that are larger in size, such as workshop reports, documents from working groups, etc. A list of the material consulted can be found on the Website, accompanying this study. The last column ('Data from actors') refers to data obtained from stakeholders in the development process, through a variety of methods, e.g. questionnaires, interviews etc.

Table 5.6. *Data collection and analysis during the design phase of the curriculum*

| Research question | Analysis of data from document database | Analysis from additional documents | Data from actors |
|--|--|--|--|
| Why a Faculty of Education? | ✓ | | See also data from needs assessment, Chapter 7 |
| Why a competence-based curriculum | ✓ | Material workshop November 1999 | |
| What educational programmes at the Faculty of Education? | ✓ | <ul style="list-style-type: none"> ▪ Final Document Commission on re-opening faculty, April 1999 ▪ Material workshop November 1999 | Outcomes mini-workshop on research (<i>brainstorm, round table</i>) |
| How to start the design of the curriculum? | ✓ | <ul style="list-style-type: none"> ▪ Material workshop November 1999 ▪ Material workshop February 2000 | Results workshop February 2000: <ul style="list-style-type: none"> ▪ Ideas on the roles of staff and students in the 'new' curriculum (<i>brainstorm</i>). ▪ Initial proposals for the needs assessment (<i>brainstorm in groups</i>). ▪ Internal evaluation of workshop (<i>round table</i>). ▪ External evaluation of workshop (<i>questionnaire</i>). |

Chapter 7: From idea to start-up: towards a curriculum document and course outlines

This chapter describes the period May 2000 – August 2001 and includes the description and analysis of the development phase of the curriculum.

The chapter reconstructs and analyses the activities that led to the presentation of a curriculum document to the academic council (May 2001) and the further elaboration of course outlines. Both can be labelled representations of the formal curriculum. The formal curriculum is compared to the intended curriculum using a checklist with characteristics of competence-based education. This comparison will partly address the second aim of this study (formulated in 5.1): *What are the characteristics of an effective competence-based curriculum for the Faculty of Education at UEM and how can such a curriculum be designed, developed and implemented?*, and the research question related to this aim: *What are the characteristics of a competence-based curriculum in the context of the Faculty of Education at UEM?*

Technical-professional and socio-political aspects of the process during this development phase are stated in the research questions: *What procedures and principles have been followed during the development of a competence-based curriculum for the Faculty of Education at UEM?*, and *What conditions and activities have influenced the development of a competence-based curriculum for the Faculty of Education at UEM and what was the influence of the various actors?*

The research questions will be answered using the data and research methods presented in Table 5.7, on the next page:

Table 5.7. *Data collection and analysis during the development phase of the curriculum*

| Research question | Analysis of data from document database | Analysis from additional documents | Data from actors |
|--|---|---|---|
| What are the characteristics of a competence-based curriculum in the context of the Faculty of Education at UEM? | ✓ | <ul style="list-style-type: none"> ▪ Outcomes of the July 2000 workshop ▪ Recommendations from the December 2000 workshops ▪ Outcomes of the February/March 2001 workshops ▪ Personal notes/report from working visit to Twente University (March 2001) ▪ Reports of meetings of Installation Committee ▪ Reports on meetings about development of course plans | <ul style="list-style-type: none"> ▪ Needs assessment data (<i>structured interviews</i>) ▪ Staff opinions on assessment (<i>brainstorm in groups</i>) ▪ Brief questionnaire to Mozambican staff at beginning of visit ▪ Questionnaire to Dutch staff after visit ▪ Interviews with 2 Mozambican staff after visit |
| What procedures and principles have been followed during the development of a competence-based curriculum for the Faculty of Education at UEM? | ✓ | <ul style="list-style-type: none"> ▪ Personal notes/report from working visit to Twente University (March 2001) ▪ Reports of meetings of Installation Committee ▪ Reports on meetings about development of course plans | <ul style="list-style-type: none"> ▪ Brief questionnaire to 7 Mozambican staff at beginning of visit ▪ Questionnaire to 6 Dutch staff after visit ▪ Interviews with 4 Mozambican staff after visit |
| What conditions and activities have influenced the development of a competence-based curriculum for the Faculty of Education at UEM? What was the influence of various actors? | | | |

Chapter 8: The curriculum in operation: implementation of the common core part of the post-graduate programmes

This chapter describes the period August 2001 – May 2003. It covers common core part of the masters programmes in Curriculum & Instruction Development, Science & Mathematics Education and Adult Education, with an emphasis on the first two. In 'Goodlad' terms this chapter deals with the perceived and operational curriculum and the experiential curriculum. It is presumed that the difference between formal and perceived curriculum is small, because all staff have been involved in development activities. Still, the perceptions of members of staff might differ from the intentions of the formal curriculum. A large difference could indicate a lack of ownership (staff were present but did not really have a say in the development of the curriculum) or a conceptual backlog (staff were present but did not really understand the ins and outs of CBE).

Along the same lines as outlined for Chapter 7, the research questions are part of the second main research aim of this study, reflected in the question: *What are the characteristics of an effective competence-based curriculum for the Faculty of Education at UEM and how can such a curriculum be designed, developed and implemented?*

Data and research methods are presented in Table 5.8, on the next page, following a reconstructive approach, that is, a more or less chronological order of events during the implementation phase of the curriculum.

Table 5.8. Data collection and analysis during the implementation phase of the curriculum

| Research question | Analysis of data from document database | Analysis from additional documents | Data from actors |
|---|---|---|---|
| What are the characteristics of the implemented competence-based curriculum in the context of the Faculty of Education at UEM, as operationalised by the staff and experienced by the students? | ✓ | <ul style="list-style-type: none"> ▪ Notes and observations in research diary (field notes) ▪ Course outlines ▪ Additional course documents ▪ Course report (on ICT course) | <ul style="list-style-type: none"> ▪ Results of self-assessment by 19 students on generic competencies. ▪ Evaluation of 6 courses by students. ▪ Interviews with 7 students. ▪ Interviews of 6 staff. ▪ Staff evaluation and reflection on the first part of the common core. ▪ Class observations (11). ▪ Students' view on the role of students and staff in competence-based education (<i>brainstorm in groups</i>). ▪ Students' view on competence and CBE (<i>questionnaire</i>). ▪ View of staff on CBE (<i>questionnaire</i>). |
| What procedures and principles have been followed during the implementation of a competence-based curriculum for the Faculty of Education at UEM? | ✓ | <ul style="list-style-type: none"> ▪ Notes and observations in research diary (field notes) | <ul style="list-style-type: none"> ▪ Evaluation of 6 courses by students. ▪ Interviews with 7 students. ▪ Interviews of 6 staff. ▪ Staff evaluation and reflection on the first part of the common core. |
| What conditions and activities have influenced the implementation of a competence-based curriculum for the Faculty of Education at UEM? | ✓ | <ul style="list-style-type: none"> ▪ Notes and observations in research diary (field notes) | <ul style="list-style-type: none"> ▪ Evaluation of 6 courses by students. ▪ Interviews with 7 students. ▪ Interviews of 6 staff. ▪ Staff evaluation and reflection on the first part of the common core. |

CHAPTER 6

Towards a competence-based curriculum for the Faculty of Education

The reconstruction of the design, development and implementation of the curriculum in the Faculty of Education starts with a 'prologue' that focuses on the origins of the new faculty, that have been described already in Chapter 2 (section 2.6). The curriculum development process started thereafter with the design phase in which the (research) question about the characteristics of the 'intended' curriculum played a central role. At the same time planning activities began for the setting up of the faculty. The prologue and the planning and design phase form together the 'first phase' in the establishment of the faculty and the development of its curriculum. The first phase spans the period from May 1997 to July 2000.

Apart from the 'product' question about the intended curriculum, which has a more 'substantive' character (Van den Akker, 1999), some procedural questions, for example about the why and how of the curriculum development process, are also addressed in this chapter. The role of the various 'actors' in this process will be further clarified.

The guiding research questions are outlined in the introductory section 6.1. The next part, 6.2 explores the initial steps towards the re-opening of the faculty, in the period May 1997 to December 1999. Early 1999 the co-operation started with three Dutch universities, leading to a pre-project involving a major planning workshop (November 1999) that is described in 6.3. The move towards a competence-based approach to curriculum development was supported by the university-wide curriculum reform process that is portrayed in 6.4. In section 6.5 the first major curriculum development activity, the workshop of February 2000 is reconstructed and analysed. Aspects of interest from this workshop are an inquiry into the participants' view on the role of students and staff in the new faculty and the evaluation of the workshop by various actors. The outcomes of the workshop included more clarity about the characteristics of a competence-based curriculum in the context of the UEM and about the needs assessment that would be the first step in the curriculum development process. The aftermath of the workshop,

including the continuing preparation of the needs assessment are described in 6.6. The concluding section 6.7 gives a summary of the explorations and draws lessons that could be of use in formulating guidelines for the design, development and implementation of a competence-based curriculum in a developing country.

6.1 INTRODUCTION

The first phase of the development process, covering the period May 1997 to July 2000 can be divided into a 'prologue' and a planning and design phase. During the prologue activities took place that are characterised by the questions:

- *Why should the Faculty of Education be re-opened?*
- *What educational programmes should be offered in the faculty?*

In November 1999 the planning of the installation of the Faculty of Education and the design of its curriculum started. The reconstruction and analysis of the design of the curriculum for the Faculty of Education involve a description of the characteristics of a competence-based curriculum that is 'functional' in the context of a developing country, that is, a curriculum that will result in competent educational professionals. Chapter 3 has provided the conceptual framework for the design of such a curriculum and in this chapter the context analysis will be completed.

Although design, development and implementation are continuously interacting activities it is clear that early in the process design plays the most important role. The research question for the design phase of the curriculum development process has been formulated as:

What might be the characteristics of a competence-based curriculum that results in competent educational professionals for the Mozambican society?

Important sub-questions at this stage are related to the rationale of the curriculum. The first one has been mentioned above and asks for the rationale of re-opening a Faculty of Education at UEM. The other question asks for the rationale of a curriculum that is competence-based:

Why should the curriculum for the Faculty of Education be competence-based?

Next to a description and analysis of the 'intended curriculum' as a plan for further development and as a 'product' of the design process, the design process itself should also be reconstructed and analysed, because that might result in procedural guidelines for the design of a competence-based curriculum. The reconstruction and analysis include any formative evaluation that took place during the design process. The analysis and reflection related to the design process is reflected in the following research questions:

What procedures and principles have been followed during the design of a competence-based curriculum for the Faculty of Education?

This question refers to technical-professional aspects of the design phase in the curriculum development process. It involves an analysis of planned/expected (by the designer) and actual roles of the actors in the process.

What role did the various actors play in the curriculum design and development process influence and what conditions and activities further influenced the design and development process?

The socio-political aspects of the design activities to which the question above refers, involve also expected and actual roles in decision taking and other management activities. Actors in the curriculum development process are the UEM leadership, the Installation Commission (IC), the Working Group on Curriculum Development, the staff of the faculty, staff of other faculties and of other institutions for higher education, experts from the three Dutch universities that have accompanied the process from 1999 onwards, and the designer-researcher.

In Figure 6.1 the first phase of the development process is depicted, with events as reconstructed by the designer-researcher. During the planning and design component of this phase two major events took place: a planning workshop in November 1999 and a curriculum development workshop in February 2000. The analysis of planning and design is based on products and processes. The expected products included plans for the setting up (installation) of the faculty until the start of the first programmes in August 2001 and a first description of the curriculum to be developed (intended curriculum). Also expected by the end of this first development phase were the results of a needs assessment as a first step in the development of a curriculum. In the processes 'actors' and 'factors' or 'influences' are distinguished. The actors have been mentioned above. The influences include physical conditions (buildings, equipment, etc.) and non-physical conditions. Non-physical conditions include the history and 'culture' of higher education in Mozambique and of the former Faculty of Education at UEM, present educational programmes, the policy of the Ministry of Education, and activities (workshops, needs assessment, meetings of IC and working groups).

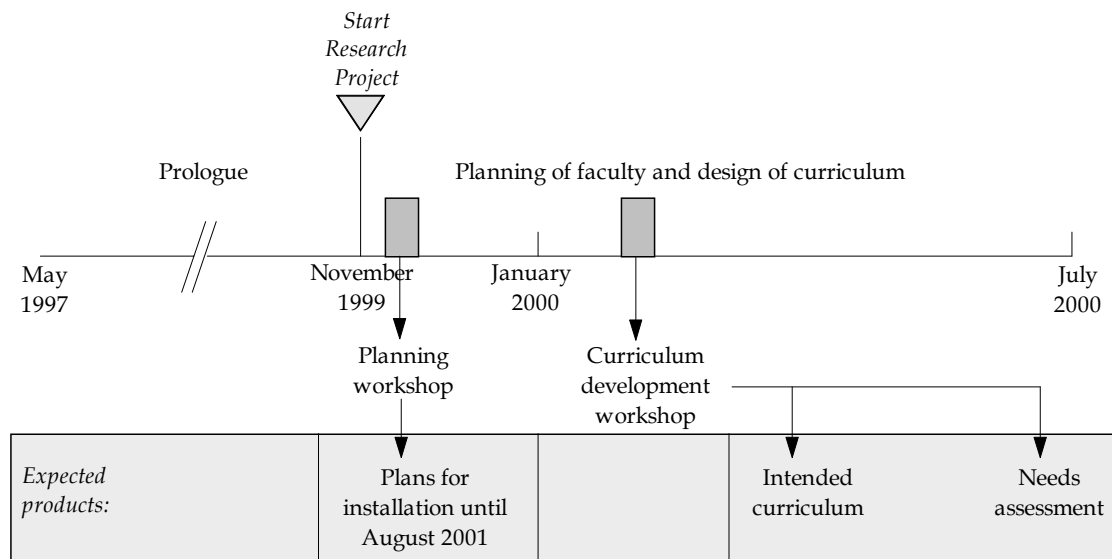


Figure 6.1: The first phase of the curriculum development process in the faculty with the intended results

At the beginning of the planning and design component of the 'first phase' certain assumptions were made by the designer-researcher about the products and processes. The reality is described in the following sections, while in the final section of this chapter expectations and reality will be compared and the discrepancies discussed.

6.2 INITIAL STEPS TOWARDS THE RE-OPENING OF THE FACULTY OF EDUCATION

In Chapter 2 the events leading to the re-opening of the Faculty of Education have already been described. Therefore, this section will limit itself in highlighting a few aspects that help to understand the context in which the design of the curriculum for the faculty has taken place. The sources are mainly stored in the document database (see appendix 1) and will be indicated by their code and year (e.g. "FC1, 1998").

6.2.1 Activities of working group and first commission, May 1997 to December 1999

Although in the very first period of activities the emphasis has been on the integration of BUSCEP and Staderp into one organisational unit devoted to questions with an educational character, e.g. a Centre for Educational Studies (FC2, 1997), there were already voices audible that argued for the start of (post-)graduate courses in education (FC3, 1997). At the end of 1997 the Rector of the UEM

expressed as well interest in post-graduate programmes and launched the idea to re-open the Faculty of Education that had been closed since the mid nineteen eighties. It was considered at that time to open the Faculty of Education gradually in the form of projects (FC11, 1997).

The re-opening of the Faculty of Education was further justified by the rector with the following arguments:

- It could lead to an improvement of teaching in the university.
- Basic education in primary and junior secondary schools could be 'influenced' through a Faculty of Education.
- Teacher training could, through the Faculty, be linked to some programmes offered at the UEM and thus lead to a higher production of teachers.
- Through in-service activities education in the pre-university schools could be improved.
- There was a growing need for distance education and a Faculty of Education could be the place to start activities in this area.
- Government looked also favourable to the idea, according to the rector (FC11, 1997).

Dr. Mouzinho Mário, the future chairman of the various planning committees (and the future dean of the Faculty), who had just returned from his doctoral studies in the USA, was added to the working group BUSCEP-Stadep (FC19, 1997). He advocated almost from the start of his activities for the Faculty a strong emphasis on research and the study of history and philosophy of education (cf. FC13, 1998). Dr. Lídia Brito, at that time Vice-rector academic affairs, emphasised in preliminary talks with the working group the importance of life-long learning and the promotion of independent study by students (FC13, 1998). In the end (see the next chapter) the curriculum would be based on the development of competent professionals, signifying more a practical than a philosophical orientation, along the lines of thinking of the Vice-rector. The attention for philosophical, anthropological and sociological issues would be visible in a course during the common part of the post-graduate programmes. Doing research would be a major part of those programmes as well.

A document that signified the transition of the loosely operating working group to a 'Commission for the re-opening of the Faculty of Education' was presented in January 1998 (FC17, 1998). It mentioned that the rector "...has appointed a university-wide commission entrusted with the mission of studying the feasibility of establishing an academic unit (Department or Faculty of Education) responsible for carrying out teaching, research and extension activities in education within the University." (p. 2). The commission consisted of representatives from BUSCEP and Stadep, from the science and arts faculties and from the central administration.

Rather ambitiously the document announced a draft plan by April 1999 after which the Faculty could start operating in August 1999. A curriculum development model was briefly presented in the tasks section of the document. It followed an instrumental development paradigm (cf. Visscher-Voerman et al., 1999), characterised by 'planning by objectives'.

The first months of 1998 were used for discussions of various topics, such as how a pre-service programme for teacher education could be distinguished from programmes offered at the pedagogical University (UP), what were the possibilities for distance education in relation to in-service programmes for secondary school teachers and how the activities of STADEP could be extended to include academic support to students. Preparations started for study visits to universities in the region, in the Netherlands and the UK, and in the USA and Brazil (E43, 1998; FC6, 1998). The chairman of the commission produced a very elaborate scheme of work (FC4, 1998; FC21, 1998) that, in the end, turned out to be too elaborate to manage and defeated its purpose. The study-visits to the Netherlands, UK and to one university in South Africa took place in June and July 1998. Proper reporting was done (FC9, 1998; FC10, 1998), despite the warning of one of the members of the commission that in the past "...the delegations contained equivalent persons and thus it was very difficult to appoint somebody to do this task..." (E43, 1998). The delegation that visited the University of the North was impressed by the plans to restructure the Faculty of Education there, amidst political turmoil (FC10, 1998). Especially the idea of a faculty with only a few basic departments seemed attractive to the chairman of the commission. As will be seen later this idea appeared in the planned structure for the new Faculty of Education at UEM.

6.2.2 A beginning of co-operation with Dutch Universities, January to July 1999

The study-visits to the Netherlands, made in June 1998, reinforced contacts with the old partner universities, Free University Amsterdam (VUA) in case of the BUSCEP project and the University of Groningen (RUG) for the Stadep project. A 'new' university was the University of Twente. During the visits and the time thereafter interest was shown by both sides to engage in a new partnership in the context of establishing the new Faculty of Education (DI0, 1999). The commission for re-opening of the faculty had already formulated a number of ideas about the programmes that the new faculty should offer. The Dutch partner universities queried the absorption capacity of the Mozambican labour market for graduates of the educational programmes. They asked for clarity in positioning the education and training of teachers within the UEM in relation to the existing programmes at the Pedagogical University (UP). They emphasised as well the need for a clearly described structure of collaboration between the Ministry of Education (MINED),

the new Faculty and other educational institutions such as INDE (National Institute for the Development of Education) and UP. The Dutch donor (NUFFIC) emphasised the possibilities of South-South co-operation. In terms of capacity building NUFFIC thought that the management training for the future leaders of the Faculty was very important and should be part of a project proposal.

It was agreed to carry out a pre-project in order to prepare a full-fledged project proposal for Dutch-Mozambican co-operation during the first years of existence of the new faculty. The idea of a major project to support the Faculty of Education during the start-up, was supported by UEM (DI0A, 1999) and in May 1999 the UEM and the three Dutch partner universities presented a pre-project proposal to NUFFIC (O4, 1999), that was approved in June 1999 (DI15). Box 6.1 shows a section of the pre-project document in which an outline is given of the aims of the pre-project.

Box 6.1. From the pre-project document

"UEM's Faculty of Education will then play an important role in (i) *human resource development* through enhancing the quality of education through graduate (primary and pre-primary teacher educators, psychologists, ESG2 teachers) and post-graduate training of professional educators (adult educators, educational administrators and leaders, curriculum development specialists, science and maths educators, language education specialists, etc.), and (ii) *institutional capacity building* by means of pedagogical and didactic training of university lecturers, guidance and counselling of students, curriculum issues, and educational research. Enhancing the quality of education in schools and within the University requires the building of a strong research capacity within UEM. Educational research, especially action-research, will inform the teaching and learning processes, and help better understand different dimensions of change within institutions. The reopening of the Faculty of Education in 1999 is regarded as an important step toward the accomplishment of these goals." (p.10)

"The principal purpose of this pre-project is to support the process of re-opening and installation of the Faculty of Education, with special attention for planning of staff training, curriculum development, research programmes, infrastructure development and capacity building. Through a successful implementation of a pre-project, the possibilities for a feasible and viable Faculty of Education will be strongly enhanced. The main emphasis will be on:

- a. support for planning and management of curriculum development and for management of the Faculty;
- b. staff development through planning of training and educational research programmes;
- c. student development through planning a comprehensive Academic Development Programme which integrates STADEP;
- d. support to initial activities of the Faculty in the area of teacher education, like (i) in-service teacher education (mathematics and science, building on the BUSCEP experience), and (ii) planning the development of an educational option (*ramo educacional*) for pre-service education. (p. 10-11)."

Source: Document O4, 1999.

The choice for three Dutch partner universities would lead inevitably to more and diverse personal input from the Dutch side, for example through three Dutch project supervisors and three Dutch project co-ordinators. Also, in a situation where the capacity of the new faculty was virtually zero and with an ambitious plan for support, as outlined in Box 6.1, the danger existed of an over-powering Dutch expertise. This makes it not only interesting, but also necessary to analyse the role of the Dutch 'input' in the reconstruction of the curriculum development process for the post-graduate programmes (see Section 6.7.2).

6.2.3 Elaborating a first official document on the re-opening of the Faculty of Education, January to July 1999

In February (and the beginning of March) 1999 a study visit was made to the USA and Brazil by three members of the commission of the re-opening of the Faculty of Education. Much of the visit's outcomes were verbal agreements on the will to co-operate in the future, without concrete steps that could have led to a widening of the co-operation perspective from Europe (the Netherlands) to other continents. The final report only covered the USA part (FC7, 1999; FC8, 1999), because two members of the delegation that occupied senior positions in the UEM did not do their share despite repeated requests (thus confirming what had been remarked above, in 6.2.1, on the hierarchical thinking in Mozambican structures).

The commission for the re-opening of the Faculty of Education continued its deliberations and produced a final report in July 1999, with the title "Project for the re-opening of the Faculty of Education" (Mário et al., 1999). The most important points of the report are given below in Box 6.2:

Box 6.2. *From the document on the re-opening of the Faculty of Education*

On the justification of a new Faculty of Education:

- Several departments in various Faculties of UEM are planning to introduce educational options in their Licenciatura programmes, implying pre-service teacher education.
- At institutional level there is a growing need to build capacity in schooling and research in the area of Education. This would involve graduate and post-graduate programmes in Education, pedagogical professional development of lecturers that are at the beginning of their career and setting up educational research on various aspects of academic life.
- The two programmes aimed at improving the quality of education at UEM, BUSCEP and STADEP, are involved in a process of restructuring and are looking for ways to become institutionalised. (p. 1)

Priorities in the activities of the Faculty:

See Box 2.3 in Chapter 2.

On educational research:

- Educational research should contribute to the improvement of the practice of teaching and learning in schools and university.

Box 6.2. From the document on the re-opening of the Faculty of Education (Continued)

- A database of educational research will be established to assist the decision processes in educational policy making.
- Educational research should contribute to the knowledge of educational practitioners in Mozambique and to the establishment of stronger links between schools and university.
- Educational research plays an important role in the development of the National Education System.
- Educational research can be academic (pure and applied) or by contract (applied) (pp.27-29).

Model of teaching and learning:

See Box 6.3.

Intake prognosis:

From 30 in 2000 (start of psychology programme) to 600 in 2005. Post-graduate programmes are divided into 'educational sciences' and 'science and mathematics education' (p.36).

Organisational model:

Three departments and the Centre for Academic Development. Departments cut across the programmes. The three departments are:

- Department of Educational Foundations. Tasks are the teaching of the pedagogical and didactical component of the educational options. The department also has the responsibility for the Licenciatura programmes in Child development and primary Education, and in Psychology in addition to the post-graduate programmes in Curriculum analysis and development, Educational administration and management, policy analysis and adult education.
- Department of Teaching and Educational Technology. Tasks are the teaching of the discipline specific didactics in the educational options in the social sciences and arts, primary education. Also the teaching of certain post-graduate disciplines in specific areas, as well as the co-ordination of teaching practice and distance education.
- Department of Science and Mathematics Education. Tasks are the teaching of the discipline specific didactics in the educational options in Science and Mathematics, in Primary education. Also the teaching of post-graduate disciplines in specific areas and the teaching of INSET courses in the field of Science and Mathematics.

All three departments have their own responsibility for research (pp. 33-34).

Conclusions :

- Tasks and questions that still have to be addressed:
 - transition and integration of BUSCEP and STADEP;
 - content of the various programmes;
 - entry policies for the 'educational options';
 - regulations for teaching practice and other internships;
 - research programmes/projects.
- Risks
 - lack of financial resources;
 - physical space;
 - quality of the intake (students taking education as a negative choice).

Sources: Mário et al. (1999); Conclusions from slideshow, accompanying the report (see Appendix 6.2).

Some observations can be made that are relevant for the further analysis of the development process of the curriculum in the Faculty of Education. A first observation concerns the list of activity areas, already presented in Box 2.3. Seven post-graduate programmes are presented in, it is assumed, a long-term perspective. Three of them (Curriculum and Instruction Development, Adult Education and Science and Mathematics Education) have actually started in 2001. The programme in Education Management and Administration will probably start in 2004. Post-graduate programmes in Language Education and History and Geography Education have been considered as long term goals. The status of a programme in Education Policy Analysis is less clear. Although mentioned as necessary and useful (cf. DI0, 1999; E41, 1999) and also appearing under 'research' (see above), later documents cease to mention this programme without clear reasons. The same seems to be the case with the graduate programme in Child Development and Primary Education. In 2002 the graduate programme in Psychology started with an intake of 60 students.

Another observation concerns the first point given under educational research, where the relevance of educational research is emphasised. This points to a development research approach (see section 5.3.1), although at the time of producing the report there did not exist a firm knowledge base at the UEM about development research. As mentioned before the chairman of the commission has always emphasised the importance of research for the new faculty, although not necessarily development research.

The intake prognosis in the report shows that the ambitious idea to start in 1999 was left already and that the faculty should now start its intake in 2000. The division of the post-graduate programmes into 'educational sciences' and 'science and mathematics education' is in line with the proposed organisational model of the faculty. The tendency to structure the faculty in a small number of 'super-departments' resembles the restructuring of the Faculty of Education in the University of the North, for which the visiting delegation had so much admiration (cf. FC10, 1998).

In Box 6.3, below the educational philosophy of the new faculty is outlined, as a summary of a description of a "model of teaching and learning". Parts that are important for later reference, especially in relation to a competence-based approach, are italicised.

Box 6.3. Extracts from "A model of teaching and learning" in Mário et al. (1999)

The education in the faculty is based on the perception that a university student is *not a passive recipient of knowledge*, a filing cabinet where the content of a discipline is 'stored' and 'archived' for transport to the memory and repetition, but an *active subject who creates social and educational knowledge*. This perception is anchored in the conviction that knowledge is only authentic and significant when it is based "on the invention, re-invention, on the restless, impatient, permanent search, that people do in the world, with the world and with the others". (Freire, 1970).

Thus, next to the traditional lectures and seminars, *the teaching in the faculty favours the realisation of practical or theoretical-practical work*, research projects in the field, simulations, essays, case studies, group work, internships and other forms of education that contribute to the involvement and participation of the students in the production of social and educational knowledge.

As a consequence, the learning model as presented here presupposes the *participation of students in taking decisions about the rhythm and structuring of their academic career in the university*. From an organisational and administrative point of view the proposed model is not compatible with an excessive rigidity of the curricula, nor with a too much compartmentalised approach of the content of the various disciplines.

The curriculum content in the faculty will be organised in thematic modules. A modular scheme is seen as an efficient method to help students (and perhaps staff as well) *to see more easy the interdisciplinary links between diverse materials* (an objective that is difficult to realise in a context of excessive compartmentalisation and overlap of the content of different courses). It is also a way of saving resources and to facilitate the interchange and collaboration of staff of other units in- and outside the university.

The design and organisation of educational plans and programmes in the faculty is independent of the existing or future group of staff. The objective of this principle is to avoid that a direct correspondence is established between departments and programmes (leading to a curricular rigidity) and to stimulate the selection of content and teaching activities based on the objectives that have been defined by the faculty.

Special attention is given to the organisation of the 'pedagogical work' in order to avoid that overloading staff with teaching activities withdraws time and room for research. Conform this principle the faculty aims to shorten the distance between the theses for the licenciatura and the masters programmes and the lines of programmes of research that are undertaken in the faculty.

Next to the scientific and cultural components in each of the existing educational programmes, the education in the faculty distinguishes itself through *the integration of practical and professional elements in the profile of the graduates*. This integration is seen as a necessary condition for the correct preparation of future teachers for their profession. This implies the participation of student teachers in activities in which they familiarise themselves with the profession, pre-professional and professional internships that permit to establish links between theory and practice before they re going to work for schools.

Without contradicting the existing norms and criteria for assessment in the university, *the assessment in the faculty values the qualitative aspects of learning and development*. This emphasis on the qualitative aspects of learning requires a change of attitude and focus of the teachers: *from memorisation and reproduction of facts and routines to an understanding, analysis and problem solving, based on a critical and divergent thinking*.

Source: Mário et al., 1999, pp. 30-32.

Apart from the text that relates to a competence-based approach, other aspects that are worth noting in the 'Model of teaching and learning' include the view that the curriculum should be 'institutionalised' and thus be prescribed for future staff. This should imply a thorough introduction of new staff into the curriculum and, when needed, coaching. The model also emphasised a thematic approach where contributions from various disciplines would be integrated in a theme.

6.2.4 From the appointment of the Installation Commission to the first major planning workshop, July to December 1999

On 23 July, 1999 the Installation Commission (IC) was appointed and formulated its main task as:

"...the creation of human, material, financial and organisational conditions for the (re)start, on a regular base, of activities in the area of education and training, research and extension, identified as priorities in the 'Project for the re-opening of the Faculty of Education', from the academic year 2001-2002 onwards." (O5, 1999, p. 2)

The IC consisted of four members of the old commission for the re-opening of the Faculty of Education, including the chairman, and one new member, coming from the planning directorate of the UEM, was added. In the terms of reference of the IC, that appeared in October 1999, the programmes that are mentioned as the first to be developed are Psychology (undergraduate), Educational options (undergraduate), Adult Education (post-graduate), Curriculum and Instruction Development (post-graduate), and Science and Mathematics Education (post-graduate). Further tasks of the IC included, according to the terms of reference (IC15, 1999), INSET, educational research, recruitment and training of staff, organisation, institutional capacity and marketing, acquisition of materials and equipment, establishment or acquisition of physical infrastructure, and management of financial resources. The Rector, who continued to hold regular meetings with the IC, confirmed the need for post-graduate programmes in education and asked the IC to look for more possibilities for funding and co-operation, especially through multi-lateral projects (IC 20, 1999).

The period August/September could be characterised by efforts of the IC to procure initial space and equipment for the administration of the new faculty. In the context of the recently approved pre-project a study visit was made to the Netherlands to get informed about possibilities for assistance in the transformation of Stadedep into a Centre for Academic Development (cf. DI11, 1999). The visit was made by two Stadedep staff that were also members of the IC, thus facilitating consultation and collaboration round the organisation of two planning workshops, in the context of the pre-project that should take place in Maputo in November 1999. During this visit the decision was taken to start a research project on the design, development and implementation of the curriculum in the post-graduate

programmes of the Faculty of Education, of which this study is the result. It was suggested to see the curriculum development process at the Faculty of Education as a form of 'capacity building' or as an 'umbrella research project' from which various doctoral research projects could start (DI11, 1999, p. 8).

6.2.5 In conclusion of the prologue

The analysis of the products and processes of the prologue of the curriculum development for the faculty includes a few substantive aspects. Thoughts about the curriculum were hardly discussed at this stage. Nevertheless, in this preliminary phase one can distinguish a stream that was in favour of a deep theoretical approach to the curriculum with much attention for philosophy and sociology of education, and a stream that, in line with attempts to get a university-wide curriculum reform going, argued for a more pragmatic, profession-oriented approach (cf. FC13, 1998).

From a technical professional point of view one could label the prologue a front-end analysis, finding out what were the problems to be addressed and in what direction solutions should be sought. It is clear that the administration of the UEM steered the discussions already from an early stage towards a re-opening of the Faculty of Education. Although there was initially the tendency to make a slow and carefully planned start, the process accelerated considerably and grew at the same time more ambitious. A number of decisions, for example on educational programmes, were taken at an early stage, without documentation that would justify the choice of certain programmes or indicate who took the decisions. Unfortunately, the IC itself did not take care of a systematic and comprehensive recording of discussions and planning activities of the commission. It explains why documentation cannot show how the programme 'Educational policy analysis' disappeared.

From a socio-political point of view the early 'appearance on stage' of the Dutch partner universities should be mentioned. The many study visits led sometimes to an output in the form of reports that, to a large extent, were not used in the further planning process of the installation of the faculty. The visits also did not lead to a diversified network of co-operation. Apparently the Dutch donor, with whom the UEM had co-operated already for many years, proved an easy way to get the necessary funding. It was acknowledged by the Installation Commission that the Dutch donors had their doubts on some aspects of the re-opening and that they emphasised the need for a strong management for the faculty, but suggestions for a management training were not followed up by the future leaders of the faculty. In absence of other donors and partners, the Installation Commission would have to lean heavily on Dutch expertise alone, because of the lack of staff and of expertise in, for example, curriculum development.

6.3 TWO PLANNING WORKSHOPS

From 15 to 26 November 1999 two workshops took place, involving participants from Mozambique and from the Netherlands. The first workshop aimed at formulating an operational plan for the development of the faculty, focussing on the most urgent educational programmes, including the post-graduate programmes in Science and Mathematics Education, Curriculum and Instruction Development and Adult Education.

The second workshop aimed at working out programme lines for research within the faculty, including first reflections on methodological directions, implications for the role of research in the curricula and plans to develop the research capabilities of the staff in the faculty. In the margin of these two workshops a series of short seminars was planned to inform a wider, interested public about the ideas and activities of the Installation Commission. As is shown in Table 6.1, there was ample interest for the seminars, while the planning workshops had the full participation of IC and StadeP and the majority of the BUSCEP staff. However, many participants did not attend all sessions and the IC noticed a "...sporadic and irregular presence of 'future' lecturers" (Kouwenhoven, 1999, p. 14).

Table 6.1. *Participation in workshops and seminars, November 1999*

| | IC | UEM Admin | UEM Other | BUSCEP | STADEP | Dutch | Other | Total |
|------------|----|--------------|--------------|--------|--------|-------|-------|-------|
| Workshop 1 | 5 | 1 | 1 | 5 | 4 | 7 | | 23 |
| Seminar 1 | 4 | 2 | 4 | 5 | 4 | 7 | 2 | 28 |
| Seminars 2 | 5 | 2 | 23 | 8 | 4 | 8 | 10 | 60 |
| Workshop 2 | 5 | 0 | | 5 | 4 | 8 | | 22 |

The following seminars were held:

Seminar 1: Recent developments in ortho-pedagogy and social psychology.

Seminars 2: - In-service training and education in mathematics and science:
Experiences of Southern Africa, lessons for Mozambique.
- Competence-based curriculum development.

Note: No data are available on the participation in a seminar with four presentations on aspects of educational research, held in conjunction with the second workshop.

An extensive report was produced after the workshops (Kouwenhoven, 1999) including a reader with the texts of most of the presentations. The aim of this

exercise was to inform future staff as much as possible about the early development stages of the faculty and increase involvement and ownership of staff in the further development process directly from the moment they had been recruited.

Extracts from the report that are relevant for this study are reproduced below. The results of the second workshop, on the planning of educational research, are not used because they are of no direct importance for the study.

6.3.1 Relevant outcomes from the first workshop on planning the faculty

The following are extracts from the report on workshop 1. *Parts that have a direct relation with the design of a competence-based curriculum have been italicised.*

On the mission and profile of the Faculty of Education

- Because a number of the proposed programmes and activities seem to have an overlap with those of the Universidade Pedagógica (UP) it is very important to outline the differences in goals, target population and methods between the Faculty of Education at UEM and UP. It is important as well that the relationship with the other institutions is a collaborative one without a loss of identity of the partners.
- *The curriculum of the various programmes needs to be developed in an interactive process involving the labour market and other sectors of the society.*
- In order to fulfil its mission, the faculty should have a structure that is flexible enough to respond to changes in the society.

On the relation of the faculty to the process of curriculum reform at the UEM

The Vice-Rector Academic Affairs outlined the actual situation which, according to her, should change, guided by a vision of graduates who "...have an impact on the society..."

The curriculum reform process covers a number of areas:

1. ***The graduate profile.*** *A common profile has been defined based on general principles and expressed in knowledge, skills and attitudes. In the area of skills a sub-division can be made in: basic, nuclear and complementary skills. Relating the profile to the needs of the labour market will be very important.*
2. ***The curriculum model.*** *It is the intention to have within a faculty a common part, followed by specialisations. Through a flexible system recuperation can be offered to students with problems. The study plans should reflect a reduced number of contact hours, should include nuclear and complementary curriculum elements and include optional classes.*

On the development of educational programmes

A planning tool was presented and discussed. A brief discussion took place about how to measure the impact of the educational programmes.

In general longitudinal studies, following students and graduates in their career could be very useful to obtain feedback about the effectiveness of programmes.

On competence-based curriculum development

In line with the University-wide curriculum reform process and in accordance with the proposed model of teaching and learning of the FoE (cf. Mário et al., 1999, pp. 30-32), a competence based curriculum will be developed for the FoE.

After a presentation on aspects of competence-based education the most important points of discussion were:

- *Much still has to be done in terms of conceptualisation of competence, competency, qualification, skills, etc.*
- *There are various curriculum paradigms that could include competency based education.*
- *Although traditionally each teaching plan begins with a formulation of the objectives, hardly any educator teaches from these objectives. More likely is teaching from 'skills' or 'outcomes'.*
- *Competency based education does not mean training for jobs but for occupational 'skills'.*
- *Important in a university based course is accountability, both to the 'academia' in terms of body of knowledge and scientific rigour, and to the profession(s) in terms of occupational competencies.*
- *Characteristics of a competency based curriculum could include taking problems as the organising principle, not the disciplinary content.*
- *When implementing an educational innovation it is important not to wait until everybody has changed, but rather start small while 'thinking big'. For example a change in teaching methods might be a starting point.*

In the seminar on competence-based curriculum development, held after workshop 1, the concept of competence based higher education was introduced to a wider public. An integrated approach to competence was presented as a construct which seeks to link general attributes (knowledge, skills, attitudes, etc.) to realistic occupational tasks, 'key tasks' (cf. Hager, 1993).

Both in the definition of attributes and key tasks stakeholders should have an input, in order to maintain an 'external consistency' in the development of a competence-based curriculum.

Points of discussion that are relevant for the development of a competence-based curriculum were:

- *The determination of the required levels of competency at the end of a university study requires an input from expert professionals. Also, it should be realised that competencies will be developed further during the professional career.*
- *In the translation of competencies (or 'outcomes') to a curriculum many choices are possible, e.g. special courses, projects, case studies, etc.*

- *There is a relation between the concept of competencies and that of 'tacit knowledge'. Reflection might be an important instrument to make tacit knowledge accessible.*
- *A university based educational programme should show a balance between the academic side and the professional side. This should be reflected in the formulation of competencies.*

On the last day of the two weeks series of workshops and seminars the 'Outline of an operational plan' was discussed and accepted. It was decided that the post-graduate programmes should have a Common Core, followed by a specialisation phase and a final research project. As most critical issues in terms of planning were indicated the recruitment of staff, the planning and organisation of staff training and further education, and the acquisition of space and equipment for the faculty. After the Dutch delegation had left, the IC evaluated the first collaborative steps towards a new Faculty of Education and made the following observations:

- The workshops took place at a time where the semester was ending, leading to heavy involvement of lecturers in final lectures, consultations and assessment procedures (examinations). This could partly explain the sporadic and irregular presence of 'future' lecturers.
- The programme was very ambitious. The absence of documents that could be read or studied in advance sometimes slowed down the proceedings.
- Because of the absence of core staff of the FoE, the size of the Dutch delegation was sometimes a little overwhelming. The same absence of core staff made it impossible to work in small interest groups, causing the discussion of all matters in plenary sessions which did not always benefit the pace of the proceedings.
- Again, because of the absence of core staff the indication of who were 'future lecturers' was an emergency measure without time for much clarification about the status of these 'future lecturers'.
- The working language (English) sometimes restricted the full participation of the Mozambican participants.

6.3.2 Conclusions from the workshops

The two workshops of November 1999 signified the start of the design and development process of a competence-based curriculum. At this stage not many substantive aspects of the curriculum were addressed. Important was an agreement on the direction that the development process should take and the decision that a competence-based curriculum would be the endpoint of the journey. Although the first notion of CBE came from a Dutch partner university, there were several instances where views/statements about the curriculum reform in the UEM and the new curriculum for the Faculty of Education could be linked to a competence-based approach. Examples of views that could be 'accommodated for' in a competence-based approach were:

- The importance of the labour market and other sectors of the society in developing the curriculum of educational programmes for the faculty. This was mentioned under 'mission and profile of the faculty' and in the context of the university-wide curriculum reform.
- The flexibility in the curriculum in order to respond to changes in the society, mentioned under 'mission and profile of the faculty'. The curriculum should also be flexible for the students, as advocated in the curriculum reform process.
- The importance of reflection as an instrument to make tacit knowledge accessible. This refers to the importance of the development of generic competencies.

The clearest statement was made at the beginning of a first working session on characteristics of CBE. The report of the Installation Commission on this session states: "In line with the University-wide curriculum reform process and in accordance with the proposed model of teaching and learning of the FoE (see the base document 'Project for the re-opening of the Faculty of Education', pages 30 – 32), a competence based curriculum will be developed for the FoE" (Kouwenhoven, 1999, pp. 4-5).

In process terms and analysing the workshops through a technical-professional lens, one could note the determination of the designer-researcher, the Dutch partners and the IC to use the communicative design paradigm (cf. Vischer-Voerman et al., 1999). One step in this process was to get the participants of the workshops and seminars (mainly the IC, staff from BUSCEP and Stadep, and Dutch experts) on the 'same line' as far as the conceptualisation of competence-based education (CBE) was concerned.

Thus, although the principle of a competence-based curriculum had been accepted, a period of more information and raising consciousness would still be needed. This was illustrated during the workshops and seminars where the need was expressed for conceptual clarity on competence-based education, and it was argued that there should be a balance between 'academic knowledge' and professional competence. The advice to set up longitudinal studies for measuring the effectiveness of the programme refers directly to the verification or rejection of the impact hypothesis (see Box 5.1).

From a socio-political point of view the degree of involvement of some 'actors' outside the IC was high. The Vice-Rector Academic Affairs played an important role by advocating a vision of graduates as agents of change in the Mozambican society. The participants of workshops and seminars emphasised the role of stakeholders in the curriculum development process and the importance of 'small steps' in implementing innovations, showing a preference for a communicative approach to the curriculum design and development process.

The role of the Installation Commission during the planning workshops can be characterised as 'expectant' or 'resigned', if one reads their evaluation of the workshops (Kouwenhoven, 1999, p. 14). Due to the 'overwhelming' size of the Dutch delegation, the lack of proficiency in English and the inability to get quick access to information on conceptual issues, the IC apparently felt a little 'out of control'. The admittance of lack of communication and co-ordination by the IC (cf. IC21, 1999) showed a sense of self-reflection.

6.4 THE CURRICULUM REFORM PROCESS AT THE UEM

It falls outside the scope of this study to describe in detail the curriculum reform process at the UEM that started in May 1999 with the appointment of a university-wide commission. However, some observations are made below because the curriculum reform process forms the 'backdrop' against which the development process of the curriculum for the Faculty of Education took place.

The Central Commission for Curriculum Reform (CCCR) had an advisory status to the Vice-rector Academic Affairs, but the Vice-rector directed personally its activities and was, in fact, the driving force behind the reform process. In December 1999 a working document was presented (CCCR, 1999). Box 6.4 gives some extracts of this report that are relevant for this study.

Box 6.4. From the report "A new curriculum framework for the UEM"

Page 11:

Considering the educational philosophy of the UEM, it is proposed to adopt a 'correlated model'. This curriculum model is developed starting with a common core that is progressively narrowing down, following the various interests.

Page 12:

The common core should include the development of 'generic competencies', such as study methods, logical organisation of discourse, forms of expression and argumentation.

Page 13:

In the correlated model the organisation of the content is directed by the acquisition and development of competencies. This means that information is only at the initial level of learning and should serve the 'know-how' and understanding.

Therefore, in the correlated model all curriculum components should be articulated, especially in the study plans and assessment, such that the final product results from a more integrated and complete schooling.

The study plan in the correlated model has a reduced number of contact hours and is developed through core courses, complementary courses and optional courses.

Box 6.4. *From the report "A new curriculum framework for the UEM" (continued)*

The contradiction between a reduced number of contact hours and quality education is in this model overcome by the fact that teaching and learning are based on the philosophy of 'learning to learn'.

From the point of view of teaching strategies this model, in order to be effective, calls for didactics that define the role of the student as subject of learning.

In the correlated model the assessment forms are diversified, corresponding to the profiles and specific plans defined by the courses. It is always important to guarantee a continuous, frequent and systematic assessment of the progress of students and also to implement forms of interdisciplinary assessment that guarantee the spirit of the model.

Source: CCCR, 1999.

After the general elections in Mozambique, December 1999, a new ministry was established (Ministry of Higher Education, Science and Technology) and the Vice-rector Lídia Brito was appointed as the first minister. The commission continued working for some time but gradually stopped its activities. A workshop for faculty curriculum reform commissions was organised in February 2000, funded by the Dutch NUFFIC. The workshop facilitator, Alex Romiszowski, based his training and development activities on a competence-based approach to education (and training). He related his conceptualisation of competence to the human performance technology approach in HRD (cf. Gilbert, 1978). This approach is characterised by a rigorous analysis of present and desired levels of performance, identification of the causes for the performance gap, a wide range of interventions with which to improve performance, guidance of the change management process, and evaluation of the results. In most faculties the results of the workshop did not lead to a clear move towards a competence-based approach or at least to a systematic curriculum development process. With the disintegration of the central commission and the departure of the Vice-rector the real reform gradually stopped. Until this moment no new Vice-rector Academic Affairs has been appointed.

6.5 PLANNING CURRICULUM DEVELOPMENT, A WORKSHOP

The period between the planning workshops of November 1999 and the next faculty workshop in February 2000, on curriculum development, was characterised by a first recruitment of academic staff. A total of 23 applications were received (IC29, 2000), coming from 8 candidates with a PhD, 5 with a Masters degree and 10 with a licenciatura degree (comparable to a bachelors honours degree). In the end it was only possible to recruit a few lower qualified staff, due, amongst others, to the strict rules in the Mozambican bureaucracy for transfer of staff. Also the transition

of staff from BUSCEP to the new faculty proved to be more difficult, mainly because some BUSCEP staff had doubts about their position in a Faculty of Education which was, as yet, lacking a clear administrative structure.

In the meantime some equipment had been received and the Rector's office had commissioned a project for a new building for the FacEd to be built on the main campus (DI13, 1999). At a later stage it turned out to be impossible to finance the construction of new education building and the faculty would have to 'squeeze in' in existing buildings.

The workshop on curriculum development was held from 15 to 18 February 2000, with 25 to 30 participants attending the major part of the workshop sessions. Table 6.2 shows the different groups of participants in the workshop

Table 6.2. *Participants of the workshop on curriculum development, February 2000*

| Category | Number |
|------------------------------|---------------|
| University administration | 1 |
| BUSCEP | 3 |
| Programme co-ordinators | 4 |
| Dutch experts | 4 |
| Stadep | 2 |
| Ministry of Education & INDE | 2 |
| Installation Commission | 4 |
| Faculty of Science | 8 |
| Universidade Pedagógica | 2 |
| Total | 30 |

The programme co-ordinators were the 'provisional' leaders of the four educational programmes that would start as soon as possible in the faculty. One co-ordinator was also member of the IC. The group of Dutch experts included experts in the area of Curriculum Development, Psychology, Science and Mathematics Education and an assistant from South Africa with expertise in needs assessments. In terms of staff, that had already been recruited or had indicated interest in joining the faculty a total of 14 persons participated. Three of them would leave the faculty after some time or decide not to join after all.

The chairman of the IC referred in his opening words to the scope and expected outcome of this workshop: a better common understanding of the steps to be taken in curriculum development, including the vision of the faculty on its role, the induction of the new staff, and a draft needs assessment as an instrument in order to identify competencies, professional profiles, and skills of the graduates of the new programmes. All participants were provided with ample written information about the results of the November 1999 workshops, while some of the issues were presented once more during this workshop.

6.5.1 On the roles of students and staff in the new faculty

In order to get a first idea of and reflection on the educational views and beliefs of the participants they were asked, working in small groups, to list three characteristics of students and lecturers in the new faculty. The results are summarised below, in Box 6.5, in certain groups of personal traits and competencies. A more elaborate summary is given in Appendix 6.1.

Box 6.5. *Opinions on characteristics of students and staff for the new faculty*

| |
|---|
| <p>Characteristics of students</p> <p>A. <i>Personal characteristics</i></p> <ul style="list-style-type: none"> ▪ Motivation ▪ Innate characteristics such as creativity and intelligence <p>B. <i>Possession of knowledge (on different areas of education)</i></p> <p>C. <i>Possession of generic competencies</i></p> <ul style="list-style-type: none"> ▪ Study/research competencies ▪ Meta-cognitive competencies, including self-knowledge and self-regulation ▪ Social interaction competencies ▪ Sense of citizenship ▪ Design competencies |
| <p>Characteristics of staff</p> <p>A. <i>Possession of attributes (knowledge & skills)</i></p> <p>B. <i>Being an expert and 'role model'</i></p> <p>C. <i>Possession of generic competencies</i></p> <ul style="list-style-type: none"> ▪ Meta-cognitive competencies, including self-knowledge and self-regulation ▪ Research competencies ▪ Social interaction competencies <p>D. <i>Domain-specific competencies related to the teaching profession</i></p> <ul style="list-style-type: none"> ▪ Facilitator of learning processes, creator of learner-centered learning environments <p>E. <i>Other (likes his/her profession)</i></p> |

Worth noting for both groups is the emphasis on generic competencies. There is no mentioning of mastering content knowledge and even in case of domain-specific competencies, such as 'being a facilitator' for teachers, the descriptions point to generic competencies. The phrasing of the question "Give three *characteristics*" may have led to the emphasis on personal characteristics and generic competencies. Nevertheless, it is clear that the workshop participants, which can be seen as a representation of the community of educators in Mozambique, put emphasis on the characteristics/competencies of a student as professional. The (teaching) role of staff as facilitator (added was 'stimulator', 'guide at the side'), corresponds to a constructivist approach to teaching where descriptions of teachers are given as 'guide' (Mayer, 1996; Van der Sanden et al., 2001) or co-ordinator, facilitator, resource advisor, tutor, coach (Gergen, 1995).

6.5.2 Concept clarification and preparation of needs assessment

In response to questions of the participants a major part of the workshop was used for further clarification of concepts such as, competence-based education, educational design, curriculum development and the role of a needs assessment. Participants spent the last one and half day of the workshop to brainstorm about the needs assessment for the Faculty of Education, based on the following guiding questions:

- Who will be involved (clients, audience)?
- What are the purposes of 'our' needs assessment?
- What do we want to know?
- Who will be the key informers?

At the end of the workshop the needs assessment activities for the next few months were outlined. Given the multitude of other tasks, and the limited capacity (it would still take a few months until new staff would be in place), the needs assessment would be carried out in June – July 2000. Therefore, the coming months would be used for development of the instrument (see section 6.6 and chapter 7).

6.5.3 Evaluation of the workshop

The workshop was evaluated at three levels: participants; facilitators, IC and Dutch experts; and the IC on its own.

The participants of the workshop evaluated the outcomes and proceedings based on 6 items:

1. Give three high quality aspects of the workshop.
2. Give three low quality aspects of the workshop.
3. We have to discuss more about
4. We need more information about
5. The largest problems in the curriculum development process are/will be (in my opinion)
6. Other observations.

A summary of the results of 22 returned evaluation forms is given below (cf. WS2, 1999).

▪ On positive and negative aspects of the workshop

The content of the workshop was mentioned 9 times (out of 22) as a positive aspect. The methods used were judged 20 times as positive and 11 times as negative. Other positive aspects were the participative climate and involvement of participants (mentioned 17 times) and the good quality of the workshop facilitators (mentioned 10 times). Negative aspects were the physical conditions (mentioned 14 times), the lack of clarity on the objectives of the workshop ("People were taken by surprise by

the main themes of the workshop"), mentioned 5 times. Also indicated as negative were the lack of time for discussions and the lack of information/material. A comment was made that more input should have been given by the (Mozambican) world outside the university.

▪ **On the need for more information**

As could be expected participants indicated that they needed more information on concepts & theories (4 times mentioned), the translation of theory into practice (mentioned 11 times) and on the Faculty of Education itself (mentioned 9 times).

▪ **On the need for more discussion**

More discussion would be needed on aspects of the curriculum development process (e.g. credit system, assessment, role of research, etc.), staffing issues (mentioned 7 times), conceptual issues round competence-based education (mentioned 8 times), and the organisation of the needs assessment (mentioned 6 times). One participant wrote: "Everything! For me this is just the beginning."

▪ **On the major problems faced by the Faculty of Education**

The participants foresaw a number of practical problems such as lack of time, of staff, of resources, of expertise. They also mentioned a number of times process problems, such as agreeing on the content of the various educational programmes and the implementation of a competence-based curriculum in a rather rigid university structure. It was also observed that developing an innovative curriculum would imply a change in beliefs/attitudes of quite a number of 'stakeholders' and that this would be a long and difficult process.

Immediately after the workshop the facilitators, the IC and the Dutch experts also had an 'internal evaluation' session (WS2a, 2000).

The facilitators of the workshop expressed their feelings of satisfaction with the proceedings and outcomes.

As outcomes of the workshop were indicated:

- More informed staff (at least about the direction of the curriculum development process).
- There was a common understanding of the complexity of the process and of the progress made thus far.
- The way ahead in terms of roles, responsibilities and timelines was clearer now.
- Basic input for the needs assessment exercise had been produced.
- New staff, Installation Commission and Dutch counterparts had the opportunity to get to know each other better.
- Staff had been motivated through the workshop.

The following critique or concern was expressed in the joint meeting:

- There might have been too much information at a level that was too high for

some participants. It would have been good when materials could have been distributed well before the workshop.

- There were many 'workshop tourists' who showed interest but did not have commitment towards the curriculum development process within the Faculty of Education.
- There was concern about the possibility to keep momentum with such a small number of staff (including the Installation Commission).
- Although Twente University would co-ordinate the 'general lines' of curriculum development, the other universities would have to take their place in the development of the specific educational programmes.

A few other items were also discussed, such as the need for a comprehensive staff development programme and the plan to organise another workshop/seminar to get more input from all stakeholders on the formulation of research areas for the new Faculty.

The IC, in a regular meeting (IC28, 2000), held about 10 days after the workshop, evaluated once more the workshop. It was observed that the workshop fulfilled its expectations and that there was a good participation by the Mozambicans. Criticism was expressed on the heavy Dutch input during the workshop. It was felt that the presence of the chairman of the IC should have been more prominent, probably because of reasons of 'protocol' (the IC was hosting the workshop and therefore the chairman of the IC should have been more visible, signifying control of the proceedings). It was also noticed that there had not been an exchange of experiences by the Dutch delegation with the Mozambican member of the IC that was responsible for curriculum development. The role of the IC was criticised in relation to the weak preparation of the workshop. Finally the need was recognised to provide more detailed information about the faculty and its plans to stakeholders and interested people in- and outside the UEM.

6.5.4 Conclusions from the first curriculum workshop

Through the workshop some substantive aspects of the curriculum became more visible. In their views on the role of students and staff in the new faculty, the participants emphasised the student as (beginning) professional and the importance of the development of generic competencies. Learning environments should be constructivist and, thus, student-centred. The needs assessment was introduced as an instrument to determine professional profiles and from there graduate profiles and content of the programmes.

The design principles still followed the communicative approach. The workshop was held for a wider public than only faculty staff, representing to a certain extent the community of educators and educationalists in Mozambique. It fulfilled, therefore, its aims of providing information about the ideas that would form the basis of the curriculum in the faculty, and about the aims of the faculty itself. The free discussion and exchange of experiences and opinions created a platform of ideas as advocated by Walker (1990) in his deliberative approach to curriculum development. The evaluation of the workshop confirms that the participants found the involvement of stakeholders important and also showed that participants had a good sense of the problems that the new faculty would still have to overcome. Although many participants would not be directly involved in the curriculum development process, the label 'workshop tourists' that appeared in the internal evaluation of the workshop does not do justice to the involvement of all participants during the workshop.

The needs assessment was seen as a potential instrument to involve all stakeholders in the set-up of the educational programmes of the faculty.

The need for more information on the faculty to the outside world was recognised by the IC, but did not lead to immediate action. Formal information (for example in the form of brochures on the Faculty of Education) would only appear in June 2001. This signified a first instance where information and communication were flawed. From a socio-political point of view the perceived strong presence of the Dutch experts is of interest. The evaluation of this workshop by the IC was to a great extent similar to the evaluation of the November 1999 workshops: a heavy Dutch presence and not much input from the side of the IC, coupled with the weak preparation of the workshop by the IC. The designer-researcher and his Dutch counterpart had actually steered the process during the workshop. That had caused some uneasy feelings with the other Dutch experts and with the designated overall co-ordinator of the post-graduate programmes, who should have been involved as well in the preparation and execution of the workshop (see also below in 6.6).

6.6 FURTHER DESIGN ACTIVITIES AND THE PREPARATION OF A NEEDS ASSESSMENT, FEBRUARY TO JULY 2000

After the February 2000 workshop some confusion arose around the organisational aspects of the curriculum development process, such as the responsibility of the various 'players', in Maputo and overseas in the Dutch partner universities (cf. DI6, 2000; E4, 2000; E5, 2000; E38, 2000). Discussion and mutual consultation led to the following organisational structure for the curriculum development process:

- The Installation Commission delegated the co-ordination of the curriculum development activities to a *Working Group for Curriculum Development* (GTDC), functioning as a sub-group of the IC (GTDC1, 2000). The GTDC consisted of three members of the IC: the chairman of the IC, the 'provisional' co-ordinator of the post-graduate programme in Curriculum and instruction development, and the designer-researcher of this study. The GTDC would work in close collaboration and consultation with the Dutch curriculum expert and cease to exist when the curricula for the various programmes would have been approved (GTDC1, 2000). The GTDC has, in fact, only met a couple of times and most of its activities continued to be carried out by one member, the author of this study. These activities involved:
 - Co-ordination of the activities of the Study Group (see below), involving chairing the weekly sessions of the study group and reporting to the IC and Dutch partners, when needed.
 - Structuring the needs assessment exercise. A basic starting document and an operational plan for this assessment were designed and thereafter approved by the IC (cf. GTDC3, 2000).
 - Planning the activities that should lead to curriculum documents to be presented to the Academic Council (Senate) of the UEM. A plan of activities was designed, discussed in the IC in April 2000 and approved (cf. GTDC3, 2000; IC7, 2000). The elements of this plan are given in Appendix 2.
- For the further and more specific development of the curricula of the four educational programmes that would start in August 2001, a 'Study Group' was formed. This group did, in fact, the real work on curriculum development, while the GTDC, other than its name suggested, only co-ordinated the process. The Study group consisted of two members of the GTDC and most of the academic staff already recruited. The Study Group met once a week from the end of March to half May (2000), to discuss the progress of the needs assessment exercise and to exchange experiences. The conclusion that can be drawn from a the series of meetings of the Study group (cf. documents SG8; SG13 to SG19, 2000) is, that this mode of work functioned well and that the exercise progressed as scheduled. The notes of these meetings also show that these sessions were used increasingly as a mode of communication between the IC and the (still very small) rest of the staff in the faculty. At the same time the acting co-ordinators of the various educational programmes had regularly contact with their Dutch counterparts.

For each educational programme the needs assessment started with documents that formed the basis for the design of the needs assessment instruments. These documents gave answer on the questions (cf. GTDC3, 2000), after Stufflebeam, McCormick, Brinkerhoff & Nelson (1985):

1. What are clients, audiences, target population?
2. What are the purposes of the needs assessment?
3. What are scope and domains?
4. What are the general questions and how to answer them?

The documents were translated and sent to the respective subject-experts in the Dutch partner universities for further comments.

The design of the needs assessment instruments was accompanied by two (Dutch and South African) curriculum experts for the general aspects and by Dutch subject-experts for the more specific content of each educational programme. The study group requested input of the Dutch experts in the following areas (GTDC3, 2000):

- Listing the type of professions, key occupational tasks, competencies, etc.
- Suggesting 'ready made' exemplary programmes or part of programmes, including resources (books, software, etc.).

Although there was regular contact between staff, acting co-ordinators and Dutch counterparts, the exchange at a more official level was virtually non-existent. After some informal, personal requests from the Dutch side, the IC took the decision to regularly inform the Dutch counterparts about important developments (IC7, 2000). Nevertheless, communication problems have continued to influence the curriculum development process.

The Installation Commission continued its weekly meetings, amongst others about lists of books to be bought from donor money that urgently had to be spent (IC30, 2000; IC26, 2000), and on the organisation of a regional seminar on INSET, In-service Education and Training (IC27, 2000). A start was made with the acquisition of space, furniture and equipment for the new faculty (IC7, 2000; IC25, 2000). Less time was spent on curriculum matters, probably because this was delegated to the GTDC.

While the IC was working on the setting up of the faculty the need became stronger for clarity around the administrative structure of the faculty (IC7, 2000). The situation would, however, remain unclear for a very long time. On the other hand, the central administration of the university started the process to officially (re)open the faculty and the IC started preparing the necessary documents.

Although not scheduled, sometimes a more philosophical discussion emanated spontaneously, for example on the curriculum and about the pioneering role that the faculty could play in developing and implementing an innovative curriculum that was in line with the curriculum reform philosophy (CI40, 2000).

An opportunity to inform other faculties about the curriculum approach in the Faculty of Education was a seminar on 19 May 2000 in the Faculty of Science that was facilitated with assistance of Staderp staff (DI12, 2000).

The work on the needs assessment instruments continued and focused in May 2000 on creating unity between the individualistic attempts of staff in the various educational programmes to construct the instruments (E32, 2000; E33, 2000). The presence of a Dutch mission (in May 2000) that had the tasks to finish writing a project proposal, involving the UEM and the three Dutch universities, was used to work out a final template for the needs assessment instrument. This ensured that for all educational programmes the instrument would have a common structure and a number of common questions. The instruments were completed in the last week of May. Because of the presence of visitors to the INSET seminar (30 and 31 May) some piloting could be done of the instrument for the Science and Mathematics Education programme. A brief training session in interviewing was organised, serving at the same time to pilot 'live' the instrument for the Curriculum and Instruction development programme (DI12, 2000).

In the meantime discussions continued within the Study Group on elements of the curriculum to be developed, leading to a first proposal on how to integrate generic competencies in the courses of the Common core part of the post-graduate programmes (C16, 2000).

After the Dutch mission came to Mozambique in May 2000, a Mozambican mission visited the Netherlands in June 2000. The three partner universities were visited as well as NUFFIC. A visit to the University of Amsterdam, that the delegation suddenly wanted to consult in relation to the (also suddenly) re-emerging programme for Educational policy studies could not be arranged at short notice and the plans for this programme were apparently put to rest once more (E28, 2000; R11, 2000). During the visit to NUFFIC different views became apparent about the function of MHO-projects. The Mozambicans interpreted a project mostly in terms of financial support, where the finances for staff development could be utilised as the IC saw appropriate, for example for Masters and PhD courses for staff in South Africa. NUFFIC, on the other hand, stressed the academic co-operation between partner universities, that made it imperative that at least PhD projects would take place under (co)supervision of Dutch universities (R5, 2000).

In conclusion the period February to July 2000 can be characterised as 'active' and 'productive'. The initial problems related to the responsibility for the curriculum development process were solved in a creative way, by placing a formal structure over the activities of the various actors, without changing their individual beliefs about who should do what. In other words, a creative solution using a bureaucratic culture to circumvent a power culture (cf. Cusworth & Franks, 1993).

The activities of the Study Group resulted in plans for the needs assessment exercise, including the instruments for the needs assessment. The designer-researcher produced a planning document for the curriculum development

process. In collaboration with the Dutch curriculum expert he continued working, in the context of the Study Group, on the design of a competence-based curriculum. The IC focused mainly on planning the setting up of the faculty infrastructure and less on curriculum matters.

The meetings of the 'study group' allowed a more or less direct communication with the Installation commission, while there were also frequent contacts with the Dutch counterparts on the needs assessment. Communication at the level of the IC with the Dutch proved to be more problematic. A difference in view about the nature of the MHO project, where the Mozambicans did not seem to think so much in terms of co-operation or collaboration, but more in terms of (financial) assistance, could also have caused a different perception about the need for communication.

6.7 CONCLUSION AND DISCUSSION

This chapter started with a reconstruction of the period preceding the start of the research project that is the subject of this study, followed by a reconstruction and analysis of the 'installation' of the faculty and the design phase of the curriculum development process and the. The conclusions of the reconstruction and analysis of the 'prologue', in Section 6.2, provide answers on the two questions of Section 6.1 ("Why should the faculty be re-opened?" and "What programmes should be offered?"), and contribute to depict the context of the curriculum development process (see Section 6.7.1).

The first phase of curriculum development in the faculty is analysed, based on four questions that are representative for three points of view or lenses through which the curriculum development process can be analysed (cf. Van den Akker, 2003). The first two questions: "*What might be the characteristics of a competence-based curriculum that may result in competent educational professionals for the Mozambican society?*" and "*Why should the curriculum for the Faculty of Education be competence-based?*" are referring to substantive aspects of the curriculum design and development (the first 'lens'). It concerns questions about the curriculum as product and the rationale of the curriculum. The second lens is the technical professional point of view, represented by the research question: "*What procedures and principles have been followed during the design of a competence-based curriculum for the Faculty of Education?*" It deals with the procedures and principles followed in the design and development process. The last research question represents a socio-political lens and involves the players and circumstances. The question is stated as: "*What role did the various actors play in the curriculum design and development process influence and what conditions and activities further influenced the design and development process?*" The questions on product and process are addressed in Section 6.7.2.

From the analysis follow lessons that can be drawn for this initial phase in the process of design, development and implementation of a competence-based curriculum for the faculty (see Section 6.7.3).

6.7.1 Final analysis of the 'prologue'

The activities and events during the prologue can be summarised by addressing two questions, as is done below.

Why should the Faculty of Education be re-opened?

The first arguments have been given by the leadership of the UEM, claiming to have the support of the government. Arguments included an improvement of education within the UEM (through activities of the new Centre for Academic Development and through examples of 'good practice'); improvement of education at secondary level (through in-service and distant education initiatives); and the education and training of teachers (through the 'educational options' in various departments and faculties of the University). These arguments can also be found in the report of the Commission for the re-opening of the Faculty of Education (Mário et al., 1999).

The pre-project document (O4, 1999) emphasises the human resource development component (the faculty will produce much needed professionals that will improve the functioning of middle- and higher cadre in the education sector), and institutional capacity building. A strong institutional capacity within the UEM would result in enhancing the quality of education in schools and University, amongst others through educational research, especially action-research.

What educational programmes should be offered in the Faculty of Education?

In early documents the first programmes were thought to start in 1999. Later a more realistic planning prevailed and the development of the curriculum, recruitment of staff and acquisition of equipment aimed at a start in 2001. From the original educational programmes (cf. Mário et al., 1999) some seem to have disappeared during the development and installation process. What remained were the following programmes:

Post-graduate programmes in:

- Adult Education (starting in 2001).
- Science and Mathematics Education (starting in 2001).
- Curriculum and Instruction Development (starting in 2001).
- Educational Administration and Management (planned to start in 2003, but later postponed to 2004).

An under-graduate programme (Licenciatura) in Psychology started in 2002.

A programme that surfaced now and then, but does not seem to have materialised, is the post-graduate programme in Educational Policy Analysis.

6.7.2 Final analysis of the planning of the faculty and the design of its curriculum

The conclusions based on the reconstruction and analysis of the design phase in the curriculum development process can be drawn through a comparison of what was expected and what happened in reality. As far as the products are concerned, the expectation at the start of the planning and design component was that the following would have been produced in the period November 1999 to July 2000:

- A planning document with the installation activities from December 1999 to August 2001, when the educational programmes would start.
- Guidelines for the formulation of a curriculum (intended curriculum) with a competence-based approach for all educational programmes in the faculty, ready in April 2000.
- The results of a needs assessment, available in July 2000. The aim of the needs assessment was formulating professional profiles and graduate profiles for the various educational programmes, legitimising the re-opening of the faculty and the choice of its educational programmes, and soliciting contributions for professional communities to methodological and logistical aspects of the curriculum. The needs assessment exercise and its results are further elaborated in Chapter 7 (Section 7.4).

The products of the planning and design component in the first curriculum development phase were in reality as follows:

- Initial ideas for the setting up of the faculty were produced at the end of the November 1999 workshops and some decisions were taken about the planning process (Kouwenhoven, 1999). The IC continued its activities based on the ideas and decisions and on what it encountered in the period November 1999 to July 1999, but no further planning document was produced. A first planning document for activities during the second half of 2000 was produced in July 2000 (IC2, 2000).
- The expectation that at the end of the first curriculum development workshop in February 2000 an intended curriculum would have been formulated, was not fulfilled. However, progress was made and agreement reached on major aspects, such as the development of a competence-based curriculum and the role of the needs assessment. From chapter 3 and the conclusions of sections 6.3 and 6.5 the characteristics of a competence-based curriculum can be summarised as is done in Box 6.6

Box 6.6. *Characteristics of a competence-based curriculum*

- A competence-based curriculum (CBC) is based on the future occupational practice of the graduate.
- Curriculum development is based on the elaboration of profiles and identification of competencies.
- Curriculum content, learning environment and assessment depend on the identified competencies (principle of backwards designing)
- Learning environments and assessment are focussed on competencies and aligned
- A CBC is learner-centred and the learning process is central.
- In a CBC the role of the teacher is that of a 'cognitive guide'.
- A CBC has a constructivist approach.
- A CBC includes the development of generic competencies.

Box 6.6 addresses, in condensed form the question "*What might be the characteristics of a competence-based curriculum that may result in competent educational professionals for the Mozambican society?*"

- The needs assessment exercise progressed at a slower pace than expected. Due to a limited staff capacity and conceptual problems the instruments for the needs assessment were ready in June and the results of the exercise would only be available in November 2000. The needs assessment exercise is described in chapter 7.

The question about the rationale of a competence-based curriculum or "*Why should the curriculum for the Faculty of Education be competence-based?*" has been addressed in Chapter 3. The support for a competence-based approach can be found in the document from the commission on the re-opening of the Faculty of Education (Mário et al., 1999) and by the UEM curriculum reform process as outlined in Box 6.3 and Box 6.4.

In the process of planning the faculty installation and designing a competence-based curriculum, actors played a role in certain conditions and the context of certain activities. The most important conditions and activities were:

- Support from the commission on the re-opening of the Faculty of Education for an approach that could lead to a competence-based curriculum, as recorded in the final document of the commission (see Box 6.3).
- Support for CBE by the UEM curriculum reform process (see Box 6.4). With the departure of the Vice-rector Academic Affairs the reform process did not continue at most faculties.

- Study visits to the region, Europe, USA and Brazil. Reporting was done in some cases, but it is not clear how the study visits contributed to the curriculum development process.
- Dutch support through inter-university co-operation (MHO-project) was more perceived as material/financial support than academic co-operation.
- Timely recruitment of staff did not take place, leading to a low institutional capacity. Staff development was difficult with the small number of staff carrying out a variety of tasks.
- The study group functioned for some time as a functional communication channel between IC and staff. The communication between IC and Dutch counterparts was sub-optimal.
- The IC noticed its capacity problems which sometimes led to a lack of clarity, efficiency and effectiveness in management by the IC.
- Involvement of many stakeholders from the beginning of the curriculum development activities.
- High motivation and team spirit in staff of the faculty.

In terms of 'actors involved in the process, the following groups can be distinguished, keeping in mind that several persons functioned in more than one group:

- *The UEM leadership.* Was in favour of a new faculty. Was, through the Vice-rector Academic Affairs, also in favour of an innovative, competence-based curriculum. Unfortunately the university-wide curriculum reform exercise did not result in much 'reform' after the departure of the Vice-rector. The absence of a new Vice-rector Academic Affairs until today has to be noted.
- *The Installation Commission.* Played a co-ordinating role and was not directly involved in design and development activities. The IC approved the plans for the needs assessment and further curriculum development activities but left the execution to a sub-commission, the Working group on curriculum development (GTDC).
- *The GTDC.* Formed after the workshop on curriculum development, where, it was claimed, the influence of the Dutch was too strong. The responsibility for curriculum development would be shared amongst three members of the IC, amongst which the designer-researcher. In reality the curriculum development initiatives continued to come from him and the Dutch curriculum expert. The GTDC met only a couple of times, but two members of the group chaired the working sessions of the study group.
- *Staff of the faculty.* Most of the staff had no teaching load in the university and could, therefore, devote themselves fully to the curriculum development

process. That might be one of the reasons why the 'study group' functioned quite well and managed to prepare the needs assessment instruments in time. Some staff were functioning as 'provisional' programme co-ordinators and although they sometimes queried the lack of a clear administrative structure, they were able to contact the IC through relatively short lines of communication.

- *Dutch partners.* As mentioned already in the evaluations by the IC, the presence and influence of the Dutch was clearly felt in the workshops of November 1999 and February 2000. It was probably more a sign of the lack of expertise in curriculum affairs at the Mozambican side than the wish of the Dutch to overpower their counterparts with all kinds of ideas. In the early phases of the curriculum design and development process there was no opposition against the proposals that had mainly been formulated by the Dutch curriculum expert and the designer-researcher, who also functioned as member of the IC (and GTDC). Nevertheless, it was recognised that there was need for much information and conceptual clarification, discussion and feedback to IC and GTDC and designers.
- *Designer-researcher.* After the decision had been taken to embark on a research project (in October 1999), research started with a careful recording of all curriculum design and development activities. Elaborate reports were produced, by the 'designer as researcher', of the workshops in November and February. At the same time some models for a conceptual clarification of 'competence' and competence-based education were developed by the 'researcher as designer'. Together with the Dutch curriculum expert, he prepared the workshop of February 2000. When shortly after the February workshop the GTDC was formed, the situation remained in fact the same, that is, the main design and development activities were left to the designer-researcher.

6.7.3 Conclusions from the first development phase

In terms of questions about the characteristics of the curriculum in the faculty it can be concluded that the choice was made to develop a competence-based curriculum. During the design phase discussions took place about various curriculum aspects (cf. van den Akker, 2003), leading to the formulation of elements of an intended curriculum (see Box 6.6) and, at the same time, development of staff in the conceptualisation of competence-based education. Looking at the outcomes of the first development phase the conclusion can be drawn that, despite the fact that actors did not always act as expected in conditions and activities that were not 'ideal', the products of this first phase formed a good starting point for the further development of the curriculum in the faculty.

From a procedural point of view a communicative approach (cf. Visscher-Voerman et al., 1999) was applied, where a constant deliberation with stakeholders was taking place in order to get consensus on the characteristics of 'the problem' and on the intervention needed to solve the problem.

Two groups of actors were important in this respect. The first one was the group of stakeholders outside the UEM. They were important in the early stage of the curriculum design in providing feedback to initial ideas about the concept of a competence-based curriculum. This happened especially during the February 2000 workshop. Using the terminology of Walker (1990) the first lesson is, therefore, that *it is important to have a group of stakeholders/participants that is large and diverse to create a 'platform of ideas' leading to the design of a 'functional' curriculum.* Functional implies in the first place external consistency, but the input of stakeholders also contributes to internal consistency of the curriculum (cf. Kessels & Plomp, 1999).

The second important group of actors was formed by the staff. Although small in number, most staff could devote all their time to the curriculum development process and did so with great motivation and enthusiasm. That timelines were not adhered to did not slow down the development process considerably. What counted more was that the joint activities of staff in the Study Group created conditions for more learning and development in the area of curriculum development and competence-based education. The second lesson is, therefore, that *it is important to involve all staff in the design and development process and create during the process opportunities for learning and development.* Walkers' deliberative approach is also important here. In the words of Marris (1975) quoted in Fullan (2001): "Any innovation cannot be assimilated unless its meaning is shared." (p. 31). Kessels (2000b) concludes that people learn most when they are actively involved in a design process.

The call for a continuous flow of information, expressed internally by the staff and externally by the Dutch counterparts also related to a communicative approach. Thus, *it is important to set up a functional communication network, linking all the actors involved in the curriculum development process.* Communication could serve, amongst others to address certain characteristics of change (cf. Fullan, 2001), such as (the lack of) clarity or the complexity. It could also facilitate reflection on the roles of the various actors in the process.

From a socio-political point of view the influence of the UEM leadership, although in the background, was strong in steering the work of the appointed commissions towards a re-opening of the faculty. The influence of the Vice-rector Academic Affairs was clearly visible in the university-wide curriculum reform exercise that had connotations to a competence-based approach. The Dutch partner universities,

especially the University of Twente brought in their expertise on curriculum development and pushed the idea of competence-based education in the future faculty forward with great energy. Although the Installation Commission felt itself initially a little overpowered it agreed with the direction taken: on the road towards a competence-based curriculum. Staff had been just recruited, did often not have experience in teaching in Higher Education nor sufficient competencies in the area of curriculum development. Nevertheless, through the Study Group competence was developed and motivation and team spirit amongst staff contributed to the progress made during this first phase of the curriculum development process.

After some initial feelings of discontent, resolved through the creation of the Working Group on Curriculum Development, the role of the designer-researcher was accepted and he continued to initiate new design and development activities. In this initial stage of the curriculum development process the researcher was also fully involved as designer and as member of the Installation Committee. The roles of 'dedicated participant' and 'critical outsider' (cf. Thijs, 1999) are further discussed in the concluding chapter of this thesis (see Section 9.2.2).

CHAPTER 7

From idea to start-up: towards a curriculum document and course outlines

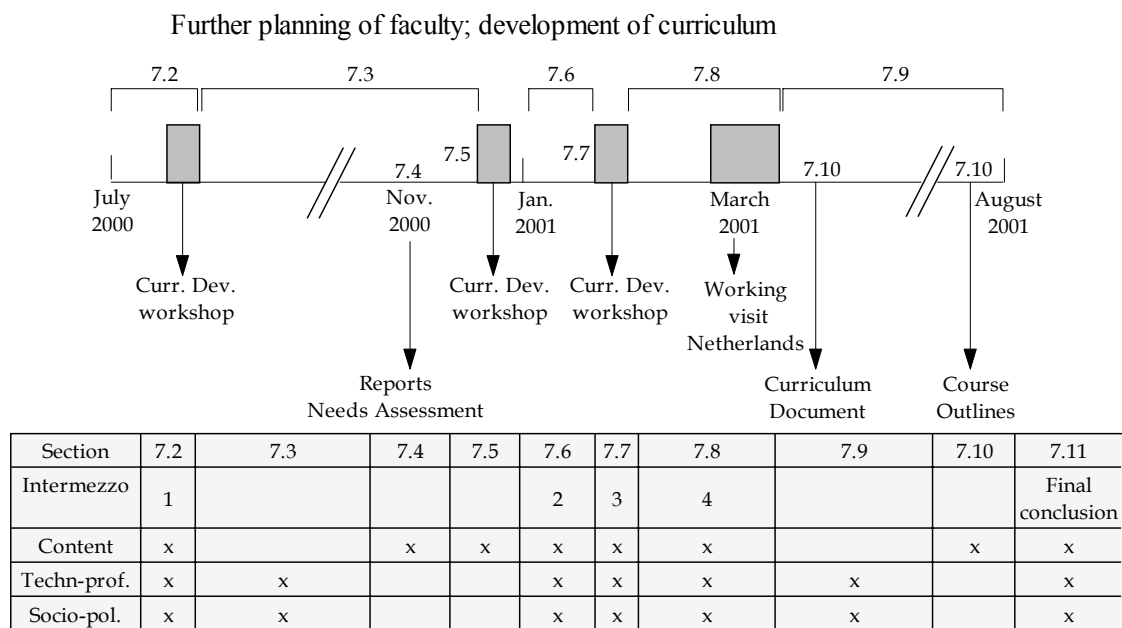
This chapter reconstructs and interprets (through analysis and reflection) the curriculum development process during the period July 2000 to August 2001. During this period a number of curriculum development workshops took place and Mozambican core staff made a visit to the Netherlands in March 2001 to continue working on the development of the curriculum for the faculty. The products of these development activities were a curriculum document that described the (competence-based) curriculum for three post-graduate programmes and a number of course outlines for courses in the common core part of the educational programmes. The analysis of this phase in the curriculum development process is done again through the three 'lenses' or points of view that were used in the previous chapter.

In Chapter 7.1 the structure of the chapter is explained including an overview of 'when and how' the reconstructed curriculum development process during this phase has been analysed. The proceedings of a curriculum development workshop in July 2000 are discussed in 7.2, while 7.3 reconstructs a period after the workshop that is characterised by 'progress and stagnation'. The development of the competence-based curriculum started with a needs assessment that is described and analysed in 7.4. In December 2000 a next curriculum development workshop was held. This workshop is reconstructed in 7.5. Further curriculum development activities as a result of the needs assessment are described and analysed in 7.6. Section 7.7 reconstructs and analyses the final curriculum development workshop that took place in the first month of 2001. The working visit to the Netherlands is analysed in 7.8, amongst others through opinions of Mozambican and Dutch staff on the visit. After the return of the Mozambican staff to Maputo the final preparations for the start of the common core part of the post-graduate programmes took place. They are described in 7.9. The resulting 'formal curriculum', represented by a curriculum document and a number of course outlines is analysed on its content in 7.10. The analyses of product and process are summarised throughout the chapter in 'intermezzos'. The final analysis and conclusion can be found in 7.11.

7.1 INTRODUCTION

In the previous chapter the 'prologue' and the first steps towards a new Faculty of Education have been reconstructed and analysed, as well as the design of a competence-based curriculum. This chapter covers the period July 2000 to August 2001 and explores and analyses the curriculum development process until the start of the educational programmes in August 2001.

In the same way as is done in Chapter 6, this second period can be depicted in a time-line (Figure 7.1) and can be characterised by a number of workshops.



Note: 'Intermezzo' refers to the intermediary conclusions, made throughout the chapter.

Figure 7.1. The second phase of the curriculum development process in the faculty

The numbers in Figure 7.1 correspond to the sections in this chapter that explore and analyse workshops, periods between workshops and results (products) of the curriculum development process. The table below the timeline indicates when and how analysis of the reconstructed curriculum development process took place. This is further explained below.

In Goodlad's terms (Goodlad et al., 1979; Van den Akker, 1998) the formal curriculum was developed during this period in the form of an official curriculum document (in April 2001). Thereafter staff further elaborated course outlines that could also be considered to be representations of the formal curriculum. Although the perceptions of staff, responsible for the elaboration of the course outlines, and their interpretations of the curriculum document 'coloured' the course plans and outlines, the resulting course documents are considered part of the formal curriculum and not the 'perceived' curriculum. Because staff was, at this stage,

intimately involved in the development of the curriculum, the formal curriculum and perceived curriculum could be considered as combined, or at least as being close together. The perceived curriculum is more distinguishable in large-scale curriculum changes where there is a distance between those who design and develop the curriculum and those who operationalise the curriculum plans.

Three research questions guided the exploration (reconstruction) and analysis of the phase of the curriculum development process that can be summarised with the title of this chapter: "From idea to start-up". First a substantive question can be formulated as:

What are the characteristics of a competence-based curriculum in the context of the Faculty of Education at UEM?

This question will be addressed at the end of this chapter, based on the 'products' of the development phase: a curriculum document and a number of course outlines. The development process that is reconstructed in the first part of this chapter can be analysed through a technical-professional lens and through a socio-political lens (cf. Van den Akker, 2003). The first analysis is guided by a procedural research question:

What procedures and principles have been followed during the development of a competence-based curriculum for the Faculty of Education at UEM?

The analysis of the socio-political aspects of the curriculum development process can be summarised in the research question:

What conditions and activities have influenced the development of a competence-based curriculum for the Faculty of Education at UEM?

The 'product' of the design and development activities, that is, the 'formal curriculum' should have characteristics that enable the verification of the intervention hypothesis, elaborated in Chapter 4:

A competence-based educational programme with characteristics C_1, C_2, \dots, C_n will lead to graduates that are competent educational professionals.

The characteristics (C_1, C_2, \dots, C_n) have been formulated in section 3.8 as a series of questions that can be used to assess if, or to what extent, the curriculum is competence-based. Whether the graduates indeed had the required level of competence is a question that falls outside this study, although some inferences are made in Chapter 8.

The three 'lenses' used to analyse the curriculum development process and products will appear throughout the various sections as well as in 'intermezzos'. In the table that is part of Figure 7.1 is indicated when analysis of substantive aspects or procedural aspects (technical-professional and socio-political) of the curriculum development process was done on what events or on what period. In the final section of this chapter the intermezzos will be merged into a final analysis and conclusions.

7.2 FURTHER DESIGN AND DEVELOPMENT: THE JULY 2000 WORKSHOP

7.2.1 Introduction

On 27 and 28 July, 2000, a second curriculum development workshop was held (after the first workshop of February 2000, discussed in Section 6.5). The majority of the (at that time small) staff participated in the workshop, including all acting co-ordinators of the educational programmes and members of the working group for curriculum development (GTDC). The most important objectives of the workshop were (Kouwenhoven, 2000a):

- to develop a common language with respect to the basic concepts of curriculum development and the most relevant elements of a competence-based curriculum with an orientation on design and development;
- to formulate a number of suggestions that could assist the IC in taking decisions on various aspects of the curriculum of the faculty;
- to formulate and to agree on important questions and problems that would have to be resolved before the process of elaboration of study plans and thematic programmes in the various educational programmes could start.

Because in discussions on curriculum matters with the Dutch counterparts some confusion had arisen about certain terms that had different connotations in Portuguese and in English, or terms that had no equivalent in the English 'curriculum language' the designer-researcher proposed a number of definitions or descriptions to facilitate the communication (see Box 7.1).

Box 7.1. *Some definitions/descriptions of English and Portuguese terms, used in curriculum development*

Curriculum: "The curriculum refers to the content and purpose of an educational programme together with their organisation" (Walker, 1990, p. 5).

Educational programme: some confusion exists for English speakers because in Portuguese an educational programme is referred to as 'curso', while a course is named 'disciplina' of 'cadeira'.

Study plan: directly translated from the Portuguese 'plano de estudo'. It describes the general aspects of an educational programme, such as the courses, credit points and duration of each course and a timetable showing the place of a course in the educational programme.

Thematic programme: directly translated from the Portuguese 'programa temático'. Gives the summary of a course, including a rationale, its aims and objectives (or competencies), the content in themes or chapters and a bibliography.

Course outline: In Portuguese named 'plano analítico'. The course outline describes the course (disciplina/cadeira) in detail, including the title of the course, introduction/justification of the course, prerequisites (if any), and whether the course is compulsory or not. It also gives competency statements (these have already been formulated in the thematic programmes), and performance indicators and criteria. Further the content in a table with themes in the right order (sequence) and time allocated to each theme, the learning environment and assessment (formative and summative). Finally a list of reading materials (books, articles, web sites) is given and a description of how the quality of the course will be evaluated and what role the students have in this evaluation. Note that a course outline has a description of most, if not all, of the ten curriculum aspects of Van den Akker (2003).

7.2.2 Proceedings of the second workshop on curriculum development

The objectives of the workshop were an indication of the intention to involve all staff as much as possible in the curriculum development process. This implied striving for 'external consistency', described by Kessels (1999b) as a coherence of perceptions of all stakeholders of what 'the problem is' and 'how it will be resolved'. The use of a 'relational approach' (Kessels, 1999b) was also illustrated in the first part of the workshop. There decisions that had been taken previously were once more presented with the accompanying question: "Do we agree with this summary of the decisions already formulated with respect to the process of developing a curriculum for the educational programmes in the Faculty of Education? Any comments and/or additions?" (Kouwenhoven, 2000a, p. 4). In some cases earlier decisions had already been reformulated, without changing the intention, based on continuing discussions in the study group and consultation between the designer-researcher and the Dutch curriculum expert. An example of such a reformulated decision concerned the intent to put an emphasis in the

curriculum on 'designing' (engineering approach): "...we want our students to be capable of 'engineering' solutions to problems in their field or profession. The educational programmes should have modules/parts on 'design methodology' in which students can get familiar with such an approach" (Kouwenhoven, 2000a, p.3). Staff reacted to this statement by remarking that:

"...the decision to choose a design-oriented (engineering) approach to the solution of educational problems was thought to be too narrow. Space should be created for other approaches, although it was not specified what these approaches could be. The need was expressed for more information/literature on the 'engineering approach' and its implications for the curriculum of the FoE" (Kouwenhoven, 2000a, p.4).

Other newly formulated decisions on which staff agreed included the development of learning trajectories for the acquisition and/or further development of generic competencies and the integration of ICT in the educational programmes.

A scheme of steps and decisions in the development of a curriculum was presented and agreed upon by the participants of the workshop (Appendix 3). The scheme shows how the characteristics of the curriculum, the curricular model and contextual factors determine the final formulation of study plans and thematic programmes.

When discussing the characteristics of the curriculum it was agreed that a competence-based curriculum implies that the content of the specialisation phase of the curriculum is to a large extent determined by the graduate profile, that is derived from the profile of the profession(s) related to the educational programmes. For a discussion on the design orientation of the curriculum, the curriculum reform process at the Dutch Technical University of Eindhoven was taken as an example. That university defined 'Design Centred Education' (in engineering studies) as a form of academic education, with an engineering approach, where students work collaboratively, in an active way, on multi-disciplinary design tasks with the aim to become competent, creative professionals, capable of integrating all relevant aspects of their education and training with the purpose of analysing and judging existing products/systems/ processes on quality, functionality and costs and designing new products/systems/ processes with a better performance (Wijnen, 1999). The transformation of the existing curriculum towards a design-oriented curriculum is described (by the working group of the Technical University Eindhoven) in terms of 'more' and 'less', indicating the process character of the transformation in which small steps can still contribute to the final aims. The more-less examples were accepted by Mozambican staff to a great extent as representative characteristics of a competence-based curriculum with a design-orientation in the new faculty. A few significant remarks were made on the following two more-less statements:

- 'More practical, less theoretical', as one of the aspects of a curriculum that aimed at developing professionalism in students. It was thought that the curriculum has to reflect a strong relationship between theory and practice. A post-graduate programme in education should definitely include the discussion of concepts and the role of educational theory. Thus, there should be a continuous interplay between theory and practice.
- 'More own initiative of students, less rules/bureaucracy', as one of the aspects of an activating curriculum. Here it was thought that 'lawlessness' should be prevented and the statement changed to: "More own initiative without contravening the rules and regulations". This is characteristic for a culture with a high uncertainty avoidance, implying, amongst others, a strong preference for formal rules and regulations (cf. Hofstede, 1994).

A discussion of the curriculum model resulted in agreement among the participants of the workshop on a list of issues that should be addressed in the time to come. Important issues on this list had to do with how the learning environments should look like (function of disciplines, authentic/real-life learning experiences, function of assessment, role of students and staff).

The few staff that had been appointed yet had no experience with curriculum models other than the traditional discipline-based curriculum. Therefore some hesitation could be observed in adopting alternative curriculum models that would better suit a competence-based approach. This was illustrated by questions of staff such as; "Would the choice for a competence-based curriculum also imply the choice for project-based and/or problem-based education? Or would it also possible to have a competence-based curriculum with a traditional, disciplinary curriculum model?"

The final set of discussions during the workshop focused on the curriculum structure. Some results of this discussion were:

- It was agreed that the post-graduate programme would have a common part of nine months.
- On modules, there was still no clarity on the concept of modules and 'blocks'. The need was expressed for an outline of consequences when choosing for a certain type of modular approach.
- On credits, it was agreed that they should be linked to various modules and that the amount of credits should be directly linked to the amount of (student) work spent on the modules.
- On the amount of student work, an average workload of 40 hours per week (including contact with lecturers and self study) was thought reasonable.

The designer-researcher prepared an extensive report of the workshop that included additional material on competence-based education and instructional design (see Appendix 7.3).

7.2.3 Intermezzo 1: In conclusion

In terms of content the workshop addressed the substantive research question through decisions (reconfirmed, reformulated or newly formulated) on a number of curriculum issues. The workshop mainly addressed goals, learning activities and role of teaching staff. The results of the workshop also served as indicators for further curriculum development activities. This concerned specifically a list of issues that according to the workshop participants should be discussed in the near future.

From a technical-professional point of view the communicative approach to curriculum development was still maintained, as already described in the previous section. The workshop saw the participation of most of the 'basic staff' of the new faculty. It became clear, however, during the workshop that this staff formed a sub-critical mass in terms of number of persons and in terms of expertise in curriculum development. Because of the lack of vision on alternatives and the lack of knowledge on, for example, curriculum models and structures, the participants often expressed 'fear' and urged for a slow introduction of these new approaches. Some of them said that they would like to start with what they were used to, that is, a traditional curriculum with lectures (and some practicals) in a classical, disciplinary approach. On the other hand the designer-researcher (with the collaboration of the Dutch curriculum expert) exerted also some pressure by presenting to the staff what had been decided already and urging staff to continue on the road already chosen. Fullan (1985) introduced the idea of 'pressure and support' as a necessary ingredient for a change process. The need for continued support was expressed in a series of recommendations, made at the end of the workshop. One involved the need for more education and development of the staff (Kouwenhoven, 2000a), including the co-ordinators of the various educational programmes. They should know what would be the implications of choosing for a competence-based curriculum. On the other hand they only would gain experience while 'doing' the curriculum. Therefore a strong support structure during the first years of implementation of the curriculum was recommended. Another recommendation stated that the Working group on Curriculum Development in the Faculty should continuously provide the academic staff with information on curriculum matters in the form of articles, web-pages, brief notes, etc. This continuous information exercise should take place in close co-operation with the Dutch curriculum expert.

Analysing the workshop through a socio-political lens two decision levels could be distinguished. The first one concerned the 'work place' where staff could discuss curriculum issues and take decisions or formulate action plans. As indicated above this was done through workshops and meetings of the Study Group, functioning as 'platforms of ideas' (cf Walker, 1992). At the other level of decisions was the Installation Commission, representing the leadership of the planning process and curriculum development. The workshop participants emphasised that the IC should 'indicate the direction and choose the road', "...taking along the staff of the Faculty in order to jointly conquer the new, perhaps unknown areas" (Kouwenhoven, 2000a, p. 10). Staff, in its contacts with the IC, renamed 'decisions' to 'recommendations', recognising the hierarchy in the decision process but still keeping a sense of ownership. In fact, staff expected that the role of the IC would be to take the lead. One of the recommendations, made at the end of the workshop, was that the IC should pronounce itself as a matter of urgency on various aspects of model and structure of the curriculum in order to secure the direction of the curriculum development process.

7.3 ACTORS AND FACTORS IN THE PERIOD JULY TO DECEMBER 2000

The period between the July workshop on curriculum development and the December curriculum workshop can be characterised by progress and stagnation. The events are grouped and briefly discussed in the following sub-sections: the project proposal, the needs assessment, managing the process of setting up the faculty, the ICT-workshop, and further curriculum development activities. As the title of this section suggests the points of view in the description and analysis of the events will be technical professional and socio-political.

7.3.1 Final work on the project proposal

Because the writing of the proposals for a NUFFIC/MHO project supporting the faculty in its first years of functioning was mainly done by the Dutch partner universities, the activities stopped during the Dutch summer holidays in July and August. End of August a new timetable for finalising the proposals was presented (E24, 2000). When the draft proposals arrived in Maputo, the IC did not have the time to comment, because, according to the chairman, the drafts arrived too late and all at the same time (IC11, 2000). It turned out that the IC differed considerably on a number of issues with the Dutch counterparts (E23, 2000; IC11, 2000) and it was therefore decided to send a delegation of the IC to the Netherlands to discuss the matter and finalise the proposals. The meeting of the project 'actors' took place in October and the opportunity was also used to discuss the progress of the pre-

project (DI10, 2000). It was concluded that staffing was still a matter of concern and it was agreed that each programme would have at least three staff in place by January 2001. Once more the Dutch counterparts emphasised the need for a staff development plan, although that would be at the moment difficult because there was very few staff appointed yet. The expectation was that appointment of heads of department would follow soon after the official re-opening of the faculty. The 'stumbling blocks' in the draft project proposals were discussed and adjustments made. The decision was taken to reallocate funds earmarked for the purchase of books (for which other funds were available) to cars and photocopiers. It was decided to send the final proposals to NUFFIC in the second half of November (DI8, 2000; DI9, 2000; DI19, 2000).

7.3.2 Needs assessment

In July 2000 the first interviews for the needs assessment took place in Maputo. The study group had also planned interviews in the provinces but could not take further action because of financial restrictions (SG7, 2000). The funding of activities was almost completely dependent on money from NUFFIC, although the UEM also contributed to the budget of the (not yet official) faculty (IC39, 2000). In September and October a number of interviews took place in the provinces, although limited because of the financial constraints (E19, 2000). Several times a planning was made for the data collection, analysis and writing of the final report, but delays in data collection and analysis necessitated each time adjustments (C14, 2000; C19, 2000; IC2, 2000; SG9, 2000). In the planning appeared, still, a seminar with the aim to discuss with all stakeholders the outcomes of the needs assessment and to verify the conclusions. This had been moved from August to November to mid-December. In the end it disappeared from the agenda, because the IC decided to put more money in physical resources, leaving no funds to organise the seminar. In the second half of October a meeting was held to discuss the provisional analysis of the data with the Dutch curriculum expert (SG10, 2000). The general impression was that the statistical analysis did not lead to clear results. This might have been caused by the fact that some respondents apparently did not have much ideas about curriculum affairs or were not able to reflect on the profession (see also section 7.4). The decision was made not to continue endlessly with statistical analysis, but, if necessary, to have a more qualitative approach. Important was to obtain enough information from the data to be able to describe professional profiles. This seemed in general possible. The attribute part on domain-specific and generic competencies, which was more related to the curriculum, could be dealt with by the curriculum developers themselves, even without clear results from the data analysis. The outcomes of the needs assessment are further discussed in section 7.4.

7.3.3 Managing the process of setting up the faculty

The Installation Commission went through a difficult period in the second half of 2000. Of the five members, one became less involved in working for the faculty and another was often required to work fully in the central university administration, resulting in an IC of, effectively, three members. The chairman favoured a centralised leadership, in an organisation with a bureaucratic culture (cf. Cusworth & Franks, 1993), where the IC should take all decisions (E19, 2000) and the management of activities depended ultimately on the chairman. Although various times planning proposals and lists of activities were tabled (IC9, 2000; IC10, 2000; IC13, 2000) delays kept growing in a number of important issues, such as staff development (E25, 2000; IC9, 2000; R9, 2000), staff recruitment (E19, 2000; IC37, 2000), contacts with other potential donors (IC9, 2000), and finances (IC10, 2000; IC37, 2000). Some staff indicated the wish to leave the faculty, partly because the uncertainty in the administration structure (C19, 2000). The Dutch counterparts kept asking for more communication (E18, 2000; E21, 2000) and expressed their concerns about the staffing situation, reminding the IC of the promise that the staffing situation would be clear by 15 January 2001 with enough staff to teach in the Common Core programme in August 2001 (R10, 2000).

In the meantime no news was received about the official re-opening of the faculty. The official re-opening was considered important because it would allow, it was thought, a more official management structure and thus more clarity for staff. In November news reached the IC that the official decree was ready for signing by the Rector, but that he wanted to have absolute certainty that the previous faculty had only been closed temporarily in 1985, because only then UEM could be allowed to re-open the faculty. Otherwise it would concern a new faculty for which different procedures would have to be applied. In the end NUFFIC was the first to hear from the official re-opening by a letter from UEM of 21 December 2000. The decree itself was dated 26 September 2000 and apparently withheld for the above mentioned reasons.

7.3.4 A workshop on ICT and the faculty

A workshop on ICT took place in October 2000, in the context of the pre-project for the setting up of the Faculty of Education. It focussed on the necessity for the new faculty to integrate ICT where desirable and possible in its curriculum. After two days of presentations, demonstrations and discussions in the presence of various foreign ICT-experts a number of recommendations was formulated, to be 'taken aboard' by the IC. The most important recommendations were:

- ICT should be an integral part of the education of students in all programmes of the Faculty of Education.

- Generic ICT competencies should be defined and learning trajectories should be developed.
- Training programmes should be designed for the staff of the faculty.
- Staderp (to be transformed into a Centre for Academic Development) should recruit an ICT expert or a promising candidate who would go immediately for further training.

7.3.5 Further curriculum development activities

The study group continued working on the needs assessment and, after some delay, produced in November 2000 final needs assessment reports for the various educational programmes. The designer-researcher produced an adapted plan of curriculum development activities to be realised until April 2001, when a curriculum document would have to be presented to the Academic Council of the UEM. In the plan of activities was indicated, per month, who should take decisions on what activities related to curriculum development.

The working group on curriculum development (GTDC) did not meet, although a meeting was scheduled for October (IC12, 2000) for which the designer-researcher prepared an overview of recent curriculum development activities (C22, 2000). In this document it was also proposed to have staff work for four weeks in the Netherlands to finalise their courses. Despite earlier plans for a series of workshops in October, November and December, only in December a major workshop on curriculum development took place (see section 7.5). A mini workshop was organised on the integration of generic competencies in the curriculum (Timmers, 2001; WS13, 2000). The very limited number of participants in this mini-workshop made it impossible to draw conclusions. Some staff had formulated questions in advance about CBE and wanted a comparison with 'traditional' education. The emphasis on 'professionally oriented education' was queried, and more information was asked about project oriented learning, problem based learning and the use of cases studies and their potential role in CBE. A discussion about a learning trajectory on educational design (WS11) made it clear that staff still had many conceptual problems with educational design.

7.4 ON THE NEEDS ASSESSMENT

7.4.1 Scope of the needs assessment

The needs assessment was administered for four educational programmes that should start in August 2001: the undergraduate programme in Psychology and the three Masters programmes. The scope of the analysis in this study is summarised

in Table 7.1. The results for the Psychology programme will be left outside the analysis because this study is concerned with the postgraduate programmes. For the Adult Education programme a needs assessment on tasks and competencies had already been done at an earlier stage, which would make it difficult to compare the present needs assessment outcomes for occupational tasks and competencies with the outcomes of the other two programmes.

Table 7.1. *Scope of analysis for the needs assessment in four programmes*

| | Adult Education | Science & Maths Education | Curriculum & Instruction Development | Psychology |
|---|-----------------|---------------------------|--------------------------------------|------------|
| Are the options chosen for the educational programmes in the new faculty legitimised by the professional communities?. | ✓ | ✓ | ✓ | |
| What professional profiles can be described for these two programmes? | | ✓ | ✓ | |
| What (generic) competencies should be developed in the educational programmes? | | ✓ | ✓ | |
| What contributions can the professional communities give to methodological and logistical aspects of the curriculum for the two programmes? | ✓ | ✓ | ✓ | |

7.4.2 Methods of design of the instrument, data collection and data analysis

Instruments

The design of the instruments for the needs assessment had started during the February 2000 workshop on curriculum development. A first list had been compiled of the target group (key informants) and of the general questions that should lead the development of the instruments. In subsequent meetings of the study group first drafts of the instruments were discussed and during the period February – May improved versions were produced. In May, a mini-workshop was facilitated by curriculum experts from the Netherlands and South Africa and a final format was proposed for the instruments (Kouwenhoven 2000b) The study group adopted this format and final versions of the instrument were ready in June. Notwithstanding the fact that parts of the instruments had a high degree of similarity (which would facilitate later comparison), not all sections of the final instruments included the same questions or same items (Januário, 2000; Mandlate, 2000; Nandja, 2000).

In order to answer questions on professional profiles, including competencies, that would be the basis for the educational programmes, it was decided that a list of key occupational tasks and a list of competencies should be included in the needs assessment. Respondents would be asked to rate the importance of the items for their profession. The instruments for the programmes in Science and Mathematics Education, and Curriculum and Instruction Development (Januário, 2000; Mandlate, 2000) consisted of highly structured interviews to a number of key-informants. Structuring the interviews was done in order to achieve a high degree of comparability amongst the four educational programmes and to facilitate the analysis of interviews within a programme.

The lists with (key) occupational tasks and competencies were put together after a review of the literature (for example: Richey, Spannaus & Spector, 1999, and Competencies and Skills for instructional designers, n.d.), a comparison with similar education programmes elsewhere (for example: Alverno College Faculty, 1994; Nolan, 1998), and consultation of Dutch experts in the area of Science and Mathematics Education from the Free University Amsterdam, Curriculum and Instruction Development from the University of Twente, and Adult Education from the University of Groningen.

A deliberate choice was made to limit the lists of occupational tasks and competencies (named '*attributes*' in the instruments) to about 25 items. It was assumed that this number would be sufficient to describe the professions and the attributes needed to perform well in the professions (see Hager, 1993). On the other hand a limited length would also avoid a lapse of attention during the interviews and a reduction in the reliability of the answers.

A sample of items from the list of occupational tasks and attributes is given below in Figure 7.2.

Only the instrument for the programme in Science and Mathematics Education could be piloted with about ten Mathematics and Science educators who attended a conference in Maputo, the capital of Mozambique. In the other programmes time constraints did not allow for further refinement of the instruments. However, the outcomes of the pilot in the instrument for Science and Mathematics Education were used for editorial improvements in all instruments.

**KEY OCCUPATIONAL TASKS
IN THE AREA OF CURRICULUM AND INSTRUCTION DEVELOPMENT**

The graduate does not have to develop all tasks mentioned. What is important is to indicate what tasks a graduate should be able to perform in the professional field you are working in.

| Key occupational tasks | Classification | | | | N/A | Comments |
|---|----------------|--------------------|-----------|----------------|-----|----------|
| | Not important | Of some importance | Important | Very important | | |
| 1. Develop a curriculum | 1 | 2 | 3 | 4 | | |
| 2. Develop a training programme (seminar or workshop) | 1 | 2 | 3 | 4 | | |
| 3. Design and develop instructional materials | 1 | 2 | 3 | 4 | | |

**ATTRIBUTES NECESSARY FOR A PROFESSIONAL
IN THE AREA OF SCIENCE AND MATHEMATICS EDUCATION**

| Attributes | Classification | | | | N/A | Comments |
|--|----------------|--------------------|-----------|----------------|-----|----------|
| | Not important | Of some importance | Important | Very important | | |
| The capability to: | | | | | | |
| 1. Use a variety of educational strategies in teaching with small and large groups | 1 | 2 | 3 | 4 | | |
| 2. Guide group work | 1 | 2 | 3 | 4 | | |
| 3. Analyse critically a curriculum of a certain discipline and a certain level | 1 | 2 | 3 | 4 | | |

Figure 7.2. Examples of items from the needs assessment instrument

Note: In the first example the total list contained 23 items (Mandlate, 2000). The second example is from a list of 24 attributes or competencies (Januário, 2000). The complete lists can be found in Appendix 4. As can be seen from the example the answers on the items were pre-coded and space was provided for comments by the respondents, if needed.

Sample

The choice was made to use a purposeful sample of informants, which was motivated by the (limited) number of key-informants in both occupational areas in Mozambique and the time available for this type of survey. 'Stratified sampling' (Patton, 1987) was used and key informants were sought from five categories:

- Public sector, including formal basic and intermediary education, public services, etc.
- Private sector, non-commercial (NGOs, UN, etc.).
- Private sector, commercial (trade and industry).
- Higher education sub-sector, offering education programmes.
- Others, for example, para-statal such as the Mozambican Radio and Television Broadcasting and the Bank of Mozambique.

Then the most 'information-rich' (Patton, 1987) informants were selected and approached for interviewing. Selection criteria were the position in the organisation (directors might be most useful in providing information), professional experience (teachers might be most useful for information about the teaching profession) and historical knowledge about education in Mozambique (this concerned especially some high-rank civil servants in the Ministry of Education).

Purposeful sampling or judgement sampling (an example of non-probability sampling) may not reflect the larger population (Charles, 1998). Although it is believed that the sample is representative for the specific population, the purposeful sample remains "subject to a risk of bias of unknown magnitude" (Kalton, 1983). This again calls for triangulation to reduce bias and increase validity (Denzin & Lincoln, 2000). Triangulation of the results was planned to take place through a presentation and discussion of the results with the stakeholders (the group commissioning the study, the co-ordinators of the Educational Programmes, further academic staff of the Faculty, partners from overseas and key informants) during a seminar. As mentioned above in section 7.3.2 this seminar never materialised, because of different funding priorities.

Data collection

In the months July to September 2000, interviewees were contacted. After they had agreed to participate in the needs assessment, an introductory letter was sent to them with more information on the establishment of the Faculty of Education and on its educational programmes. The sections on key occupational tasks and attributes were also added to the letter, to allow the interviewees ample reflection on the various items before answering. Visits were made to a number of provinces in order to interview informants from outside Maputo. In some cases there was no opportunity to interview the informants personally and the interview protocol was left with them

and collected at a later stage. In summary, 41 informants came from Maputo (capital of Mozambique) and 20 from the provinces; 23 were interviewed for the Science and Mathematics Education Programme, 17 for the programme in Curriculum and Instruction Development and 21 for the programme in Adult Education.

Data analysis

For the analysis of the data separate SPSS files were prepared for the three programmes. All the 'closed' questions and open questions that allowed coding into categories were included. Mostly descriptive statistical methods were used to answer the general questions. Cluster analysis was used to discover certain 'dimensions' or groups of (key) occupational tasks and competencies. Reliability-coefficients (alpha) were calculated for each group. The three files were then merged into one single file to allow a comparison between some results for the programmes.

7.4.3 Results of the needs assessment

General data

Most of the interviewees had management positions in their organisation. There were 26 directors, 3 'pedagogical' directors and 22 heads of department or coordinators, while the remaining 7 interviewees were mainly teachers or assistants (3) in Adult education programmes. The gender of the informants was mainly male: 37 against 24 female, with relatively more male interviewees in the Science and Mathematics Education area (70%) than in Curriculum and Instruction Development (59%) or Adult education (48%). About half of the interviewees, 36 of the total of 61, were in the age group of 35- 45.

In terms of formal education the large majority of the interviewees had an academic qualification: 29 Licenciatura, 17 Masters degree and 7 a PhD. Six informants had a 'Bachelors' degree and two finished formal education at secondary school level. As mentioned before it should be noted that a Bachelors degree in the Mozambican/Portuguese system is comparable to a 'diploma' status in the Anglo-Saxon world, while the Licenciatura degree is comparable to a Bachelors Honours degree.

The perceived need for educational programmes in a new Faculty of Education

A group of general questions, appearing in all instruments, concerned the perceived necessity to have the educational programmes based in a Faculty of Education at the UEM, the measures that should be taken to attract potential candidates and the possibility to follow educational programmes in a distance mode.

79% of the 61 interviewed persons (with the lowest score, 61%, for Science and Mathematics Education) indicated that it would make a big difference for their institution, if qualified professionals could be recruited. As the most important reasons were mentioned:

- The simple lack of professionally schooled employees (22% of the answers).
- The insufficient capacity to design and develop interventions to solve educational problems (20% of the answers). This was very often mentioned in the case of Curriculum and Instruction Development.

There was a preference for courses that would lead to an academic degree (60% of the respondents) as the type of training and education that should be used to increase the professionalism of employees. The only exception were respondents for the Science and Mathematics Education programme where more preference (64%) was given to courses leading to a certificate, or short INSET courses or at least both type of courses (with and without certification).

When asked what difficulties institutions experienced because of the lack of competent educational professionals, the most frequent answers were:

- Lack of specialised (technical and professional) institutional knowledge (emphasised by respondents for Science and Mathematics Education and Curriculum and Instruction Development).
- Low didactical and pedagogical competencies (emphasised by respondents for the Adult education programme).
- Lack of capacity to manage interventions (emphasised by respondents for the Adult education programme).

Respondents showed in general support for the Faculty of Education. Overall, 92% of the 61 respondents indicated that there was a great need for the educational programmes and 81% indicated that the UEM was the most appropriate place to base these programmes.

More general questions

When asked for suggestions to attract candidates, 36% responded that offering housing should help, 19% suggested scholarships and 17% advised a good publicity of the programmes offered by the faculty. Although only 12% of the respondents mentioned distance education by themselves, the large majority (82%) indicated that they would accept this mode when it would be offered. 80% of the respondents indicated that their organisation/institution would be interested to send their employees to educational programmes on offer by the Faculty.

A further breakdown was made in two groups of provinces: Maputo and the other provinces where interviews were held. Comparison of the groups of provinces for the general questions mentioned above did not show any significant difference.

On key occupational tasks

The lists of key tasks and the related competencies were different for both educational programmes and will, therefore, be discussed separately. After that a comparison of the results for the generic competencies will be discussed.

Key occupational tasks in Science and Mathematics Education

In the interview protocol for the Science and Mathematics Education programme a list with 28 key tasks was given of which the interviewees had to indicate the importance on a four-point scale, where 1 indicated 'not important' and 4 'very important' (see Appendix 4). Fifteen of the twenty-three respondents thought themselves capable to rate the importance of the key tasks, fourteen rated all tasks. Amongst the eight, who did not answer the section on occupational tasks, were four directors of educational institutions and two representatives of the National Institute for Education Development.

Generally the respondents rated the tasks at a high level of importance (lowest mean value 2,7 and highest value 3.6 on a four-point scale. Hierarchical cluster analysis was applied to see whether it would be possible to group the tasks under certain 'dimensions'. Using, in the SPSS package, the method of 'Complete Linkage' coupled with the cosine measure of similarity, two major clusters could be distinguished:

- A group of tasks related to *teaching* Science and Mathematics. Two subgroups in this cluster related to production of teaching materials and to teacher training activities.
- A group of tasks related to *design and development* activities. Subgroups could be characterised by curriculum development activities, planning and policy-making, and evaluation of curricula and educational systems. A somewhat 'outlying' group within this cluster contained management support and the teaching of content and didactics in pre- and in-service courses.

Average ratings for the six subgroups did not differ significantly. The ratings are given in Table 7.2.

Table 7.2. *Average ratings of six subgroups of key occupational tasks for Science and Mathematics Education (N = 28)*

| Group | Sub-group | N | Mean | SD | Alpha |
|----------------------|--|---|------|------|-------|
| Teaching | Producing teaching materials | 7 | 3.31 | 0.32 | 0.85 |
| | Teacher training | 6 | 3.32 | 0.18 | 0.74 |
| Design & Development | Curriculum Development | 6 | 3.12 | 0.32 | 0.78 |
| | Planning and policy making | 3 | 3.23 | 0.24 | 0.70 |
| | Evaluation of curricula and systems | 3 | 3.23 | 0.26 | 0.57 |
| | Other (management support, content teaching) | 3 | 3.08 | 0.22 | 0.77 |

Note: The ratings are on a four-point Likert scale (see Figure 7.2).

The use of hierarchical cluster analysis assumes interval data. The use of ordinal Likert scale items, however does not seem "...to affect Type I and type II errors dramatically" (Jaccard & Wan, 1996).

Key occupational tasks in Curriculum and Instruction Development

A similar analysis was done for the area of Curriculum and Instruction Development. Here the list of (key) occupational tasks included 22 items. Fourteen of the seventeen respondents responded to the question to rate the importance of these tasks. The range of ratings was a little higher than in the case of Science and Mathematics Education (mean values from 2.6 to 3.7).

The cluster analysis with the same parameters as in the case of Science and Mathematics Education resulted in three clusters of more or less similar tasks. The first group could be characterised by curriculum design and development, with two subgroups: general activities such as design and development of education and training programmes, and more specific activities, such as design systems for student assessment. The second group dealt with design and development of instruction and instructional materials, and the last group was about project management and tasks in the area of educational policy making.

The average ratings for the groups are given in Table 7.3.

Table 7.3. *Average ratings of groups of key occupational tasks in the area of Curriculum and Instruction Development (N = 23)*

| Group | Sub-group | N | Mean | SD | Alpha |
|--|---------------------|----------|-------------|-----------|--------------|
| Curriculum design & development | General activities | 5 | 3.53 | 0.26 | 0.40 |
| | Specific activities | 5 | 3.39 | 0.04 | 0.80 |
| Planning of instruction and design & development materials | | 6 | 3.04 | 0.25 | 0.82 |
| Project management | | 5 | 3.18 | 0.33 | 0.95 |

Note: The ratings are on a four-point Likert scale (see Figure 7.2).

Two tasks were not included in these three groups: developing strategies for human resource development, and advising on and monitoring (from a policy perspective) the development of curriculum projects. Both tasks received relatively low ratings in terms of importance.

In the final curriculum (UEM, 2001) four areas are mentioned document for the programme in Curriculum and Instruction Development that are important for a professional in this field: Design and development of curricula, including materials; Applied research and evaluation; Dissemination and implementation; and Planning and management. Two of these areas (Design and development of curricula, and Planning and management) appear also as important in the needs assessment. The other two have been added, based on the input of Curriculum and Instruction Development experts from overseas (co-operating universities in the Netherlands).

On (generic) competencies

The second part of the interviews concerned a question about the importance of domain-specific and generic competencies or 'attributes', necessary for professionals in the field of Science and Mathematics Education, respectively Curriculum and Instruction Development (see Appendix 4 for the full list). The importance of the attributes had to be rated on a four-point scale (1 = not important; 4 = very important).

For both programmes the lists contained competencies that were more related to the profession (domain-specific) and generic competencies. The average ratings for domain-specific attributes in the area of Science and Mathematics Education were high (range 3.00 - 3.86) while the results for Curriculum and Instruction Development were lower (range 2.57 - 3.79). Table 7.4 contains a comparison of generic attributes that appeared in both instruments.

A cluster analysis did not result in meaningful outcomes, also when separate analyses were done for domain-specific and generic attributes. Therefore, the attributes are given separately and not in groups.

Table 7.4. Mean rating scores for generic attributes

| Attribute | Science & Maths (N = 14) | | Curr. & Instr. (N = 13) | |
|--|-----------------------------|------|----------------------------|------|
| | Mean | SD | Mean | SD |
| Master Mathematics at an acceptable level | 3.79 | 0.43 | 3.14 | 0.66 |
| Use the Portuguese language | 3.64 | 0.63 | 3.86 | 0.36 |
| Communicate | 3.57 | 0.51 | 3.50 | 0.76 |
| Resolve problems | 3.43 | 0.51 | 3.46 | 0.66 |
| Interact with others | 3.29 | 0.61 | 3.43 | 0.51 |
| Take decisions | 3.21 | 0.98 | 3.69 | 0.48 |
| Manage information | 3.14 | 0.66 | 3.43 | 0.76 |
| Use the English language | 3.07 | 0.83 | 3.64 | 0.50 |
| Be a competent leader | 3.07 | 0.73 | 3.64 | 0.74 |
| Use assessment and evaluation, when required (judge) | 3.00 | 0.96 | 3.77 | 0.44 |
| Manage projects | 2.93 | 0.73 | 3.07 | 0.73 |

Note: The ratings are on a four-point Likert scale (see Figure 7.2).

Respondents in both areas rated the use of Portuguese high, but differed more on the use of English, where respondents for the Curriculum and Instruction Development programme rated the use of English higher. Although a significant difference could not be determined, due to the small number of cases, the lower scores for Science and Mathematics Education might be an indication of the relative isolationism of professionals in the area of Science and Mathematics Education. Curriculum and

Instruction developers had, apparently, a more regional/international view. Another difference is the rating of the competency to assess and evaluate that is rated higher by respondents of Curriculum and Instruction Development. A number of related generic competencies (such as leadership and taking decisions) also score relatively high on the list of Curriculum and Instruction Development. The mastery of Mathematics is, as can be expected, rated very important (and the highest) in the case of Science and Mathematics instruction and less in case of Curriculum and Instruction Development. Respondents in both domains rate project management competencies lowest in the list of eleven common generic competencies. The low rating by respondents of Curriculum and Instruction Development for ICT-competencies is worrying in the light of global developments in ICT and the growing importance of ICT in education, particularly in distance education. This result illustrates that curriculum decisions should not only be based on information coming from a needs assessment, but that the vision of the experts in the new Faculty of Education is another important factor in this process, especially when innovations are planned to be introduced.

A further analysis of the total set of data was done to find out whether there was a difference in the 'rating' of certain common tasks and attributes for the two educational programmes. The four rating categories were collapsed to two: 'important' or 'not important' and then a cross-tabulation and chi-squared procedure was applied per educational programme and per sector, in which the respondents were working. The only significant difference was found in the task 'Develop policies' for education on middle and long term'. 50% of the respondents for Science and Mathematics Education found this task important against 7% of the respondents for Curriculum and Instructional development (Chi-squared: 6.3, significance: 0.012). Thus, although policy development (and project management) appears in Curriculum and Instruction Development as a distinguishable group of tasks, there is not much support for policy-related tasks. An analysis per sector of the results on the task 'writing policy documents for the education sector' showed that it received a rather low rating by representatives from the Government sector. Additional data collection, for example through a discussion of the needs assessment results with government representatives could clarify this rather contradictory issue.

7.4.4 Conclusions from the needs assessment

The design and development of a curriculum for the Faculty of Education started with a needs assessment, as part of a 'front-end' analysis. It covered three areas, namely the need for educational programmes in a Faculty of Education at the UEM, the description of professional profiles that form the basis for graduate profiles and the organisation of the curriculum in the Faculty. It involved a

'purposeful' sample of informants with supposed knowledge about the professional aspects of Science and Mathematics Education or Curriculum and Instruction Development. The sample showed a high representation of the sectors Higher Education and Government and low numbers of informants from trade, industry and services. This may explain why, for example, in the Curriculum and Instruction Development area there was not much interest for Human Resource Development issues. The high number of informants from the capital city Maputo can be justified by the presence of many institutions in the education sector or with relations to this sector, implying a relatively high number of key informants.

In the case of Science and Mathematics Education it was mentioned that eight of the twenty-three respondents did not answer the questions on occupational tasks and that four of them were directors of educational institutions and two representatives of the National Institute for Education Development. This surprising finding may signify the influence of the colonial past and, even more, the strong hierarchical and bureaucratic socialist years, reinforcing a bureaucratic culture in organisations (cf. Cusworth & Franks, 1993). This could prevent educational professionals to have a broad look on their profession and comment on areas for which they do not have direct responsibility.

Results of the cluster analysis of key occupational tasks suggest that a post-graduate programme in Science and Mathematics Education at the UEM should focus on the pedagogical-didactical competencies of a Science or Mathematics educator and on competencies in the design and development of practical solutions to educational problems. In the case of Curriculum and Instruction Development the focus areas of the educational programme should be curriculum design and development, design and development of instruction and instructional materials, and project management, with lower ratings for the last two groups than for general and specific curriculum development activities. In general the ratings reveal a relatively low recognition of the importance of ICT in case of the respondents in Curriculum and Instruction Development (the two lowest rated items dealt with ICT skills), while respondents in Science and Mathematics Education rated ICT higher. This might be explained by a supposedly higher technological literacy rate for the last group.

In both cases it is clear that the low number of respondents, although representing a purposeful sample, leads to caution with the interpretation of the results of cluster analysis. Again, verification of the results in a discussion with interviewees and a wider group of stakeholders could shed more light on the need to reject or confirm the results.

The method of using key tasks to allow a description of professional profiles can be characterised as a modified DACUM method. In the DACUM (Develop a Curriculum) approach, experts meet in a few intensive sessions to define together a professional profile (Norton, 1996; Brown, 1998). Bailey and Merritt (1995) report

that the use of modified DACUM methods is a common practice. In their research they found out, that nineteen out of twenty pilot-projects in various industries that aimed at developing 'skills standards' used modified DACUM methods. Some projects used DACUM to validate existing industry standards. Other projects started with a list of tasks already obtained from various sources (as was the case in the needs assessment for the faculty). Again others started with a clean sheet but used more experts, included workers and also used observations and surveys. In the case of the needs assessment for the faculty highly structured interviews were used. In most occupational analysis methods (key) tasks are analysed as well as the underlying competencies (Brown, 1998; ILO, 1993). In the needs assessment for the Faculty of Education programmes the informants were asked to rate certain competencies, presented as attributes necessary for professionals, but these competencies were not closely related to the tasks in the needs assessment instruments and concerned sets of domain-specific and generic competencies.

Personal communication with the interviewees revealed that many interviewees seemed not very knowledgeable about the concept of competencies or attributes. It seemed preferable, in this case, to design the graduate profile with the 'in-house' expert knowledge, and then later to discuss this profile with stakeholders. Thus the professional and graduate profiles that served as a basis for the further design of the educational programmes were formulated with help of the results of the needs assessment and the expert view from the professional field.

The additional input of expertise of local staff and counterparts from the Dutch co-operating universities was especially necessary because, apparently, the respondents did not have a clear idea of recent developments in the professional area or could not oversee the whole area. The low rating of ICT is a good example, where respondents, because of their unfamiliarity with the increasingly important role of ICT in education did not see the value of competencies in this area, but where the local and overseas expertise led to inclusion of ICT issues in the curriculum of the post-graduate programmes in the Faculty of Education.

The needs assessment could serve, therefore, not only as a basis for a competence-based curriculum but also as a tool to legitimate additional inputs, based on expertise in the area. It should, therefore, be a continuous exercise contributing to the formative evaluation and feedback during the development process (Kouwenhoven et al., 2003).

7.5 A THIRD WORKSHOP ON CURRICULUM DEVELOPMENT, DECEMBER 2000

A two-day workshop was organised in December 2000 with the staff of the faculty. The aims of this workshop were to formulate recommendations about the study

plans for the educational programmes, including the structure of the programmes, workload for students, contact time, phases in the curriculum (common core and specialisation), courses of the core part, etc. (WS1, 2000). The workshop was also used to reinforce the decisions already taken and to broaden the knowledge-base on concepts of competence and competence-based curriculum development. It was discussed how, based on the outcomes of the needs assessment a professional profile could be drawn and how, from this profile, a graduate profile could be made (see Box 7.2).

Box 7.2. On professional and graduate profiles

| | |
|---|---|
| <p style="text-align: center;">Professional Profile</p> <ul style="list-style-type: none"> ▪ The profession and its relation to other professions ▪ Developments of the profession in the context of the society (national, regional, world) ▪ The clientele of the profession and its expectations ▪ Key occupational tasks (or examples of characteristic problems in the profession) | <p style="text-align: center;">Steps in the elaboration of a professional profile</p> <ul style="list-style-type: none"> ▪ Analysis of each occupational task as it appears in the needs analysis <ul style="list-style-type: none"> - Answers of the informants (frequencies) - Listing of the most important tasks - Identification of 'groups' of tasks (cluster analysis) - Listing of additional tasks (mentioned by informants) ▪ Listing of the key occupational tasks for a professional profile (or more profiles) <ul style="list-style-type: none"> - Using the tasks mentioned in the needs assessment - Including additional tasks ▪ Consultation of experts and stakeholders <p>In each step the choices should be based on arguments</p> |
| <p style="text-align: center;">The elaboration of a graduate profile</p> <ul style="list-style-type: none"> ▪ The graduate profile is a description of the professional profile in terms of core competencies ▪ Elements of a competence standard: <ul style="list-style-type: none"> - Description: "the ability to realise key occupational task X" - Indication of the competencies that contribute to the core competency - Indication of performance criteria (levels of development of the competencies) - Description of the context in which the performance criteria will be applied | <p style="text-align: center;">Graduate profile</p> <ul style="list-style-type: none"> ▪ Description of graduate as a professional ▪ The final outcome levels are linked to the professional profile and to the curriculum ▪ Description of the final levels in terms of 'outcomes' (competency standards/statements) |

Source: WS1, 2000.

The recommendations of the workshop provided an first outline of the structure of the curriculum. They specify the courses of the common core part and the time to be spent on the development of generic competencies, including the basic competencies in English, Mathematics for the social sciences and computer literacy (see Appendix 7.1). Based on the recommendations a first draft was produced of a calendar for the first year of the two-year post-graduate programmes.

The recommendation to give students a workload of 50 hours per week was defended by some staff with the argument that it had also been normal for them to work hard to earn their degrees. It was assumed that the post-graduate programmes would be full-time and that students would not have anything else to do but study. In reality the programme turned out to be part-time with students spending an (estimated) 30 hours per week on their study.

7.6 AFTER THE NEEDS ASSESSMENT

7.6.1 Elaboration of professional profiles

The development of the curriculum for the three post-graduate programmes continued after the results of the needs assessment had been obtained and follow-up steps had been discussed during the December workshop on curriculum development. Real progress in the development of the curriculum occurred only when the Dutch counterparts were present, partly because their sheer presence stimulated activity. In the case of the programme in Adult Education the development activities had continued already in November, during the presence of a delegation from the University of Groningen (RUG), the Dutch partner university for the programme (DI25, 2001). There the results of two separate needs assessments formed the basis of the discussions. Experiences at the University of the North (UNIN), South Africa, with the set-up of a Masters programme in Adult education programme at UNIN were also taken into consideration. It was concluded that the needs assessments had led to a broad professional profile with a variety of functions. The curriculum should fit this broad professional profile, but it was suggested as well that the programme might offer a new and common identity to those who would become a Master in Adult Education. Various modules were identified for the programme, but the relation of the content of these modules with the outcomes of the needs assessments was not indicated. One may conclude that, in this first joint development activity for the Adult Education programme, the results of the needs assessments served more to illustrate the choice of a number of modules than that they served to formulate professional profiles and graduate profiles.

The development of a curriculum through professional and graduate profiles had been emphasised in the December 2000 workshop and, therefore, the Curriculum and Instruction Development (CID) group that convened in January 2001 based its curriculum development activities on the way of working recommended during this December 2000 workshop (C22, 2001). It was reconfirmed that the professional profile for CID would be characterised by four clusters of tasks:

- Design and development of curricula, instruction and materials.
- Applied research and evaluation.
- Dissemination and implementation.
- Planning and management.

The needs assessment had confirmed the importance of the first and last clusters (see section 7.4.5. The CID group decided to keep the other clusters as well in the professional profile, because of their close relation with the two clusters confirmed in the needs assessment and their importance for the profession as perceived by experts of the professional field.

7.6.2 Intermezzo 2: In conclusion

During the second half of 2000 work on various curriculum aspects progressed at a steady pace. The outcomes of the needs assessment formed the basis for elaborating professional profiles and staff, in collaboration with their Dutch counterparts had started thinking about graduate profiles. The needs assessment had also provided support for the rationale of the curriculum and some direction for its structure. In terms of the ten aspects in a substantive analysis of the curriculum, the focus of attention was in this stage on the rationale, content and time, and less on learning environments and assessment. The ICT workshop had confirmed that the faculty would strive for the integration of ICT in all its educational programmes. Not yet clear was if ICT would become an object of study, for example in the Curriculum and Instruction Development programme.

Staff worked in this period without much interference from the IC. The fact that now courses had to be planned for the three post-graduate programmes led to the separation of staff into three separate groups, working in co-operation with their respective Dutch counterparts. Through the workshops on curriculum development and the working visit in March 2001 (see Section 7.8) some unity could still be maintained and the curriculum development process still operated within the communicative paradigm. The workshops also served to strengthen the ownership of the Mozambican staff for the curriculum, and increasing their alertness to the importation of 'ready made' curriculum modules from Dutch universities. Nevertheless, much capacity building in this area still had to be done.

From a socio-political point of view the lack of decisiveness of the Installation Commission during the second half of 2000 should be noted. Although staff functioned within the Study Group in co-operation with two members of the IC, no real decisions on the curriculum were taken and communicated to staff and Dutch counterparts. On the other hand, the IC took a firm stand when they perceived the project proposals for co-operation with the three Dutch universities as influenced too much by the Dutch and showing no ownership by the Mozambican partners.

7.7 A FINAL CURRICULUM DEVELOPMENT WORKSHOP, JANUARY/FEBRUARY 2001

7.7.1 Development activities and management discussions

In preparation of the detailed planning of courses for the various educational programmes a week-long workshop was held at the end of January 2001. Participants were: the chairman of the IC, 2 staff of the Curriculum and Instruction Development group, 3 staff of the Science and Mathematics Education group, 1 staff of the Adult Education group, 1 staff of the Educational Administration and Management group, 3 staff of the Psychology group, 3 Staderp staff, the designer-researcher and two Dutch experts. It could be concluded that by now sufficient staff had been recruited to start the common core part of the three post-graduate programmes in August 2001.

The objectives of the workshop were (Kouwenhoven, 2001a, pp. 1-2):

- To inform new staff about the basic concepts underpinning the design of the curriculum in the Faculty of Education.
- To reconfirm a number of decisions taken during workshops and seminars in 2000.
- To formulate guidelines for the further development of important components of the curriculum.
- To plan further curriculum development activities in February leading to a description of the curriculum characteristics, model and structure, detailed enough to start the planning on micro-level in March (during the working visit of core staff to the Netherlands).

During discussions on the elaboration of professional profiles, it was, again, concluded that there was still need for a seminar with stakeholders on the results of the needs assessment. April was suggested as a suitable month, but the suggestion was not taken up and the seminar, now definitely, disappeared from the agenda.

In this workshop generic competencies were discussed more in detail, although they had been brought previously to the attention of staff when two Dutch

students had done research for their Masters thesis during the second half of 2000. Their work would have been more beneficial at this stage with more staff recruited and more clarity about the curriculum structure. The following principles were emphasised during the workshop:

- The need for a sound didactical approach in the teaching of generic competencies. This involved reflection and modelling by teaching staff, in order to make their 'tacit knowledge' explicit.
- The need to link generic competencies to the content of the disciplines (context-related development of generic competencies).
- The need to offer generic competencies in a number of different contexts and stimulating the development of generic competencies at a meta-level in order to promote 'far transfer'.

A matrix was presented that, once completed, would indicate how the 10 generic competencies that had been identified would be distributed among the core courses (see Appendix 5 for the completed matrix). A first brainstorm was held to formulate 'aspects/characteristics' of generic competencies (see Appendix 7.2).

In a session aimed at confirmation of the recommendations made in the December 2000 workshop, some adjustments were made. The weekly study load was reduced from 50 to 40 hours. Recognising that most students would continue working and that the programmes would, *de facto*, be part-time it was decided that the daily timetable for activities in the presence of lecturers would be from 15.30 - 20.00 (including an interval of 30 minutes).

A meeting of the CI, held mid-week during the workshop in the presence of the two Dutch counterparts, confirmed the progress made thus far and looked ahead to the activities in March when core staff would visit the Netherlands to finalise their course outlines. The role of the Mozambican and Dutch partners and their responsibilities in the project were discussed. It was observed that the absence of a formal administrative structure put too much strain on the CI and especially its chairman. It was reconfirmed that the rather complex project could only succeed in the presence of a highly developed communication structure with clear formal but also informal lines of communication.

The remaining part of the workshop was used for discussions/brainstorming sessions on 'principles for selecting instructional or pedagogical methods that should be applied in the curriculum of the faculty' and 'principles of assessment'.

On the last day of the workshop the IC met once more to discuss tasks ahead, take decisions, allocate responsibilities and set deadlines. Related to the curriculum the following points were addressed:

- The (acting) co-ordinators of the educational programmes would elaborate further the professional profiles, graduate profiles, and core competencies and constituting competencies for their programmes.
- A decision was taken on the structure of the post-graduate programmes (see Appendix 6, and below in Section 7.7.2).
- An elaboration of the principles of instruction and assessment would be done by the staff (in the Study Group) on short notice.

7.7.2 Brief description of goals and structure of the common core programme

In Appendix 6 the structure of the post-graduate programmes is depicted. The programmes have a duration of two years of 40 weeks each and consist of three parts:

- a common core of 30 weeks;
- a specialisation phase of 20 weeks;
- a research project phase of 30 weeks.

The common core part is the subject of this study and will, therefore, be described more in detail. The common core has been developed based on the following goals:

- Students of all post-graduate programmes should, when they start the courses in the specialisation phase of their post-graduate programme, have a broad knowledge of and sufficient competencies in a number of important professional areas in the field of education. This includes curriculum and instruction, adult education, the management and administration of education.
- Students should, when they start the courses in the specialisation phase of their post-graduate programme, have a thorough knowledge of sociological, anthropological and cultural aspects of education in the Mozambican context. They should also be capable of applying this knowledge when needed.
- Student should, when they start the courses in the specialisation phase of their post-graduate programme, have sufficient competence in a number of technical areas relating to the tasks and roles of an academic professional in education. This includes the use of ICT (and multi-media), the application of statistics when appropriate, and the use of appropriate problem-solving (research and design) methods.
- Students should, when they start the courses in the specialisation phase of their post-graduate programme, have sufficiently developed a number of generic competencies (see Box 7.3).

As can be seen in Appendix 6 the common core consists of four 'heavy' courses, taking more time than the 'mainly 'technical' courses. Ten generic competencies have been distributed over the nine core courses (see Appendix 5). Basic

competencies in English language and ICT are developed in the common core programme through 'side-line' courses. The 600 contact hours for the common core programme are, thus, divided over nine core courses (380 hours), ten generic competencies (170 hours) and two basic competencies (40 hours).

7.7.3 Intermezzo 3: In conclusion

The outcomes of the January/February 2001 workshop were a sign of the progress that was made on the way towards a formal curriculum. In terms of curriculum content the following aspects had been addressed in the workshop:

- Characteristics had been formulated of learning environments that would promote the development of generic competencies. This included the need to integrate generic competencies into the content of the various core courses, the emphasis on the role of staff in reflection and modelling, and the importance of a variety of contexts in which generic competencies would be needed in order to promote transfer.
- Decisions were confirmed or slightly adjusted related to aspects that could be categorised under (cf. van den Akker, 2003)
 - *Time* (duration of the programme and its parts; workload for students; allocation of time for the various generic competencies).
 - *Content* (description of core courses and courses for the development of basic competencies [see appendix 7.1]).
- Principles were formulated for instructional methods/*learning activities*. The central role of the student was emphasised, as well as the close link between theory and practice, and knowing and experience should be shared in co-operative learning.
- Principles were formulated as well for *assessment*. Assessment should be strongly aligned to the curriculum orientation and should promote learning. Students would have to give 'proof of competence' in case of the required generic competencies.

Looking at the workshop proceedings through a 'technical-professional lens' the approach to curriculum development was still 'communicative' (Visscher-Voerman et al., 1999) where decisions were reconfirmed and next steps extensively discussed with all staff. At the same time the workshop addressed teaching approaches and beliefs (pedagogical assumptions and theories) of staff, two of the three essential aspects of educational change (Fullan, 2001). The third aspect, instructional materials, has not been an important issue throughout the design and development of the curriculum for the faculty because the competence-based approach in the

context of a post-graduate programme implied students creating their own learning environment and staff and students producing 'just-in-time' instructional materials. Finally the workshop aimed at preparing the core staff (acting coordinators of the educational programmes) for their working visit to the Netherlands where the last steps would be taken to the elaboration of a curriculum document representing the formal curriculum.

At the socio-political level of the curriculum development process it is worth noting that the IC met twice during the workshop. The presence of the Dutch counterparts might have provided enough pressure to have the IC finally take decisions on, amongst others, curriculum issues. The meetings of the IC and Dutch partners were also used for an exchange of views between 'the Mozambicans' and 'the Dutch' about project management issues. The absence of an administrative structure with clear responsibilities for core staff was thought to be an increasing burden for the chairman of the IC, who was, in fact, the only one formally responsible for the process of setting up the faculty, including the development of its curriculum. The fact that the 'communication issue' was raised once more meant that no improvement had been achieved in this respect, although, again, the importance of a communication structure was expressed by the IC. This was a clear example of 'espoused theory' as opposed to 'theory in use' (cf. Argyris and Schön, 1974).

7.8 THE WORKING VISIT TO THE NETHERLANDS, MARCH 2001

7.8.1 Introduction

After the February 2001 workshop the IC proceeded with the preparations for the working visit of core staff to the Netherlands. Contributing from the Netherlands the Dutch counterpart for curriculum development suggested to form small interest groups around aspects of the curriculum that still need to be worked out (E16, 2001). This could also help the professional development of staff in the area of curriculum development (learning by doing).

The GTDC (working group on curriculum development) had one of its few meetings in February 2001 discussing various aspects of the curriculum development process. It was observed that the work on professional profiles and graduate profiles was progressing, but that delays made it necessary to put new deadlines to the exercise. With respect to generic competencies it was decided that credits would be awarded per module (theme within a course) in which the generic competencies would be addressed. It was assumed that a credit point system would soon be in place at UEM, but, in fact, this system has not been introduced until now. It was

acknowledged that generic competencies are continuously developed in a life-long learning process. The question arose then how to create learning opportunities for individual students to develop certain generic competencies during the specialisation phase, and how to assess and credit them. This should also be a point of discussion and further elaboration in the Netherlands. The GTDC planned two sessions with staff on teaching/learning strategies and on assessment, as well as the elaboration of a guide for writing the official curriculum document to be presented to the Academic Council. A working group should start soon to produce rules and regulations for the post-graduate programmes within two weeks. None of these intentions materialised, partly because the GTDC (and IC) was too busy to monitor the progress of other activities in the curriculum development process and partly because the logistical and financial preparation of the working visit to the Netherlands took quite some time. Probably for the same reason the Study Group had gone into hibernation for some time.

On 22 February, 2001, the message was received from the office of the Rector that Dr. Mouzinho Mário had officially been appointed as first Dean of the Faculty of Education.

On 10 March, 2001, 7 staff of the faculty, including the designer-researcher left Maputo for a three weeks working visit to the Netherlands. The main aim of this visit was the further development of the core courses in the post-graduate programme. Seven of the nine core courses would be further developed during the working stay. For the other two courses it was not possible to have staff travel to the Netherlands because staff had not been recruited yet (for the Statistics course) or was too occupied with management issues for the faculty (in case of the course Sociological and Anthropological Aspects of Education in Mozambique). The work would also involve a first description of the courses in the specialisation phase and the completion of material for the final curriculum document that would be submitted to the Academic Council. In other words, the transition had to be made from the intended curriculum to a formal curriculum, a curriculum description indicating how the curriculum would be realised.

Apart from the designer-researcher seven other staff were involved in the exercise:

- three staff that had been involved in the design and development process from the beginning, including a member of the GTDC;
- one staff that was presently studying at UT for a masters degree in educational sciences and that would be responsible for one of the nine core courses;
- two new staff members, that would be responsible for a core course;
- one staff member that was responsible for the undergraduate programme in Psychology that would start in August 2002.

All staff started with a week-long stay at the University of Twente. Thereafter, some staff would travel to their respective partner universities, in order to work closely with their Dutch counterparts.

During the first session the leading theme for the working period was presented as a problem: "We have to develop a course", that would have to be resolved in the coming three weeks. Staff would be fully responsible for taking the first steps in a 'constructivist approach' to the course development. Most staff also got assigned specific responsibility for other aspects of the curriculum development process, such as generic competencies, teaching strategies (learning environments), assessment strategies, and materials and resources.

Initially staff was uncertain about what should be done and what was expected from the individual staff members. One of them remarked: "I have to organise my mind". It was, therefore, decided that staff would write down their own expectations and also indicate what help they expected from their Dutch counterparts. Each day would start with a round of impressions, feelings, questions of the previous day (cf. WS14, 2001). This formative evaluation was done to keep the process as close as possible under control and responsibility of the Mozambican staff.

7.8.2 Opinions of staff on competence-based curriculum development

During the design and development of the curriculum not all staff, especially staff recruited at a later stage, seemed to have the same understanding of and disposition towards a curriculum based on the development of competencies. Therefore, the start of the working visit was used to solicit responses of seven of the participating staff on a number of questions. The purpose of this exercise was formulated as:

- to carry out a formative evaluation with emphasis on:
 - conceptual clarity of competence-based education;
 - disposition towards competence-based education;
 - ownership in the design and development process.
- to get an idea of the expectations of the study visit;
- to get a clear picture of the training and development needs of staff in the faculty;
- to fine-tune the programme of the study visit.

A short questionnaire was given to the seven staff, at the very beginning of their work in the Netherlands. It was the further intention to interview staff at the end of the working period, either in the Netherlands or, directly after the return of the staff, in Mozambique. The questionnaire is given in Appendix 7 (cf. C23, 2001).

The first question, on the definition or description of 'competency', was three times answered with a 'competency as input' answer (see section 3.3.5 of this study). An example: "Are knowledge, capacities, skills and attitudes necessary for an

individual to be able to perform any function." Two answers referred to an 'output' conception of competency, e.g. "The capacity to resolve a situation (problem) in the best way (competence levels)." One staff defined competency as "..a capability of performing a given task up to the standard level." One description had elements of the integrated view of Hager (1993) by stating that competency and task should both appear in the definition: "Competency is something that cannot be visualised. However it can be perceived through the habit of performing a certain task or set of tasks. Competency is always related to 'something'; a competent person is competent in doing 'something'."

The second question of the questionnaire involved a choice of characteristics of competencies, referring to input and output conceptions:

- a. Competencies are personal attributes (mental or physical characteristics of a person) *4 times chosen.*
- b. Competencies are 'elements of behaviour' : actions *3 times chosen.*
- c. Competencies are outcomes of behaviour *3 times chosen.*

One staff remarked that "b. and c. are ways of showing competencies."

The general observation from the results of questions 1 and 2 is that staff about equally had an input conception of competency (as a combination of personal attributes) or an output conception, in which case it is more appropriate to use 'competence'.

Generic competencies were, in answer on the third question, described as universal, applicable in different situations ("..are the ones that will be applied across domains and in several contexts or situations"), or "basic to all education programmes." As example most often 'communication' was mentioned. All staff thought that it should be possible to translate the key occupational tasks of a profession into a set of domain-specific and generic competencies, related to the task (question 4). The explanations and examples differed in relevance and logic. The confusion was even greater in the next question where a description of the term 'competence standard' was asked. Some might have interpreted the term in the same way as one staff wrote: "A fundamental competency?" Another staff wrote: " For this I need more inputs ...". Only one staff showed understanding with the description: "It is a stage of competence in which a person is able to develop a certain task in an acceptable way and with a certain quality." The confusion continued in questions 6 and 7 that also addressed the term 'competence standard'. One reason for the problems that staff had with this term may have been caused by language. Apparently the term 'standard' is in the Portuguese language not used in the context of assessment.

On the question whether the teaching of generic competencies should be continued during the specialisation phase, three staff answered confirmative, three disagreed

and one did not know. The staff that wanted to continue 'teaching' generic competencies expected that they would not have been developed sufficiently at the end of the common core programme and, therefore, a more permanent attention for generic competencies by the teaching staff would be necessary. The others expected that students would have a sufficient base and should, through application of generic competencies and reflection during the specialisation phase, develop themselves more, without much guidance from the teaching staff.

The results of the next 13 questions are given in Table 7.5, below.

Table 7.5. *Staff opinions on the curriculum development process in the faculty (N=7)*

| | Fully agree | Agree | Don't agree | Don't agree at all |
|---|-------------|-------|-------------|--------------------|
| 9. A lot of progress has been made in the design and development of the curriculum since February 2000. | 3 | 1 | | |
| 10. Up till now, I felt being left 'at the side line' during the design and development of the curriculum. | | | 2 | 2 |
| 11. There was a lot of pressure from outside to have a competence-based curriculum. | 1 | 2 | 1 | |
| 12. So far, I participated sufficiently in the design and development process to get a feeling of 'ownership'. | | 3 | | 1 |
| 13. I don't see the use of elaborating professional profiles. | | | 2 | 5 |
| 14. I will be able to define performance levels for most competence standards. | 1 | 1 | 2 | 2 |
| 15. I will need assistance with the integration of generic competencies in the CORE course that I am responsible for. | 6 | 1 | | |
| 16. I know enough of the characteristics, model and structure of the curriculum in the Faculty of Education to start the development of my CORE course. | | 2 | 4 | 1 |
| 17. A danger of competence-based education is that graduates have less domain-specific knowledge than with 'traditional' education. | 1 | | 3 | 2 |
| 18. Competence-based education will lead to the education of graduates that are better prepared for their profession. | 1 | 1 | | |
| 19. Our students will first need to learn the basics of domain-specific knowledge and skills before they will be able to develop competencies. | 1 | 2 | 4 | |
| 20. As far as I am thinking now, the main part of my CORE course will consist of lectures | 1 | | 4 | 1 |
| 21. I intend to include in my CORE course 'learning tasks' such as projects, cases, etc. to encourage active learning by the students. | 6 | 1 | | |

In case of the questions 9 to 12, three of the seven staff that participated in the working visit had just been recruited and, therefore, did not have a recollection of what had happened during the early development activities. The answers of the four staff that had been part of the faculty since February 2000 (the time of the first curriculum workshop) indicate a high degree of involvement and sense of ownership, despite the opinion that there was quite some pressure from outside to introduce a competence-based curriculum. One respondent remarked: "...not necessarily from 'outside', but as 'new forms of seeing things' very interesting. I think that, if it were not for these new ways of seeing things, we would still be in a traditional curriculum, what would not be a big thing for Mozambique." This implies that the pressure was not perceived as negative. It probably also implies a balance between pressure and support that is recommended by Fullan (2001).

The results of the next four questions (C13-16) indicate that staff had adopted the competence-based approach to curriculum development, involving the elaboration of professional profiles, but felt uncertain about the next steps. The answers on the remaining questions indicate the intention to adopt teaching and learning strategies that are characteristic for competence-based education. The low response on question 18 is difficult to explain. Because the questionnaire did not offer the possibility to give a neutral answer, respondents, when wishing to respond neutrally, might have reacted by not answering at all. Some additional remarks by staff on the other remaining questions:

- On question 17: "At the beginning of the competence-based movement this was a stereotype to attack this new curriculum mode. However, competence is linked to knowledge as well."
- On question 19: "I think that, according to the model we are working with, the student learns knowledge, skills and attitudes through the development of competencies."
- On question 20: "This would be a disaster."

Fullan (1991), when talking about considerations in planning for adoption, indicates relevance, readiness and resources as the three most important factors influencing initiation of change (see also chapter 4). The results of the brief questionnaire of core staff, at the beginning of their working visit in the Netherlands, indicate that staff acknowledged the need for and the utility of the innovation (in this case the introduction of a competence-based curriculum) but did not have complete conceptual capacity to "initiate, develop, or adopt a given innovation" (Fullan, 1991, p. 63). Thus, there was sufficient *relevance*, but staff was not completely *ready* (yet) for a competence-based curriculum. The presence in the Netherlands during the working visit guaranteed sufficient *resources*, in the form of literature, access to the Internet and the support of Dutch experts.

7.8.3 On the development of generic competencies

Already on the first day of the working visit a discussion was started how to create learning environments for the development of generic competencies. The list of generic competencies to be addressed in the post-graduate programmes of the faculty was once more reviewed and adopted. The descriptions of the generic competencies were based on, or had been adapted from the Australian key competencies (see <http://www.education.monash.edu.au/projects/kc/whatkc.htm> Everwijn's [1996] generic competencies), or were new descriptions (Kouwenhoven, Howie & Plomp, 2003). They are given below, in Box 7.3.

Box 7.3. Description of the generic competencies, used in the Faculty of Education

- **Communication competency:**
The capability to communicate ideas and information effectively with others using the range of spoken, written, graphic and other non-verbal means of expression.
- **Information management competency:**
The capability to locate information, to select what is required, to present it in a useful way, to evaluate both the information itself and the sources and methods used to obtain it and to store the retrieved information in a form that permits easy access when needed.
- **Leadership competency:**
The capability to use experience and knowledge to capitalize on opportunities and challenges, creating an atmosphere where individuals from diverse cultures and perspectives can work together in pursuit of a common mission.
- **Project management competency:**
The capability to develop and document an initial (or revised) course of action to achieve project objectives, managing resource allocation, time and partner collaboration and using a structured approach for all significant decisions.
- **Social interaction competency:**
The capability to interact effectively with others both on a one to one basis and in groups, including understanding and responding to the needs of the other and working effectively as a member of a team to achieve a shared goal.
- **Reflective competencies:**
The capability of using/applying deliberately (intentionally):
 - *Self-knowledge, including knowledge of own learning style(s)*
 - *Self-regulation (orientation, planning, monitoring, assessment, evaluation), including knowing how to learn*
 - *Reflection-in-action (observing on-the-spot, criticising, restructuring and assessing the intuitive understanding of phenomena)*
 - *'Situational understanding' (taking account of the varying contexts in which tasks have to be realised and being able to transfer, that is, select and apply the necessary attributes in new contexts).*
- **Design competency:**
The capability to recognise critical incidents/problematic situations in the professional practice as design problems and design & develop 'doable' solutions, applying methodological approaches.

Box 7.3. Description of the generic competencies, used in the Faculty of Education (continued)

- **Research competency:**
The capability to apply research strategies in purposeful ways, both in situations where the problem and the solution are clearly evident and in situations requiring critical thinking and a creative approach to achieve an outcome.
- **Multi-media and ICT competencies:**
 - *The capability to use information and communication technology (including multi-media) to enhance learning and to enhance personal and professional productivity.*

Source: UEM (2001).

Problem solving was not mentioned as a separate generic competence but was implicitly present under reflective competencies and design competencies. In the same way was 'statistics competency' (as a basic sense for statistics, comparable to numeracy or literacy) included in research methodology.

Later on during the working visit the two Dutch students who had worked for some time in Mozambique on generic competencies and learning trajectories presented the outcomes of their (development) research projects (cf. Poortman, 2001; Timmers, 2001). One research project concerned design as competency. It was recommended to introduce design throughout the core programme, and in this way create an opportunity for a gradual development of design as a generic competency. Further discussion arose on the question what to do if students had already developed a sufficient/satisfactory level of competence in the generic areas addressed in the post-graduate programmes. It was agreed that students would have to show 'proof of competence' and after a satisfactory result could be exempted from activities aimed at the development of the relevant competency.

7.8.4 Development of core courses

Staff had received in advance some resource material on the design and development of courses in higher education. Immediately after arrival at the University of Twente (the place of work for the first week), they got a copy of the book of Posner and Rudnitsky (1997). Chapters from this book were used as a basis for further discussion and continued development of the various courses. Initially much time was devoted to the formulation of 'intended learning outcomes', defined by Posner and Rudnitsky (1997) as: "...a statement of what the student is to learn. It may be a statement about facts, ideas, principles, capabilities, skills, techniques, values and feelings" (p.35). Intended learning outcomes are, according to Posner and Rudnitsky (1997, p. 83) clearly different from behavioural objectives and could be used as competency statements (descriptions of the competencies that students should have developed by the end of their study). The required 'level of competence' would be given in a competence standard. Behavioural indicators,

developed from intended learning outcomes (Posner & Rudnitsky, 1997), could thereby serve as a basis for the 'proof of competence'.

At the end of the first week staff had produced first versions of the intended learning outcomes for their courses. The exchange of drafts had been encouraged, but only a few staff had distributed their products/prototypes for comments by others and few staff did actually comment on the products of others. Nevertheless one staff remarked that she saw the seven staff as a 'group of curriculum developers' and emphasised the importance of working as a collective.

Further activities during the first week of the working visit included a further discussion of assessment strategies and of logistical issues. Points that also were mentioned (again) included the need for a staff development plan and the need for an improved information and communication structure within the faculty.

Because the next two weeks would be used for individual work, without many plenary sessions, a brief evaluation was organised of the first week's proceedings.

Near the end of the working visit a number of short plenary meetings were held to plan the final session where the course plans resulting from the working visit, would be presented. The meetings also served to get more clarity (and agreement) on a number of issues. On generic competencies it was agreed that during the core part of the educational programmes the emphasis would be on the *acquisition and development* of generic competencies, while during the later phases (specialisation and research project) the emphasis would be on the *application/use* of generic competencies. The need was expressed for a 'template' of a course outline. It was decided that the designer-researcher would produce such a template on short notice.

At the end of the working visit a presentation day was organised in the presence of all Mozambican staff and most of the Dutch counterparts from the three universities (C26, 2001). Each staff presented his/her course paying attention to the rationale of the course, the intended learning outcomes, the relation of intended learning outcomes and rationale to the graduate profile, the structure of the course (timetable, teaching strategies etc.), and an indication of how generic competencies would be addressed in the course. After each presentation comments were made and questions asked by the group of 18 participants. The most common observations were (cf. C26, 2001):

On competencies and competence statements:

- There was a perceived need to clarify concepts, such as competency, competence etc. for some Dutch counterparts. In such a way a common understanding of competence-based education in the Faculty would be reached.

- Competence statements should be more task oriented: what do we expect of a student in terms of performance at the end of the course. This observation was made for four of the seven courses that were presented.
- It was suggested to formulate a kind of 'umbrella intended learning outcome' for each course. In that case it would be easy to link the final assignment to this umbrella learning outcome.

On generic competencies:

- It was advised to include a matrix per course showing how and where generic competencies would be integrated in the content. This had not been done yet.
- A general question concerned the description of generic competencies. More guidelines should be provided.
- Once more the importance was mentioned of a co-ordination/monitoring of the inclusion of generic competencies in the programme.

Other general and more specific observations:

- The danger of a very innovative programme was that it would not be sustainable. So, care should be taken not to overload the staff responsible for the courses. At the same time transfer of expertise to a Mozambican staff member should take place as soon as possible.

In the final comments, made during the presentation day, the need was emphasised by the participants to formulate a plan for the professional development of staff, based on immediate needs for training and schooling in a number curriculum and course development issues.

7.8.5 Meeting of the Dutch steering group

During the day that the Mozambican staff presented the plans for their courses, the presence of all Dutch counterparts was used to have a brief meeting together with the two Mozambican staff that were also part of the IC. It was reported by the Mozambican representative that recruitment of students could in fact only take place after the curriculum had been approved officially by the University Council. In the meantime a provisional registration of interested candidates could take place in April, after publicity would have started. A final curriculum document would be presented to the Academic Council in April.

From Dutch side it was suggested that, from the point of view of management and academic supervision, one Masters programme in Education with various options for specialisation would be the most advisable. Because of the huge amount of tasks and actions to be taken until August it was strongly advised to install taskforces with a certain autonomy. It was remarked that this work could never be done by one Dean or even by an Installation Committee. Related to the point above

there was concern, also apparently within the NUFFIC, about the absence of a formal administrative structure at the faculty. NUFFIC had indicated that this could even mean a halt to financing investments. An urgent appeal would be made to the Dean to nominate as soon as possible his staff, or else indicate why such a nomination would not be possible. The recruitment procedure of four Dutch lecturers via the Dutch organisation ICCO (Interchurch Organisation for Development Co-operation) would continue.

Once more the need was stressed for a staff development plan. Two of the group that participated in the working visit had indicated interest in starting a masters or a PhD project. In the opinion of the Dutch counterparts this should be encouraged and solutions should be sought to allow the suitable candidates to start as soon as possible with their further training.

The lack of a well-established communication structure could endanger the whole project, especially because in a very short period many activities were planned. It was noted, for example, with surprise, that only via non-official channels the Dutch counterparts had been informed about the appointment of the Dean, the delay in the start of the psychology programme and the recruitment of new staff in various areas.

7.8.6 Evaluation by Mozambican staff of the working visit to the Netherlands

After their return from the working visit four staff were interviewed, two co-ordinators of the post-graduate programmes that would be offered from August 2001 onwards, and two staff that would give a course in the common core of the programmes. The interviews were recorded, while notes were made during the recording. The transcription of the recording was done by summarising and, at the same time, translating the interviews into English.

The questions of the interviews concerned:

- *Evaluation* of the three week working visit to the Netherlands by the participants:
 - Effectiveness of the visit
 - Effects of the visit on the participants in terms of
 - Opinion on competence-based education (CBE)
 - Implementation of CBE
- *Reflection* of the work done in the last three weeks on the elaboration of curriculum documents:
 - Clarity of concepts used in the elaboration of the curriculum documents
 - Differences between the proposed curriculum and the 'traditional/disciplinary' curriculum
 - Role of colleagues in the process of elaboration of the curriculum document

- *Planning* of activities in the coming three months.
 - The level of intended use of CBE
 - Staff development needs related to support the innovation

Evaluation of the working visit:

Three of the four staff judged the working visit as effective. One of them stated:

"For me personally it was a good experience. It was in fact a first real encounter with the concepts of CBE. It provided me as well with a firm base for further work." (C27, 2001). The three were also satisfied with the fact that had been able to elaborate a study plan for their course in the core part of the programmes. One staff was more critical and stated that the first week was lost, because of the way staff was 'put to work'. Staff had to read chapters in a book on course design as a basis for further discussions and this was seen as 'going to school again'. The fact that some staff had to move to other universities after the first week was seen as ineffective by some, because in the University of Twente staff had much more access to expertise on curriculum and course development. Therefore the first week was found the most productive by this staff member. Other staff found the first week too long and therefore rather ineffective.

Staff had expected to do more during the visit. As one stated: "I only managed to prepare the course of the common core. And not the specialisation phase, as I had expected" (C27, 2001). Some of the newer staff that participated in the working visit had less expectations: "In the preparation it was not very clear what I should do in Twente and, to my surprise, I ended up with a course plan" (C27, 2001).

On the question what they had learnt during the working visit the following list was given by the four staff that were interviewed:

- information management;
- working in groups;
- content related to the core courses;
- concepts related to competence-based education, such as the difference between domain-specific and generic competencies and the link between competencies and objectives;
- knowledge of the teaching-learning methodology used in the Netherlands, specifically the importance of starting with practice and then relate practical experiences with the theory.

Most staff found that the working visit had deepened or 'solidified' their understanding of CBE. They had still doubts about CBE in practice and there were still some difficult concepts such as 'competence standards' and 'generic competencies'. One staff said: "There was no literature on that or definitions or explanations. But this became clear later on. It was, on the other hand, also a

process of discovery. So, the confusion was good. But we need more schooling on the concepts" (C27, 2001). Another stated: "It is clear that we are going to work using a competence-based approach, so, in that sense, my opinion is not important. But I see now more clearly the advantages of CBE" (C27, 2001). Staff also thought that their knowledge and understanding on curriculum and courses development had increased.

Reflection on the work done during the visit to the Netherlands

Staff did not encounter many difficulties during the elaboration of their course plans. One mentioned the problems with having to put together the courses of the specialisation phase in a relatively short time. On the question how their course would reflect a competence-based approach, answers varied and most staff were not able to indicate clearly why their course could be characterised as 'competence-based'. One staff stated: "In a traditional curriculum you just decide on the themes and give the corresponding chapters from books. In CBE it is not sufficient to read only, but you have to do also something" (C27, 2001). The relation with the professional practice, through the needs assessment, was also indicated as one of the characteristics of competence-based courses. One staff gave an example of information management competency: "There is an exercise that I am going to give about finding and analysing a file. The student has to search with help of the computer, analyse the file, combine findings, etc. These activities involve competencies" (C27, 2001).

Staff had mixed opinions about the collaboration with colleagues in other groups. Some emphasised that they had to concentrate on their own group once they had returned to Maputo, in order to elaborate course plans for the specialisation phase. Informal contacts between groups continued, mainly because they were housed in the same staff room. There was less contact with the group that was more spread over different locations. One staff had wished a more thorough comparison in terms of a competence-based approach, of the course plans, made for the different programmes.

In terms of collaboration with the Dutch counterparts, contacts were said to continue through the sending of draft documents to the Netherlands. Some feeling of being an 'apprentice' in relation to the Dutch experts was expressed. "I was afraid to send something to the Dutch counterpart because he could have changed things" (C27, 2001). On the other hand, staff experienced also that they were becoming more knowledgeable on CBE than some of their Dutch counterparts: "In Groningen I had to do a presentation before I went back to the University of Twente and I had to explain practically everything to the Groningen team" (C27, 2001).

On further activities and staff development needs

Staff indicated some competence-based characteristics of the learning environment in their course, although cautiousness prevailed. One staff mentioned case studies as a suitable method but also indicated that she would not have time to elaborate cases. She stated: "In Twente we saw interesting things but we run the risk that we are going to do things that we do not know about. So, we have to be careful. In a workshop we have to learn to do, not only read. We do not need theory but practical ideas" (C27, 2001). Other staff mentioned study visits, debates, discussion panels, group work. Assessment would include self-assessment, tests and written assignments. Learning methods would have to be very interactive. "Students have to responsible for their own learning process. So we have to design activities to promote that. The teacher is only accompanying and assisting in case of problems" (C27, 2001). Assessment through portfolios was seen as a promising method but none of the staff had ever used this method.

All staff indicated the need for more books and literature and access to the Internet, together with infra-structural facilities such as library and a computer room as minimum conditions to start the educational programmes in August 2001. One staff also emphasised the need to continue discussion and schooling/development on the conceptualisation of competence-based education. "...we need to continue to get information on CBE and all its aspects. We should not loose pace. We always run the risk to regress to the traditional way. There should be a monitor who will guard the process of continuous development towards CBE" (C27, 2001).

When asked about wishes for further professional development reference was made to a list that had already been compiled by one of the staff. This list had apparently been handed over to the IC, but nothing had been done yet. One staff remarked: "...things seem to progress at the speed of a tortoise" (C27, 2001). In general the need for a continuous development was recognised and the importance of learning while working.

7.8.7 Opinions of Dutch counterparts on the curriculum development process

After the working visit of Mozambican staff in the Netherlands a brief questionnaire was given to the Dutch counterparts. The questionnaire aimed at getting a more complete picture of the working visit experiences, thus increasing the validity and reliability of an evaluation of the visit. A second aim was to obtain more data for the development and implementation phase of the curriculum in the faculty and to provide directions for support during the process. The questionnaire contained four parts, characterised by the following four basic questions:

1. What conceptions do the Dutch Counterparts have of 'competency'?
2. To what extent are the Dutch counterparts familiar with CBE?

3. Based on the experiences with the Mozambican counterparts, what are Strengths, Weaknesses, Opportunities and Threats for the co-operation between their institution and the Faculty of Education at UEM (more specifically them and their counterpart)?
4. Based on the experiences with the Mozambican counterparts, how would the Dutch counterparts describe the disposition of Mozambican staff and their capacity (required knowledge and skills) for change?

The first half of the questionnaire (parts 1 and 2) were related to the first objective (to obtain more information for the evaluation of the working visit), while the second half (parts 3 and 4) addressed the second objective (to obtain more data for the description of the development and implementation process).

Six Dutch counterparts responded, all involved in one or more core courses. Four were from the University of Twente, the other two from the Free University of Amsterdam and the University of Groningen. The results of the questionnaire were as follows (cf. C28, 2001):

On the competence concept

The first question, on the definition or description of 'competency', was four times answered with a 'competency as input' answer (see section 3.3.5 of this study), one of which with a sceptical undertone: "It's a somewhat trendy notion indicating a combination of skills, attitudes and even some personal characteristics" (C28, 2001). Two answers involved more or less elaborate output-type descriptions. In the second question, giving input and output descriptions as alternatives the results were:

- Competencies are personal attributes (mental or physical characteristics of a person). *Chosen 6 times.*
- Competencies are 'pieces of behaviour': actions. *Chosen 5 times.*
- Competencies are outcomes of behaviour. *Chosen once.*

Including the results of the questionnaire for Mozambican staff at the beginning of the working visit (see section 6.8.2) the conclusion is that Dutch staff and Mozambican staff did not have an outspoken preference for an input- or output-approach to the competence concept. All would probably subscribe the definition of one of the Dutch counterparts: "Competency is the ability to apply and integrate knowledge, understandings, skills and/or attitudes in (complex) professional situations" (C28, 2001).

On the familiarity with competence-based education

One Dutch counterpart indicated little familiarity with CBE; the others were reasonably to very much familiar. Three of the six respondents were involved in CBE in their own institution, usually in the process of changing to a new curricular

system. Two were involved, as adviser, in CBE outside their own institution. All six respondents would be in favour of adopting CBE for their own institution, some of them cautiously. Again all six thought positively about the decision to develop a competence-based curriculum for the Faculty of Education at UEM, while some advocated a cautious approach. "In implementing CBE we need to find an approach and format that takes into account the culture and tradition of higher education in Mozambique and the problem of implementation of an educational innovation. Therefore a good balance between 'new' and 'old' approaches is needed" (C28, 2001).

On the co-operation between Dutch and Mozambican colleagues

The Dutch counterparts mentioned the willingness to learn from each other and the motivation to co-operate during the working visit. They were generally satisfied with the flow of information and the communication with their Mozambican counterparts during the working visit. Weak points were the lack of time and the lack of exchange of ideas and experiences between the various Dutch-Mozambican couples. The communication decreased considerably and almost stopped in some cases after the working visit. The absence of planning activities was noted, as well as the clarity from Mozambican side on the role of the Dutch counterparts for the rest of the curriculum development process. "No activities, so no planning? Or should I say no planning and therefore no activities?" (C28, 2001). The Dutch were not very outspoken on perceived cultural differences that might influence the co-operation. Two Dutch counterparts mentioned the more hierarchical structures in which the Mozambicans operated as a potential negative factor in the co-operation. "Mozambicans think very hierarchically and are very formal. This leads to problems with communication within the faculty, and more distance in Mozambique between people with similar tasks but different rank/position than in the Netherlands. Another consequence is that Mozambicans give the impression that they feel less responsible for the outcomes of the curriculum development project as a whole" (C28, 2001).

In terms of 'opportunities and threats' for the co-operation, the Dutch counterparts saw enough opportunities for a fruitful co-operation. "I think there are a lot of positive opportunities. There is money, competence and even south-south co-operation" (C28, 2001). As threats for the co-operation were mentioned the lack of clarity about the administrative structure of the faculty and the slow pace of development. There was also the danger that good staff after further training might be lured away in financially more attractive jobs. In general the distance, the time intervals between visits to Mozambique, in short, the impossibility to have awareness of all the activities in the faculty was named as a continuous threat for the co-operation.

On the readiness of Mozambican staff to engage in a competence-based curriculum

Dutch counterparts were asked what they thought, based on their experiences during the working visit, of the readiness of the Mozambican staff for the change implied by the adoption of a competence-based curriculum. Readiness is used here in the sense of Fullan (1991) and described as the acknowledgement of the need for change, the conviction that the change is reasonable and the 'capacity', the required knowledge and skills for change. In the questionnaire the term 'stage of development' was used (cf. De Feiter, Vonk & Van den Akker, 1995).

The general opinion of the Dutch counterparts was that the Mozambican staff had shown sufficient readiness, although there was still a perception of doubt about the implementation of the competence-based curriculum (how the ideas should be converted into practice).

7.8.8 Intermezzo 4: In conclusion

The products of the working visit consisted of descriptions of a number of core courses, in the form of 'thematic programmes'. These descriptions included a rationale, goals/objectives (in the form of intended learning outcomes), content, and materials & resources. Further discussions had been held on learning environments including the role of teaching staff, assessment, time and space. No definite documents had been produced on these curriculum aspects, but they contributed significantly to the elaboration of the curriculum document, that was finished a few weeks after staff had returned to Maputo. Although agreement was reached on how the development of generic competencies would be distributed over the core courses, there was no clarity yet on how they would be addressed, apart from the decision to organise workshops for some generic competencies (ethics, project management, and ICT and multi-media). In Section 7.10 a further analysis is given of, amongst others, the course plans.

From a technical-professional point of view the working visit functioned well in the process of preparing course plans and, at the same time, promoting staff development. Although at the beginning of the working visit a 'constructivist approach' was announced ("...there is a problem, namely the development of course plans, and we will have to solve that together") in reality a perhaps more 'schoolish' approach crept in. This may have been caused by two factors that reinforced each other. The first factor was the feeling by Mozambican staff to be 'apprentices' which they associated with their own experiences as pupil/student in a traditional, hierarchical setting, thus depending much on the input of the Dutch counterparts. The other factor was the tendency of the Dutch counterparts to take the initiative and, partly because of time pressure, partly because of a kind of 'horror vacui', not to allow time for the Mozambicans to take initiative.

The reflection on the work done during the working visit and on the plans for the next steps in the curriculum development process indicate a professed support for competence-based education. At this stage staff could be characterised in terms of the Concerns Based Adoption Model (Hall & Hord, 2001) as being at the 'personal' or 'management' level of concern. The 'personal' level is the stage where staff wants to learn about the personal ramifications of the innovation. The question is how the innovation will affect them. At the 'management level' staff learns the processes and tasks of the innovation. They focus on information and resources.

In terms of levels of use staff could be positioned at the preparation level, being just before the first use of an innovation (cf. Hall & Hord, 2001).

The results of the brief questionnaire to six Dutch counterparts indicate that their conceptualisation of competency and competence did not differ much from that of the Mozambican staff. In terms of competence-based education the Dutch counterparts had already experience both in- and outside their institutions.

The importance of the working visit in the Netherlands for the coherence of the core courses and a competence-based approach is clearly illustrated by looking at the two courses of which no staff could come to the Netherlands and collaborate in the joint development activities. As a result the course 'Sociological and Anthropological Aspects of Education in Mozambique' appeared to be out of line with the other courses. There was in general a lack of information about this course and a chance was missed to see how this course, full of theoretical constructs, could be offered in a competence-based learning environment. In the Statistics course lecturers were appointed at a very late stage and it proved difficult to familiarise them in time with the procedures that the other staff had followed. This was aggravated by lack of examples, for example in the form of course outlines.

Looking at the working visit through a socio-political lens, one could observe Mozambican staff working in co-operation with their Dutch counterparts, for some closer than for others. Dutch staff was generally positive about the working attitude of the Mozambican colleagues and had enjoyed the mutual learning and development process during the working visit. The break-down of communication after the working visit had increased the sense of distance between 'what was happening there and what could be done here'. Only an effective and efficient communication structure would counteract this threat to co-operation. Also internally staff began to show a tendency to 'withdraw' to the own group. Apparently communication as an act of providing information, not only asking for information could only be realised in special circumstances, such as workshops, and not in the normal working situations.

With their motivation for change, willingness to learn, but also uncertainty about how to implement CBE, Mozambican staff could be situated as on their way from (in terms of the model of De Feiter et al, 1995) the mechanical stage to the routine stage of development (see Box 7.4).

Box 7.4. Teachers' stages of development in the adapted 'Verspoor' stage model

| Level of development | a. Teacher background b. Teacher professionalism c. Teacher reaction to innovation |
|-----------------------------|---|
| Unskilled | <ul style="list-style-type: none"> ▪ Questionable mastery of subject content; little or no professional training. ▪ Teachers often isolated, poorly motivated. ▪ Ignorance, confusion, and non-application. |
| Mechanical | <ul style="list-style-type: none"> ▪ Moderate subject mastery. ▪ Limited professional training. ▪ Incidental contact with colleagues through in-service training; some interest in professional improvement but easily discouraged. ▪ Uncertain about use; focused on personal mastery; dilution of innovation to adapt to personal, professional capacity and motivation. |
| Routine | <ul style="list-style-type: none"> ▪ Adequate subject mastery and training. ▪ Incidental contact with colleagues. ▪ Interested in improving student performance if adequate incentives are provided. ▪ Skeptical about immediate effects; willing and able to make honest effort; will try to adapt innovation for ease of classroom management & standardized application. |
| Professional | <ul style="list-style-type: none"> ▪ Good subject mastery; well trained. ▪ Frequent contact with colleagues; reads professional publications; interested in improving student performance. ▪ Needs of students is central focus; willing to try and test alternative approaches. ▪ Confident about own ability to master and adapt innovation to fit needs of particular group of students. |

Source: De Feiter et al. (1995).

7.9 FINAL DEVELOPMENT ACTIVITIES (APRIL TO AUGUST 2001)

After the return of the core staff to Maputo the final preparations for the start, in August, of the post-graduate programmes began with a meeting of the IC (IC5, 2001). The meetings had stopped during the absence of the two IC members that were in the Netherlands. Another member of the IC had been appointed as acting

director planning, one member had already practically withdrawn from the IC, which meant that the IC consisted basically of the three members of the Working Group on Curriculum Development. As 'products' of the working visit were identified the course plans (or at least well developed drafts) for the common core courses, and more or less defined ideas for the specialisation phase. Responsibilities were distributed for the completion of the curriculum document, confirmed by a memorandum by the Dean (IC33, 2001). The Brazil trip had ended up with almost nothing. A report (partially) had been made and now responsibilities were shifted from one to another. Work on infrastructure had been promised but not started yet. The Dutch curriculum expert had transmitted the positive feelings of the Dutch counterparts on the working visit (E14, 2001). He further made a number of recommendations, including the need for a proper communication structure, internally (staff had complained about lack of information from the IC), and externally (Dutch counterparts had complained as well). He ended his message with the always returning question what the administrative structure would be and what the name was of the Deputy-Dean.

Half April the representative of the IC informed the Mozambican steering committee (monitoring all MHO projects between UEM and Dutch universities) that all was well apart from a 'delay on disbursement of project funds' (DI17, 2001). That not all was so well in terms of planning, was brought to the attention of the Dean as chairman of the IC by the designer-researcher, in his capacity of IC member. In his memorandum to the Dean (IC34, 2001) he raised a list of issues, indicating his responsibility for the process as member of the IC and doing so "despite the vertical management structure in the faculty". The memorandum was discussed in a May meeting of the IC (IC34, 2001) and on all points raised in the memorandum decisions were taken. Some relevant issues and the decisions taken were:

- The administrative structure of the faculty. "The IC has been practically reduced to three people. Thus there is need to know the deputy deans, heads of departments, etc.

Decided: after the approval of the curriculum document the following persons will be appointed: Deputy Dean, heads of departments, course directors and project co-ordinators for the MHO projects."

- "Other donors. We should install a taskforce to design a plan to approach other donors than NUFFIC.

Next meeting names will be mentioned of persons who will contact donors and start plans for elaboration of project proposals. The Dean will lead a taskforce on this issue. A list of potential donors is made during the meeting."

Unfortunately these decisions did not lead to results, partly because of factors on which the IC had no control.

Also in April 2001 NUFFIC finished its assessment of the project proposals and expressed the opinion that the reopening of the faculty would contribute to improve the quality of education in Mozambique. It was proposed to approve all three projects, although a few changes were made.

1. After one year of implementation an external mid-term review would be organised by the NUFFIC.
2. If this external review would indicate a revision of the project strategy, planning or activities, the implementing institutions were to heed these recommendations.

The assessment report mentioned as most critical factor the availability of staff. It also was rather critical on the proposed expenses for various goods and put cuts in various budget items related to transport, computers, stationary etc.

On 11 May, 2001, a delegation of the faculty presented the curriculum document (UEM, 2001) to the Academic Council and got the plans for a competence-based curriculum for three post-graduate programmes approved under much praise. The Academic Council noted the consonance between the various profiles (professional profiles, graduate profiles and curriculum profiles) (O10, 2001). It also praised the clarity, logic and detail of the study plans and thematic programmes, observing the orientation towards a credit point system. There was appreciation for the clear presentation of the educational vision/philosophy and the translation into teaching-learning strategies and assessment methods. Some inconsistencies were noted in the formulation of educational objectives. Finally it was proposed to distribute the document amongst other faculties as an example of how a truly reformed curriculum should look like. This proposal just stayed in its proposal stage and was not used as an opportunity to rekindle the curriculum reform process.

A few days later the Dean sent an e-mail to the Dutch counterparts, informing them about the approval of the document by the AC. The E-mail ended with: "I will keep you informed about further developments on this and other issues" (E13, 2001).

Curriculum activities continued, involving finalising the course outlines for the common core part of the educational programmes. In the Study Group (SG20, 2001) a proposal for publicity of the faculty and its programmes was discussed. The designer-researcher distributed background material for the design and development of course plans (*planos analíticos*), a position paper on learning outcomes, competency statements and objectives and background material on the development of generic competencies (C6; C7; C8, 2001). After a discussion on these three documents (SG1, 2001) the designer-researcher submitted a proposal for improvements in the curriculum document in June (C9, 2001) but this did not result immediately into a 'second edition' of the document.

Further activities related to the elaboration of course outlines. This included proposals for the formulation of competency statements, and the completion of a matrix with competencies and content, and assessment.

In the middle of June a workshop was held on preparing cases and projects. The target group included staff of all faculties, but the workshop was attended by 16 Faculty of Education staff, and 5 that did not come from the faculty. The two-day workshop aimed to develop competencies in applying case-based learning, problem-based learning or project work in education. Various cases were produced during the workshop and participants evaluated the proceedings during the workshop positively (the overall impression of the workshop was ranked 4.3 on a five-point scale with 1=not very helpful and 5=very helpful).

The designer-researcher held some meetings with individual staff members (SG2, 2001; SG21, 2001) to assist them in the further development of their courses. During these meetings proposals were discussed for daily timetables of the courses, the integration of generic competencies and their assessment. Further initiative was left with the staff that was responsible for the respective courses. The designer-researcher produced also a draft template for a course outline that was followed by some staff in their course outlines.

In one of the last meetings of the study group before the start of the educational programmes (SG2, 2001), a discussion was held on the wish of the Adult Education programme to include 'attitudinal competencies' in the course outlines. Although it was thought that they could be, to a large extent, included in the generic competencies, some might deserve a separate mentioning. The Dean brought up the importance of the inclusion of subjects like epistemology and philosophy of education in the curriculum. Linked to the formulation of competence standards a discussion was held on performance indicators for the assessment of competencies. The designer-researcher would make a proposal for the generic competencies. Staff would be responsible for the performance indicators related to domain-specific competencies in their courses. In the next chapter will be discussed to what extent the formulation of performance indicators had been done and how far assessment was based on competencies.

The last step in 'officialising' the faculty was done in July, 2001, when the University Council met to discuss the proposal to start with three post-graduate programmes in education in August 2001. In the minutes of this meeting (O2, 2001) it is mentioned that the Rector spoke about the curriculum reform exercise that had slowed down considerably. He emphasised once more earlier recommendations, including the

advice to elaborate curricula, if possible, in terms of competencies and 'objectives' (although it is not clear what was meant with 'objectives' in this context). The University Council approved the faculty plans, but also made some observations:

- The Council disapproved that fact that staff with only a Masters degree would head the programmes and its courses.
- The Council strongly advised to avoid that all duties would be concentrated in one person.
- The Council expressed the need to know what organisational structure the faculty would have.

In his reaction on the observations, the Dean of the faculty agreed with the first point, although in his view some staff were very experienced and on their way to a PhD. He also agreed that decisions should not be concentrated at the level of the Dean, so he promised to create a commission with deliberative powers. According to him work was done already on the faculty administrative structure, and he would soon provide the University Council with more information.

7.10 CURRICULUM DOCUMENT AND COURSE OUTLINES: A FORMAL CURRICULUM

The curriculum document and a number of course outlines are representations of the formal curriculum. The structure of the curriculum is briefly described in Section 7.10.1, after which the characteristics of the curriculum as described in the curriculum document are assessed in section 7.10.2. This involves an instrument that has been described in Chapter 3 and consists of a list of questions on competence-based aspects of the curriculum. The opinions of four experts are also discussed in this section. The second part of Section 7.10.2 concerns the alignment of the course outlines to an (intended) competence-based curriculum.

7.10.1 A brief description

The time span beginning with the needs assessment and ending with the start of the educational programmes in August 2001, resulted, in 'Goodlad terms' (Goodlad et al., 1979; Van den Akker, 1998), in a formal curriculum, represented in the curriculum document of the faculty (UEM, 2001). The further development of courses by staff, responsible for the core part of the post-graduate programmes, of course outlines led to a further manifestation of the formal curriculum.

The general structure of the curriculum is presented in Appendix 6. The curriculum document (UEM, 2001) adds the following description:

"The core courses will be offered in 5 blocks with a duration ranging from five to seven weeks. During the last week of each block no new content will be offered. This last week can be used for final assessment activities. After block two a free week is planned, that can be used for repeating of tests and other assessment activities. After block three a month holiday will be held (January). Another free week is scheduled after blocks four and five.

The educational philosophy will reflect an application-oriented approach in which theory and skills will contribute to the development of the capabilities to identify and solve critical problems of the profession. Some of the core courses have a supportive role (e.g. research methodology, statistics, etc.) and aim at providing the necessary tools for the development of the core competencies. Other courses, such as Adult Learning, Curriculum Theory and Development, aim at providing all students with the necessary attributes, related to the content of the specific domain and serve at the same time as an introduction to the later specialisation phase..... In the specialisation phase a problem oriented learning approach will be used, where the problem is starting point and further competencies are developed to acquire theory and skills that are needed to solve the problem. If needed, students can follow special modules, for example on advanced research methods, use of statistical software, etc." (UEM, 2001, p. 10).

7.10.2 An assessment of the formal curriculum

With help of the list of questions that were formulated in the concluding section of Chapter 3 (section 3.8) the formal curriculum can be compared to the ideal or intended curriculum. From that list an instrument (assessment form) has been prepared to 'measure' to what extent characteristics of the formal curriculum comply with those of the ideal/intended one. The instrument contains, as can be seen in Table 7.6 a number of pre-coded (closed) questions and some open-ended questions. The formal curriculum has been assessed by the researcher designer, based on the curriculum document and the outcomes of the analysis of the development phase, as described in the previous sections of this chapter. In order to avoid researcher's bias a validation of his assessment was needed by 'internal' and 'external' experts. For that purpose four experts assessed the formal curriculum as well after receiving parts of the curriculum document (representing the formal curriculum) together with the assessment form. Two 'internal' experts work(ed) in the UEM, one with extensive experience of developing and implementing a post-graduate programme in the faculty, the other with knowledge of the faculty and its curriculum development process and with expertise in the area of curriculum development. One of the two external experts has research experience in education in Southern Africa and expertise in curriculum development, the other one is a senior educational researcher. Both work at (different) Dutch universities.

In Table 7.6 the results are given for the five assessments by the researcher-designer and the four experts.

Table 7.6. *An assessment of the formal curriculum for the post-graduate programmes*

| | Not sufficient | Sufficient | More than sufficient |
|--|--|--|----------------------|
| <i>A. On the content of the programmes:</i> | | | |
| 1. Does the development of the programmes start with the formulation of a professional profile? If yes, how is this done? | | R I ₁ E ₁ E ₂ | I ₂ |
| 2. Is a graduate profile formulated? Does this profile contain competence standards? | R I ₁ I ₂ E ₂ | E ₁ | I ₂ |
| 3. Are domain-specific and generic competencies formulated for the programmes? | | R I ₁ E ₁ E ₂ | I ₂ |
| 4. Does the content follow from the formulated competencies? Is it clear how this was done? | R E ₁ E ₂ | I ₁ | I ₂ |
| 5. Is there integration of the content between courses in a programme or between programmes? How is the integration realised? | R I ₁ | I ₂ E ₁ E ₂ | |
| 6. How is the relation with the professional practice maintained? | | See below | |
| <i>B. Characteristics of the learning environment:</i> | | | |
| 7. What didactic approaches are used? | | See below | |
| 8. Are teachers functioning as 'cognitive guides'? How are they doing that? | | | |
| 9. How are students supported in creating their own learning environment? | | | |
| 10. How are students encouraged to reflect on their learning experiences? | | See below | |
| 11. Are differences addressed in the pace of development between students? | R I ₂ E ₁ E ₂ | I ₁ | |
| 12. Are authentic learning situations created? | R I ₂ E ₁ E ₂ | I ₁ | |
| 13. Is a variety of contexts created in the learning environment? | R I ₂ | I ₁ E ₁ | |
| 14. Is the acquisition of knowledge related to the solving of practical problems (just-in-time knowledge)? How is this done? | I ₂ E ₁ | R I ₁ E ₂ | |
| 15. Is the acquisition and development of generic competencies addressed in the various courses? | R I ₁ | I ₂ E ₁ | |
| 16. Is transfer of generic competencies promoted? If yes, how? | R I ₁ E ₁ E ₂ | I ₂ | |
| 17. Does ICT have a role in the programmes? | I ₁ E ₁ | I ₂ A | R |

Table 7.6. An assessment of the formal curriculum for the post-graduate programmes (continued)

| | | | |
|---|-------------------------------|--|-----------|
| <i>C. On assessment</i> | | | |
| 18. Is there authentic assessment, focussed on competencies? If yes, how is this done? | | | See below |
| 19. Does formative assessment provide feedback to the students about the development of their competencies? | I ₁ E ₂ | R I ₂ E ₁ | |
| 20. Is a student portfolio included in the assessment. | | R I ₁ I ₂ E ₂ E ₁ | |
| How is the portfolio assessed? | | | See below |

Note: R indicates the researcher-designer, I₁ and I₂ are experts familiar with the context of the faculty (internal experts), and E₁ and E₂ are experts not familiar with the UEM and the Faculty of Education (external experts).

Comments by the experts on the questions

Comments on the 'open' questions and additional comments on other questions are summarised below. Each time the answer of the researcher-designer is given first, followed by a summary of the other answers. The complete list of answers is given in Appendix 7.4.

Question 1: Does the development of the programmes start with the formulation of a professional profile?

Needs assessment and expert input formed the basis for the formulation of professional profiles (R). The internal experts missed a clear description of how competencies followed from the professional profiles.

Question 3: Are domain-specific and generic competencies formulated for the programmes?

One internal expert noted that not all programmes had a same 'weight' for generic competencies in the formulation of their graduate profiles.

Question 4: Does the content follow from the formulated competencies?

From the curriculum document it is not clear that the content is derived from the graduate profile or the domain-specific and generic competencies. There are no signs that backwards designing took place for the courses in the core programme (R).

Three experts confirmed this view, one (internal) expert stated that, although the methodology to choose the content of the programmes was not explained, the courses in the three programmes had a clear link with the competencies in the graduate profiles.

Question 5: Is there integration of the content between courses in a programme or between programmes

One (external) expert noted some integration between courses within a programme but no integration between programmes.

Question 6: How is the relation with the professional practice maintained?

The curriculum document does not indicate how a relation with the professional practice will be maintained. In practice some programmes (Adult Education,

Science and Mathematics Education) started to have contacts in the 'world of work' that gradually were expanded (R).

The experts noted that opportunities were mentioned (such as projects and case studies or "linking theory to practice based on the solving of problems") but would not guarantee a relationship with professional practice.

Questions 7-9 (On characteristics of the learning environments):

The curriculum document states: "...teaching-learning methods are favoured that are student-centred and are based on the principle of linking theory to practice based on the solving of problems. At the same time, a spirit of individual and collective responsibility as well as of co-operation will be promoted" (UEM, 2001, p. 28). (R).

The statement of one of the (external) experts summarises the opinions of the others: "A table is given on didactic approaches but not elaborated. Students may be cognitive guides when they work in pairs or when they are learning in groups, but the text does not give a guarantee that this will happen. The text is not explicit on these issues."

Question 10: How are students encouraged to reflect on their learning experiences?

Through development of reflective competencies. But see questions 15 and 16 on acquisition and development of generic competencies and the promotion of transfer that are insufficiently addressed in the curriculum document (R).

The experts confirmed this view.

Question 14: Is the acquisition of knowledge related to the solving of practical problems (just-in-time knowledge)?

There is not much said in the curriculum document as an answer on this question. Closest comes the following quote: "In the specialisation phase a problem oriented learning approach will be used, where the problem is starting point and further competencies are developed to acquire theory and skills that are needed to solve the problem"(UEM, 2001, p. 10). (R).

The experts mentioned the lack of clarity in the document on this point.

Question 15: Is the acquisition and development of generic competencies addressed in the various courses?

One (internal) expert stated that generic competencies had a place in all core courses but that not was indicated how their development would be addressed.

Question 18: Is there authentic assessment, focussed on competencies? If yes, how is this done?

The curriculum document mentions that "...the assessment should demand that the students show 'proof of competence'" (UEM, 2001, p. 29), but no mentioning is made of authentic assessment strategies. (R).

The experts stated that a list of assessment methods was given in the curriculum document but no explicit reference to authentic assessment had been made.

Question 19: Does formative assessment provide feedback to the students about the development of their competencies?

One (external) expert was rather critical about the use of tests and exams in formative assessment and recommended formative assessment based on class discussions, projects and peer-assessment.

Question 20: Not indicated. (R). The experts confirmed this view.

A final remark of one of the (internal) experts summarises nicely the expert opinion: "The document gives generally speaking sufficient information on the profiles, competencies and structure of the programme, but fails to give information on the teaching-learning environment/strategies."

In general the experts' opinion confirms the assessment by the researcher-designer, but there are a few deviations (questions 5, 15 and 17). The question on integration of the content of the courses (question 5) may have been answered by researcher-designer (and one of the internal experts closely related to one of the educational programmes) based on their experiences during the implementation phase (operational curriculum) and not so much based on the curriculum document (formal curriculum). This may also be the case with the answers on question 15. In the question on the role of ICT in the programmes (question 17) the researcher-designer based his judgement on the fact that an introductory ICT course was included in the common core programme and that students made use of ICT in all three programmes (experienced curriculum). However the curriculum document was, apparently, less clear on this issue. One (external) expert commented: "ICT is a course in the core programme but I don't see whether and if so, how this is integrated in the different programmes."

Hardly any course outline for the core part was ready and made available to the students when the programmes started in August 2001. By September 2002 the designer-researcher had collected outlines of four of the nine core courses (C29, 2001): 1) Multi-media & ICT; 2) Curriculum Theory & Development; 3) Research Methodology; and 4) Adult Learning. Of these courses, two outlines had followed the recommended format, that included all 10 curriculum aspects of Van den Akkers' 'curricular spider web' (Van den Akker, 2003): rationale, goals, content, learning activities, teacher roles, materials & resources, grouping, time, place, and assessment. The four course outlines have been assessed by the researcher-designer on their alignment to the competence-based curriculum as intended for the faculty using the criteria for competence-based education, mentioned in Section 3.8 of this thesis (see also Box 6.6). The results are given in Table 7.7, on the next page.

Table 7.7. An assessment of outlines of four core courses

| Course | ICT & multi-media | Adult education | Research methodology | Curriculum theory & development |
|----------------------------------|-------------------|-----------------|----------------------|---------------------------------|
| Rationale | ++ | - | a | ++ |
| Goals/Intended learning outcomes | ++ | ++ | ++ | ++ |
| Content | ++ | - | - | ++ |
| Learning activities | + | a | a | + |
| Roles of teaching staff | - | a | a | + |
| Materials & Resources | + | ++ | + | + |
| Forms of grouping | + | a | a | + |
| Time | ++ | ++ | a | ++ |
| Place | + | na | na | na |
| Assessment | + | a | + | - |

Explanation of codes:

++: Strong alignment with competence-based curriculum;

+: Sufficient alignment with competence-based curriculum;

-: No alignment with competence-based curriculum;

a: The aspect is absent in the course outline;

na: The aspect is non-applicable or less applicable. In general not much was known about the physical infrastructure.

The formal curriculum, as represented by the curriculum document and a number of course outlines for the common part of the post-graduate programmes, could be considered a first prototype of a competence-based curriculum for the faculty. It reflected to a great extent the stage of development of staff, was elaborated in a communicative approach, involving all staff, and showed external consistency. It was also internally consistent, although not all aspects had a strong competence-based character or had been insufficiently elaborated. This concerned aspects as assessment, the alignment of content to the professional profile, the authenticity of learning situations, and the integration of generic competencies. On the other hand, the curriculum documents were hailed by the Academic Council for their logic, clarity and detail, in other words, their internal consistency.

7.11 CONCLUSION

In this chapter a reconstruction was done of the period in the curriculum development process that could be labelled 'the development phase'. The development phase is chronologically situated between the prologue and the design phase, that have been explored and analysed in Chapter 6, and the implementation phase that will be addressed in the next chapter, Chapter 8.

Three points of view, or lenses, have been used to analyse product and process in the development phase (the period July 2000 to August 2001). These three lenses correspond to the three research questions that have been stated in Section 7.1 and that will guide the 'final analysis' in this section.

The first question is product-related and has been formulated in Section 6.1 as: "*What are the characteristics of a competence-based curriculum in the context of the Faculty of Education at UEM?*" The curriculum development process resulted, at the end of the development phase, in a formal curriculum represented by a curriculum document (UEM, 2001) and some course outlines, representative of courses in the core part of the post-graduate programmes. Through various workshops during the development phase a curriculum model and structure have been developed, that originated with the designer-researcher and Dutch curriculum expert, that were subsequently elaborated by all staff and 'sanctioned' by the Installation Commission. The writing of the curriculum document was done by staff, designer-researcher and by the IC. Course outlines were elaborated by staff, responsible for giving the courses.

What makes a curriculum 'competence-based' has been formulated in Chapter 3, in the form of a number of questions or criteria. The formal curriculum, represented in the curriculum document (UEM, 2001), 'scores' as sufficient on the following points:

- The development of the curriculum starts with the formulation of a professional profile, through the outcomes of a needs assessment and expert input.
- Graduate profiles for the three post-graduate programmes are formulated.
- Domain-specific and generic competencies are formulated, based on the graduate profiles.
- General directions are given for the creation of competence-based learning environments.
- Formative assessment in the form of a portfolio is recommended.

Aspects that have been insufficiently addressed in the curriculum document are:

- It is not clear how content was derived from the graduate profile or the domain-specific and generic competencies.
- Probably as a result from the above there is no integration between content of the courses, for example in overarching themes.
- The document does not indicate how authentic learning situations will be created in a variety of contexts, and how authentic assessment will be done.
- The integration of generic competencies in the core courses had insufficiently been addressed.

Analysis of ten curriculum aspects in the four outlines of core courses showed that two had a sufficient competence-based character.

The curriculum development process has been reconstructed in this chapter and analysed through a technical-professional and a socio-political lens. The analysis from a technical-professional point of view was guided by the research question: "*What procedures and principles have been followed during the development of a competence-based curriculum for the Faculty of Education at UEM?*" The description of the design and development of the post-graduate programmes in the faculty, and the opinions of Mozambican staff and their Dutch counterparts show that the curriculum of the programmes had internal and external consistency. Internal consistency was aimed for through the alignment of all aspects of the curriculum, including the results of the needs assessment, the formulation of professional and graduate profiles, the choice of content, and the design of learning environments (cf. Kessels, 1999). It was mostly the role of the designer-researcher, in collaboration with the Dutch curriculum expert and in communication with the Working Group for Curriculum Development (GTDC) to guarantee the internal consistency.

External consistency was maintained throughout the design and development process by using a communicative approach (Visscher-Voerman, 1999), for example through repeatedly reconfirming decisions that had been taken already on curriculum aspects and extensively discussing new steps with all staff.

Design, development, implementation (and evaluation) of a curriculum as an educational intervention are never logical steps that neatly follow one another. During the development phase, described in this chapter implementation issues were addressed as well, especially in relation to the involvement of staff. Kessels (1999) states: "The relational approach in curriculum design finds support by a continuous concern for implementation"(p. 65). Curriculum development meant also staff development. Based on the opinions of the actors during the working visit in March 2001, Mozambican staff could be characterised in their involvement in the implementation of a competence-based curriculum as on their way from (in terms of the model of De Feiter et al, 1995) the mechanical stage to the routine stage of development. This does not imply a judgement on the capacity of Mozambican staff, as well as a direction for development activities. In the model of de Feiter et al. (1995) some directions are given such as continued training and increasing of confidence of teaching staff. This was done through the activities of the Study Group and the various workshops. A principle of 'pressure and support' was applied as well (cf. Fullan, 1985) where pressure came mainly from the Dutch counterparts and designer-researcher. This sometimes conflicted with the deliberative, 'constructivist' approach, when the Dutch (and the designer-researcher) took initiative too soon and did not give time to the Mozambicans to construct their own solutions to the problems they encountered. Support, on the other hand was available and was given through the workshops, resource materials and assistance at personal level.

The socio-political aspects of the curriculum development process have been analysed in this chapter in the 'intermezzos'. The analysis is summarised in the research question: "*What conditions and activities have influenced the development of a competence-based curriculum for the Faculty of Education at UEM?*" This question includes the role of the various actors in the curriculum development process.

Conditions and activities that influenced the development process were:

- *Finances.* Although the UEM had started regular funding of the faculty this proved far too little for the start-up activities and the curriculum development process. In its contacts with NUFFIC, the Dutch donor of various start-up activities, the IC did not manage to get a smooth system going of transfer of funds, despite some training sessions by NUFFIC financial experts in Maputo. This hampered seriously a proper planning and resulted, amongst others, in the cancelling of a stakeholders seminar after the needs assessment.
- *Staffing.* Although after early workshops in the development phase it was concluded that staff still had a 'sub-critical mass' there had been recruited enough staff in January 2001 to secure the starting of the post-graduate programmes in August 2001.
- *Administrative structure.* Despite the pressure from the Dutch counterparts and the Dutch donor, no more clarity was provided about the administrative structure of the faculty. The only events marking some progress were the official (re-) opening of the faculty and the appointment of the Dean. The fact that the University Council (and the Rector) were rather outspoken in their criticism of having non-doctorate staff in charge of departments and educational programmes, did not help the establishment of a formal administrative structure. On the other hand the University Council (and Dutch counterparts) warned that having all power and responsibilities in one person (the Dean), would be too much for such a complicated process as the setting up of a new faculty.
- *Co-operation projects through MHO.* In the comments of external evaluators on the project proposals submitted to NUFFIC, some threats and weaknesses were identified. It was decided to have a mid-term review done after a year in order to monitor closely if the faculty would satisfy the criteria of quantity and quality of staff and of a proper administrative structure. The mid-term review took place but not much monitoring was done in between.
- *Infrastructure.* Some building activities took place during the development phase, mainly in reconstruction of existing space. When the faculty started in August 2001, there was one classroom, a meeting room that also served as library, an office for the secretary, an office for the Dean and one staff room.
- *Communication.* Throughout the development phase the Dutch counterparts kept asking for a proper (more or less formalised) communication structure. Internally

some staff of the faculty queried the lack of communication between IC and other staff. Although several times a communication structure was promised, nothing materialised. This could have been caused by the difference in conceptions and beliefs on the role of communication between Mozambicans and Dutch. The Dutch culture could be characterised by low context communication in which most things are explicitly stated and product is more important than process (cf. Hall, 1983). The Mozambican culture is much more characterised by high context communication, where a lot of information is in the context.

- *Staff development.* Cultural differences in thinking about communication might be made plausible, but the lack of activity in planning staff development is more difficult to explain. It seemed as if all initiative was left to staff themselves without proper steering by the leadership of the faculty and the principle of 'pressure and support' was not applied in this matter.
- *Study visits.* The fact that the trip to Brazil did not lead to any outcomes confirms the statement, made in Chapter 6, that the beneficial effect of these trips on the development of the faculty and its curriculum was 'not clear'.

The role of the various actors in the curriculum development process can be summarised as follows:

- *The UEM leadership.* During the development phase there was no direct intervention of the UEM leadership in the curriculum development activities. The faculty was re-opened (after the decision was withheld for some time) and the Dean appointed. The Academic Council applauded the curriculum proposals and the University Council approved the plans for the faculty, although with some critical notes. The opportunity to use the innovative curriculum plans of the faculty and the development process as an example for curriculum reform in other faculties was not grasped, although the Academic Council made some recommendation in this direction.
- *The Installation Commission.* The active part of the IC diminished during the development phase to three members that had formed the Working Group on Curriculum Development (GTDC). The frequency of meetings reduced gradually during the development phase. An IC of this size, with only one member having an official status in the faculty, had hardly the capacity to manage the many development issues. In terms of curriculum development, most was left to one member of the GTDC, the designer-researcher. The GTDC met only once during the development phase.
- *The staff of the faculty.* As mentioned in the intermezzos, staff continued to work with enthusiasm and motivation, although with some caution in adopting the innovative character of a competence-based curriculum. They worked together

in workshops and during sessions of the Study Group on equal level but showed a well developed sense of hierarchy when dealing with the IC or their Dutch counterparts. On the other hand they felt that they were professionals that should not be treated by the Dutch experts as 'pupils'. After the working visit to the Netherlands staff, that had until then worked together in the Study Group, began to operate more separately in their own programme group.

- *Dutch partners.* At the end of the development phase all staff had been in contact with their Dutch counterparts. Some of the Dutch partners joined the process at the last moment and suffered a little from a lack of information about the curriculum plans of the faculty. The Dutch counterparts, coming from three different universities and representing different areas of expertise, operated within the curriculum as formulated by the faculty. However, it was unavoidable that also own experiences and ideas were tabled and included in the plans for the three post-graduate programmes.
- *Designer-researcher.* The situation that was observed at the end of the design phase (see Section 5.7.2), where the main curriculum design and development activities were left to the designer-researcher, continued during the development phase. The designer-researcher was responsible for three curriculum development workshops, the co-organisation of the working visit and assisted staff during the elaboration of course outlines. During the last stage of the curriculum development phase, after the working visit, the direct involvement of the designer-researcher diminished because the planning of courses in the three educational programmes was done in three groups and not anymore in the Study Group.

CHAPTER 8

The curriculum in operation: implementation of the common core part of the post-graduate programmes

After the design and development of the curriculum, as described in the two previous chapters, the three post-graduate programmes started in August 2001. In this chapter the implementation of the common core part of the curriculum will be reconstructed and analysed, covering the period from August 2001 to May 2002.

The chapter is structured in four parts. The first part (sections 8.1 and 8.2) describes the research questions that are based on the three lenses or viewpoints that have also guided the analysis in the previous two chapters, and the set-up of the evaluation of the 'curriculum in operation'.

The biggest part of the chapter (Sections 8.3 to 8.6) addresses the substantive aspects of the curriculum implementation. This part contains the results of the evaluation, based on the description and analysis of ten curriculum aspects (Section 8.3) and the attention for the development of generic competencies (Section 8.4). A reflection on the expected immediate outcomes of the educational programmes is given in Section 8.5. The part ends with a conclusion about the substantive aspects of the curriculum implementation (Section 8.6), and addresses in particular the question how competence-based the 'enacted' curriculum was, using a list of characteristics of competence-based education. In Section 8.4 special attention is devoted to the integration of generic competencies in the curriculum. The section addresses as well the students' self-assessment of a number of generic competencies.

The third part of the chapter addresses the evaluation (through reconstruction and analysis) of the procedural aspects of the curriculum implementation. Section 8.7 addresses the technical-professional and Section 8.8 the socio-political aspects of the implementation process.

In the last section, 8.9, a general conclusion is presented.

8.1 INTRODUCTION

Although the three post-graduate programmes had, next to a common core, also a specialisation phase and involved research projects of the students, the emphasis in this study will be on the common core part. This, because the designer-researcher was fully involved in the design, development and implementation of this part – although over time less as designer and more as researcher from the sideline. Another reason to concentrate on the common core part is the focus on the development of generic competencies during this phase. It was assumed that in later phases the development of generic competencies would continue, but not specifically 'taught' or addressed in the courses. "A distinction can be made between the acquisition of generic competencies and their utilisation. During both phases continuous development will take place. Acquisition will be emphasized during the Core part of the post-graduate programme while in the later specialization phase the utilization and further development will take place" (UEM, 2001, p. 8).

The reconstruction and analysis of the implementation of the common core part will be done from the three points of view or 'lenses' that have also been used in the previous two chapters. The first part of this chapter will, therefore, address substantive aspects of the implemented or 'enacted' curriculum. The analysis of the substantive aspects is guided by the following research question:

What are the characteristics of the implemented competence-based curriculum in the context of the Faculty of Education at UEM, as operationalised in action by the staff and experienced by the students?

The immediate outcomes of the curriculum, measured through the characteristics of the graduates of the educational programmes, are represented in the assessed curriculum. The accompanying research question is:

What is the quality of the graduates of the competence-based curriculum in the Faculty of Education at UEM?

As explained before, this question cannot be answered directly, because the data collection for this study stopped after students had gone through the common core part of the curriculum. However, from interviews with students on the impact of the curriculum on their functioning as educational professionals, as well as the students' self-assessment of the development of generic competencies some inferences could be made about the immediate outcomes.

Apart from addressing the question how the enacted curriculum looks like, it should also be analysed how the enacted curriculum differs from what was aimed

for originally (in the intended curriculum) or what was described, perhaps prescribed, in the formal curriculum. The analysis could also serve to explain why deviations occurred on the way to a competence-based curriculum for the faculty.

The curriculum implementation process plays an important role in this analysis. The process aspects of the curriculum implementation will be reconstructed and analysed through technical professional and socio-political points of view. The related research questions are:

What procedures and principles have been followed during the implementation of a competence-based curriculum for the Faculty of Education at UEM?

and

What conditions and activities have influenced the implementation of a competence-based curriculum for the Faculty of Education at UEM?

The analysis of the implementation process will also enable the verification of the implementation hypothesis that was discussed in chapter 5:

Implementation of a competence-base curriculum along the guidelines P_1, P_2, \dots, P_n will result in competent educational professionals.

General guidelines have been discussed in section 4.4.3 on managing change. More specific guidelines will follow from further analysis of the whole design, development and implementation process, as is done in chapter 9.

In brief, the chapter is structured along the following questions:

A. Substantive questions

1. *How does the enacted curriculum look like and what are its results?*

- Characteristics of the operational and experienced curriculum, in ten curriculum aspects (Section 8.3).
- The role of generic competencies in the enacted curriculum (Section 8.4).
- Some inferences about the immediate outcomes or 'assessed curriculum' (Section 8.5).

2. *How does the enacted curriculum differ from the intended curriculum?*

- Assessment of the enacted curriculum on CBE characteristics (Section 8.6)

The reconstruction, analysis and reflection related to substantive aspects of the curriculum implementation has also the character of a formative evaluation. This formative evaluation restricts itself to an evaluation of the common core *as a whole* and will not address in detail formative evaluation of the respective courses. The evaluation focuses on the competence-based characteristics of the courses and general principles and procedures of course design. Nevertheless, some observations and comments on specific courses appear in the part of this chapter

that deals with the substantive aspects of the curriculum implementation. They lead sometimes to specific recommendations that are clearly indicated in the text (indented paragraphs with italic text).

B. Process questions

3. *How was the implementation of the curriculum done?*
 - Introduction of students into CBE (Section 8.7.1).
 - Views of students on implementation issues (Section 8.7.2).
 - Views of staff on implementation issues (Section 8.7.3).
 - Technical-professional aspects of the curriculum implementation (Section 8.7.4).
4. *What role did the various actors play in decision making and managing the implementation of the common core?* (Section 8.8)

C. Conclusion

5. *What can be concluded about the implementation of the common core part of the post-graduate programmes in the faculty?* (Section 8.9)

8.2 DATA COLLECTION INSTRUMENTS IN THE EVALUATION OF THE COMMON CORE IMPLEMENTATION

Figure 8.1 outlines what data were collected at what times. Only in the case of staff conceptions on competence-based education the collection took place in June, after the common core part had ended. As can be seen from Figure 8.1, the data collection has been categorised under general curriculum aspects, generic competencies, and conceptions of staff and students about competence-based education. In some cases the data obtained through one instrument were used for the analysis of different product and process aspects of the curriculum implementation. In Section 8.2 an overview is given of the instruments that were used for data collection and of the use of the data for various purposes.

| | August 2001 | | October 2001 | | December 2001 | | January 2002 | | March 2001 | | May 2001 | |
|-----------------------------------|-------------|---|--------------|---|---------------|---|--------------|--|------------|---|----------|-----|
| Curriculum | | | | | | | | | | | | |
| ■ Interviews | | x | | x | | | | | x | x | x | |
| ■ Observations | | x | | x | | | | | x | x | x | x x |
| ■ Documents | x | x | | x | | x | x | | x | | | x |
| ■ Course evaluation | | x | | x | | x | | | x | | x | x |
| ■ Evaluation Common Core Part | | | | | | x | x | | x | | | |
| Student interviews | | | x | | | x | | | | | | x |
| Generic competencies | | | | | | | | | | | | |
| ■ Introduction | x | x | | | | | | | | | | |
| ■ Self assessment by students | | x | | | | | x | | | | | x |
| ■ Specific activities | | | | x | x | | x | | x | | | |
| Competence-based Education | | | | | | | | | | | | |
| ■ Conceptions staff | | | | | | | | | | | | x |
| ■ Conceptions students | | | | | | | | | | | | x |

Figure 8.1. A time line of the collection of data during the common core part

In Table 8.1 an overview is given of the instruments for data collection and their use in the analysis of product and process aspects of the implementation of the curriculum during the common core part of the post-graduate programmes.

Table 8.1. *Data collection instruments and their use in analysis and reflection*

| Instrument | Document | Substantive aspects of the curriculum implementation | | | | |
|---|----------------------------------|--|----------------------|---------------------|------------------------|-----------------|
| | | Ten curriculum aspects | Generic competencies | Assessed curriculum | Technical-professional | Socio-political |
| Interviews of staff | App. 8.1 | ✓ | ✓ | | | |
| Observations of 'classes' | App. 8.2 | ✓ | ✓ | | | |
| Course evaluation by students (questionnaire) | App. 8 | ✓ | | ✓ | | |
| Evaluation of common core by staff (questionnaire and discussion) | App. 8.3 App. 8.4 App. 8.5 | ✓ | ✓ | | | |
| Self-assessment of generic comps. (questionnaire) | App. 9 App. 8.6 App. 8.10 | | ✓ | ✓ | | |
| Staff on CBE (questionnaire and group discussion) | App. 8.7 | | | | ✓ | ✓ |
| Students on competence and on CBE (questionnaire) | App. 8.8 | ✓ | | | ✓ | ✓ |
| Interviews of students | App. 8.9 | ✓ | ✓ | ✓ | ✓ | |
| Field notes | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Course documents | Document database | ✓ | ✓ | | | |
| Other documents | Document database | | | | ✓ | ✓ |

Note: App. means appendix.

A brief description of the instruments follows below.

Interviews with staff

The interviews with staff, sometimes together with their Dutch counterparts, were held in a semi-structured way according to a number of guiding questions presented in Box 8.1, below. Other points could also be discussed, when appropriate, during an interview.

Box 8.1. *Guiding questions for staff interviews on courses in the common core*

1. What have you done until now?
2. What is your feeling about the course thus far?
3. What are your experiences with the students?
4. What are the plans for the rest of the course?
 - Content.
 - Methodology.
 - Assessment.
5. In what way are generic competencies integrated in the course?
6. Did you already elaborate a course outline ('analytic plan')?
7. How will you arrange the evaluation of your course by students?

A summary with a first 'data reduction' (cf. Huberman & Miles, 1998) can be found as Appendix 8.1. Also indicated in this summary are the dates of the interviews and if Dutch partners were present during interviews. In total 10 interviews (sometimes more discussions were held with staff of five core courses. In the case of the ICT course the staff member responsible for this course was the designer-researcher. He produced an extensive report on the course (see Appendix 8.14). For three other courses no opportunities were found to interview staff.

Observations of classes

Observations were done at intervals in a number of courses by attending classes and making notes on the role of content in the session, the activities by staff and students (learning environment) and the use of audio-visual aids. A summary with relevant parts of the observations can be found as Appendix 8.2. Eleven times observations took place in a total of seven courses. For one course, the ICT course, see the remark above. Due to time constraints it was difficult to do observations in the course 'Sociological and Anthropological Aspects of Education in Mozambique'.

Course evaluations by students

Course evaluations were done with a similar instrument in six courses. The evaluations were an initiative of the designer-researcher and the development of the instrument was done in collaboration with the Working Group on Generic Competencies. Three courses did not respond to the invitation to use the common instrument. One course apparently did a course evaluation in a different way, but the designer-researcher was not informed about the results.

The instrument, a questionnaire, was covering the first three of Kirkpatrick's (1998) four levels of evaluation, in the context of training programmes. The first level, according to Kirkpatrick (1998) involves 'reaction', measuring how participants felt

about a training programme. The second level measures the learning of participants in all three domains: cognitive, psycho-motor and affective. Level three evaluation measures the change in behaviour, or the direct impact of a training activity on the professional life of participants. The final level involves an assessment of the outcomes of the training for the organisation (for example, in terms of increased productivity, increased student progression rate, etc.). This level corresponds to the causal hypothesis, earlier presented in Box 5.1. It can only be measured after a programme has been going on for some time and was, therefore, not included in the course evaluations.

The course evaluations also contained a number of questions about the performance of the teaching staff. A summary of the evaluations of six courses is given in Appendix 8. Because the designer-researcher did not have a direct influence on the return of evaluation forms, the return rate fluctuated. In case of the courses Educational Administration & Management, and Design Methodology the results have to be used with caution because the few students that returned their evaluation form could have been the 'loyal' students, causing a bias in the overall judgement on the course.

Evaluation of first part of common core by staff

Formative evaluations of the common core curriculum by staff took place in December 2001 and February 2002. Almost at the end of the first part of the common core (beginning of December 2001), the Dean called a meeting of staff (see Appendix 8.3) involved in teaching courses in the first three blocks of the common core. The meeting was meant to provide him with input for a report that he had to present to the College of Deans. About a week later the designer-researcher organised a 'reflective get together' (C10, 2001) for staff interested in the implementation of the curriculum of the masters programme. The session aimed at:

- sharing experiences on various aspects of the curriculum (teaching, learning, assessment, generic competencies);
- reflecting on differences and similarities in the experiences;
- formulating conclusions and recommendations for the courses of blocks 4 and 5;
- formulating conclusions and recommendations for the organisation of the common core for the second edition of the programme.

A short questionnaire had been sent out before the get together, which was returned by four of the five lecturers responsible for the courses in block 1, 2 and 3. The results of this questionnaire served as a starting point for the discussions. The report of the reflection session can be found in Appendix 8.4. Based on this report a more formal meeting was held in February 2002, where assessment, student performance, logistics and student fees were discussed (see Appendix 8.5).

A final evaluation of the common core did not take place. The designer-researcher had at that stage no influence any more on the decision taking and management of the curriculum implementation. The leadership of the faculty and definitely the staff were probably too occupied with the courses of the specialisation phase for the three educational programmes that started immediately after the common core part.

Self-assessment of generic competencies

The aim of the self-assessment of generic competencies by students was to get an indication of the level of development of generic competencies. By administering the instrument three times, at the beginning, halfway, and at the end of the common core, the development of generic competencies could be depicted as well as the impact of the curriculum. At the same time students would be able to reflect their own development status in terms of generic competencies using the instrument. The instrument consisted of 45 items related to ten generic competencies (see Appendix 9), on which students had to indicate their level of competence (on a six-point Likert scale where 1 meant 'totally incompetent' and 6 'totally competent'). The list was loosely based on the description of the Australian 'key competencies (e.g.

http://www.tafe.sa.edu.au/vet_div/irsi/key_comp/htm/kcdfin/kcdefine.html)

and other literature (cf. Everwijn, 1996). From the original list of ten generic competencies (in the curriculum document) 'ethics' was excluded, because it was not certain whether this competency would be addressed and there was still uncertainty about the 'status' of ethics as generic competency. For another generic competency, ICT-competency, a separate questionnaire was used (see Appendix 8.6), adapted from the Mankatho Staff IT Competency Scale, in turn adapted by Bellingham Public Schools District in South Africa

(<http://www.school.za/edict/evaluate/mankato.htm>) and the results joined with the results of the other competencies. Two competencies were added, that did not appear in the original list: statistics and English. The average results per competency were plotted on a 'radar-type' chart, giving a competence profile that could easily be read by students (see Figure 8.2 in Section 8.4.3). The results of the first 'measurement' in which 33 students participated (from a total population of 35) were presented to the students. Students had kept a copy of their own questionnaire and were encouraged to use the results to create an individual competence profile. A handout was made available to the students on the use of Excel to create the profile in the form of the radar-type chart with help of the Excel programme. Using Excel to create their generic competence profile the students fulfilled as well part of the requirements of the basic ICT course. The exercise was repeated in December 2001 (28 respondents) and in May 2002 (24 respondents). The

last time a number of other questions, on the conception of competence and competence-based education, were added to the instrument. There were 19 students that completed all three times the questionnaire and, therefore, could be used for a comparison of the development in generic competence throughout the common core. Four students participated only once in the self-assessment exercise. One of them withdrew soon after the start of the educational programmes, two other students were often absent from activities. Fourteen students missed one self-assessment exercise, because of various reasons. The nineteen students that completed the self-assessment all three times were representing the educational programmes in almost equal proportion, as shown in Appendix 8.10. Comparison of the average scores of the nineteen students with the average of all respondents at the three self-assessment moments does not show significant differences. Therefore the results of the nineteen students can be taken to be representative for the whole student population of thirty-five students. A further discussion of the results can be found in Section 8.4.3.

Opinions of staff on competence-based education

At the end of June 2002, the designer-researcher organised a last, farewell, seminar before his departure to the Netherlands. During the seminar he asked staff to answer individually five questions about the implementation of a competence-based curriculum in the Faculty of Education. Thereafter, some questions were discussed in groups. The results of the exercise are discussed below (see for the complete report Appendix 8.7). Eleven staff participated in answering and discussing the five questions.

Student conceptions of competence and competence-based education

At the end of the common core part of the masters programmes (May 2002) students completed once more a self-assessment instrument on generic competencies. Added to this instrument were a number of questions on the competence concept and on competence-based education. The answers of 24 students are summarised in Appendix 8.8.

Interviews of students

A purposeful selection (cf. Patton, 1987) of students was interviewed at three moments during the common core part of the Masters programmes: a few weeks after the programme had started, after the second block, and at the end of the common core. The original choice was to interview two students from each educational programme, one male and one female. The lecturer of the first core course was asked to give advice on which students would be suitable as providers

of 'rich information' (Patton, 1987). One student only participated in the first round, while in the second and third round a new student was interviewed that had offered himself as a rich source of information (which was verified in a preliminary session and through consultation of knowledgeable staff). Table 8.2, below, gives an overview of interviews and informants. The table shows that it has not been possible to interview all students at all three moments.

Table 8.2. *An overview of student interviews*

| Student | Pro-gramme | Gender | Age | Occupation | Sept. 2001 | Nov. 2001 | Apr.2002 |
|---------|------------|--------|-----|---|------------|-----------|----------|
| 1 | SME | F | 42 | Head of secondary school | ✓ | ✓ | ✓ |
| 2 | SME | M | 40 | Lecturer at UEM | ✓ | ✓ | |
| 3 | CID | F | 36 | Researcher INDE | ✓ | ✓ | ✓ |
| 4 | CID | M | 42 | Lecturer Military College | ✓ | | ✓ |
| 5 | AE | F | 39 | Lecturer Agricultural College | ✓ | ✓ | ✓ |
| 6 | AE | M | 39 | Trainer at teacher in-service institute | ✓ | | |
| 7 | AE | M | 53 | Director human resources of Postal Services | | ✓ | ✓ |

Note: The acronyms for the programmes mean:
 SME: Science and Mathematics Education;
 CID: Curriculum and Instruction Development;
 AE: Adult Education.

The aims of interviews with a number of students were:

1. To get more insight in what the educational programmes (in the common core part) would do with the students, that is, how they would develop various competencies and what would be the immediate impact of the common core courses on their professional life.
2. To provide extra data that would allow a triangulation of data for the evaluation of the common core part of the curriculum, as one aspect of the analysis of the curriculum implementation.

All interviews were semi-structured and the interviewer adhered to the questions that had been formulated in advance as far as they did not disturb the flow of the interview. In brief, the topics discussed during the interviews were the following:

First round of interviews (September 2001):

- The background of the student. This involved the educational and professional history.
- The reasons for starting the masters study.
- Problems encountered in the professional practice, impact of the programme on professional practice, competencies developed through the programme.
- Evaluation of the first core course along the lines of Kirkpatrick (see above, under 'course evaluation by students').

Second round of interviews (November 2001):

- Activities during block 2 of the core programme.
- Appreciation for the courses from block 2.
- Perceived differences in approach in the two block 2 courses. In both courses participated lecturers from outside the faculty, in one course lecturers from the Faculty of Social Sciences at UEM, in the other courses Dutch experts and guest-lecturers from South Africa.
- Learning gains from the courses of block 2.
- Immediate impact of the courses on the professional practice.
- Development of competencies.

Third round of interviews (April 2002):

- Evaluation of the common core along the lines of Kirkpatrick.
- Criticism on various aspects of the common core curriculum.
- Relevance of the common core.
- Development of competencies.

All interviews were recorded. Afterwards transcripts were made by simultaneously translating and summarising the interviews. Further data reduction took place by coding the interview protocols, with the 'topics' mentioned above as guides for coding (cf. Huberman & Miles, 1998). The results of a first data reduction of the student interviews can be found in Appendix 8.9.

Field notes

During the common core the designer-researcher kept a 'research diary' with field notes, including observations, notes on informal conversations, personal reflections and notes on the collection of data.

Documents

Various course documents were collected, as well as other documents. As mentioned before the document database gives an overview of documents and dates. Documents involved mainly course outlines of most courses and examples of assignments, tests, etc. The provisional Deputy-dean distributed, early September

2001, guidelines for a report to be made after a course would have finished (IS2, 2001). This initiative was not given a follow-up and only the ICT-course produced a full report, including evaluation and recommendations for course revision.

8.3 ASPECTS OF THE OPERATIONAL AND EXPERIENTIAL CURRICULUM

The analysis of the substantive aspects of the implementation of the common core part of the curriculum of the post-graduate programmes in the faculty starts with addressing ten curriculum aspects of the operational and experiential curriculum (cf. Van den Akker, 2003). An eleventh aspect, generic competencies, is addressed in Section 8.4. The data were obtained from interviews of staff, observations of classes, documents, course evaluations by students, interviews of students and evaluation of the first part of the common core by staff. An overview of the data collected in eight of the nine courses is given in Appendix 8.15. It was not possible to collect data on the course 'Sociological and Anthropological Aspects of Education in Mozambique', because of time constraints and difficulties in contacting the lecturers of the course. Nevertheless, some information on this course was obtained through interviews with students.

Student interviews are not indicated in Appendix 8.15, but will be included in the analysis of curriculum aspects, because they covered almost all curriculum aspects (content, learning activities, role of teaching staff, materials and resources, ways of grouping, time, space, assessment, and generic competencies) and evaluation of several courses. The first interview concerned the course in Learning and Instruction, the second interview addressed the courses in Adult Education and Sociological and Anthropological aspects of Education in Mozambique, while the third interview covered the common core in its entirety.

Rationale and goals/objectives

In six of the nine courses of the common core a course outline was ready when the course started or came available during the course. Table 8.3 summarises the results of a number of questions related to rationale and objectives of the courses and course outlines

In most of the courses a rationale for the course was given, as well as objectives (in the form of intended learning outcomes or competencies). In two cases the outline was also given to the students. In two other cases the information, given during the first session of the course included the rationale and objectives or only the

objectives. For two courses no information was available of the presentation of rationale and objectives of the course to the students. Competency standards were only mentioned (partly) in the course outline for the ICT course.

Table 8.3. *Some questions on course outlines of six core courses*

| | AE | EMA | CTD | Statistics | ICT | Research methodology |
|--|-----|-----|------|-------------------------|--------|----------------------|
| Were rationale and objectives given in the course outline? | Yes | Yes | Yes | Yes | Yes | Only objectives |
| Were course outlines given to students? | Yes | ? | Info | ? | Yes | Info |
| Were competency standards given in the course outline | No | No | No | Mentioned but not given | Partly | No |

Note: AE: Adult Education;

EMA: Educational Management & Administration;

CTD: Curriculum theory & Development;

?: No information available;

Info: No course outline given to students but information on rationale and objectives was provided during the first session of a course.

Content

In Section 7.10.2 in the previous chapter an assessment of the outlines of four courses led, amongst others, to the observation that not all courses had a content that was strongly aligned to the graduate profiles that followed from the needs assessment. It was also argued that competencies that were not covered by the needs assessment could be added, based on the expert view from the professional field.

In two more technical, auxiliary courses, statistics and research methodology, the link with a needs assessment was less clear. From observations of the first sessions of these courses it became clear that content had been chosen first and then the relevant course objectives sought that would cover this content.

The role of theory that would be necessary to understand professional practice was emphasised by staff of two courses in the interviews. Staff of the course 'Educational Management & Administration' stated that the basic idea would be to introduce the theory as a means to explain practice. In the Statistics course a more classical/traditional approach was applied: starting with a theoretical part, followed by practice with help of a computer programme (SPSS, Statistical Package for the Social Sciences).

In the evaluation of five courses, the majority of the students (83%) mentioned the content of the courses as one of the aspects they liked most (see Appendix 8). In the

evaluation of the course 'Design methodology' content was mentioned by relatively few students (4 out of a total of 14 [29%] respondents). A valid explanation for this is difficult because of the low response rate in this evaluation. A noteworthy observation concerned an overlap between the course Learning & Instruction and the course Design Methodology. This signified probably a lack of conceptual clarity with the students.

*However, it should be **recommended** to carefully analyse the aims, content and assignments of both courses and see how unnecessary overlap could be replaced by an effective integration of the concepts from both courses.*

In the interviews with a selection of the student population (see Appendix 8.9) the image appeared of students with a great hunger after knowledge and of the opinion that everything they learned would help them in their professional life. In the student evaluations of six courses the content of these courses was judged relevant. Students gave as reasons that they learned many new concepts and developed their competence through the courses. This was confirmed by the interviews. Students liked, for example, in the course on 'Adult Learning' the revelation that learning of adults is different from learning of children. And that Adult Education is more than literacy work only. One student said: "I realised that I am working with adults and that the concepts of adult learning are also important for my work."

Learning activities and role of teaching staff (learning environments)

In all of the eight courses that were analysed the lecturers tried to encourage active and co-operative learning by the students. The usual pattern was that, after a brief theoretical introduction, students would, in groups, work out assignments. Lectures were thought necessary by some lecturers to introduce basic concepts, but also to give guidance to the students. Sometimes students had to prepare presentations about the theory that served as 'lectures'. In one course (Multi-media and ICT) students were more autonomous. They could compose a learning programme for themselves by choosing certain assignments, adding up to an acceptable competence level. In the evaluation of this course some students (6 of 28 respondents) indicated that they did not like the methodology used in the ICT course. Apparently some students felt uncomfortable with the approach in which they were regarded as autonomous learners from the start, and wished more guidance by the lecturer. The lecturer himself observed that the course had a rather chaotic start, partly caused by the lack of computers and the problems with access to the computer room, and that students had to get used to the idea of working independently.

*A **point of discussion** for the next edition of the course would be if each module should start with an plenary introduction including, for example, the demonstration of software, or if more should be done to teach students to be problem solvers.*

Staff, when interviewed, expressed the opinion that students lacked competence in 'critical thinking' (cf. C12, 2001). The staff member that was responsible for the Curriculum Theory and Development course observed that students did not have the ability to systematise and put matters in a theoretical framework. It was also noted that students did not read assigned literature, nor were able to search for literature, which was aggravated by the fact that most literature was in English and students had difficulties with reading large scientific texts in that language.

Staff said that they tried to encourage a greater independence by the students. A lecturer of the Adult Education course remarked that students still seemed to suffer from the past where they were always told what to do. In the Curriculum Theory and Development course the lack of ability to reflect on practice in terms of the 'curriculum jargon' was remedied by the use of advanced organisers where the curriculum jargon was already introduced and key concepts were pointed out.

Observations of classes in various courses confirm the student-centred intentions of the teaching staff. This did not always imply autonomous student learning. A new staff member remarked that her first impression of classes was that there was a certain 'monotony' in teaching methods, in the sense of the same sequence of lecturing, group work, presentation of results and discussion. Nevertheless some variation could be observed, for example in courses where a case study or a project was used. In general the discussions were not very 'scientific' and deep and were characterised by a strong relation with the professional experience of the students. Opportunities to integrate research (and design) in the courses were not used and research remained often a separate entity, belonging to the course on research methodology, the last course of the common core. However, staff, in the reflection on the first half of the common core,

suggested to start at an early stage with the introduction of elements of the research process, and develop a clear learning trajectory for research competencies.

This could involve instruction and practice in literature search, formulating research questions, conceptualising problems, etc.

Students, in the course evaluations, mentioned the teaching methods and organisation of the courses as something they liked most. In the interviews students mentioned the group work and discussions that were frequently used in courses. They felt that through group work students helped each other to clarify concepts, and to solve language problems, because the textbooks in use were written in English. On the most theoretical of the core courses, 'Sociological and Anthropological Aspects of Education in Mozambique', one interviewed student remarked: "Sometimes the lecturers want to talk a lot, and there is no opportunity for discussion." Nevertheless, in general terms students, in the interviews, appreciated the courses for the opportunities to think, reflect and give 'academic'

answers on educational problems. One interviewed student said: "It was worthwhile to feel as if we never had gone through a University. We learned many new things in a new context using new, different methods."

Students also applauded the student-centred attitude of staff. Notable in the course evaluations was the appreciation of the behaviour and attitudes of lecturers in the more 'technical' courses, despite the criticism on certain aspects of these courses. Staff performance in the six courses evaluated by students was rated from 3.4 to 3.8 on a four-point scale (1 meaning low performance and 4 high performance).

In the evaluations of six courses by students no remarkable differences were observed between the courses. Students liked these courses and found them not too easy and the tasks/assignments more or less demanding. However, many students commented about the lack of freedom and time for independent work, due to the barrage of learning activities that the staff presented to them (see also below, under 'time'). On the methodology used in one course a student remarked: "Not all lecturers treat students as adults. There should be more time for independent work and for reading. I like the system of workshops. Thus, a rich discussion, followed by reading. In the course everything appears to be a little fragmented. This course was very different from the others."

Materials and resources

Probably every programme that starts from nothing will be confronted with logistical problems in its first year of implementation. This was not different for this faculty. An extra difficulty was the lack of financial resources and the absence of a well functioning and transparent management of the finances at various levels in the university. This hampered a proper preparation in terms of materials and resources for the realisation of the educational programmes as well as the possibility to respond adequately to problems encountered during the implementation.

In the interviews staff mentioned for three of the five courses a lack of textbooks, the fact that students could not use the library, the lack of photocopying facilities and the lack of computers and access to the Internet (cf. C11, 2001). In the evaluation of the first half of the common core staff recognised that students had started in an environment with lack of resources (books, computers), a deficient classroom, no possibility to buy drinks or food, etc. The ICT course had to be rescheduled and redesigned because in the first two weeks of its running there were no computers available for the students, while access to the Internet was only realised three months after the course had finished. During the first year of running the educational programmes the situation in terms of materials and resources improved considerably. Students also complained about the lack of books and

other literature and the lack of computers in the first four months of the programme. On the other hand they realised that they were 'pioneers' and acknowledged the inevitable problems of a starting programme that required much in terms of materials and resources.

Class observations made clear that many students used the opportunity, when available, to make use of technology. All presentations by student groups were done with overhead projectors and soon many students prepared Powerpoint presentations that were shown through a data beamer.

Grouping

All courses in the common core were given for all students of the three programmes (a total of 35 students). The result was that in plenary discussions, that were often lively affairs, not all students got a chance to say something and often the same outspoken students took the floor. Group work compensated for this by facilitating the participation of all students. It was observed, however, that the composition of the groups often was the same in courses. One of the reasons, given by students, was that the groups regularly met outside the classrooms or the university to work on their assignments and that the convenience of living close by each other or having the same working hours determined the group composition. When groups had to present their work there were no guidelines or 'rules' on who should present, with the result that the group presenter was always the person that was most knowledgeable about the subject, or was the most proficient in English when there was a need to present in that language. While that, in itself, might be a good group strategy it prevented other less competent group members to practice their presentation skills and test their knowledge in the discussion.

Some students, commenting on group work in their evaluation of the last course, noticed the lack of commitment of some colleagues in group work.

*Because group work is done in a major part of the core courses, more reflection on the role of students and staff in co-operative learning seems **advisable**.*

Time

In the curriculum document (formal curriculum) the principle was outlined that students would have a maximum of 20 contact hours per week, 4 hours per day. This meant that students were expected to be on campus from about 14.30 to 19.00 hours on Monday to Friday. Lecturers planned the time allocated to their course full with prescribed activities (student-centred, but teacher-led). The curriculum document had stated: "During the last week of each block no new content will be offered. This last week can be used for final assessment activities" (UEM, 2001, p. 10). Nevertheless, several courses continued to teach, instead of leaving time to

students to work on assignments or study for tests (cf. C11, 2001; C30, 2002). The lack of time (or the overload of content) was mentioned by students in their evaluations for almost all courses. One of the last courses, on Design Methodology, had a more relaxed timetable with the result that students did not mention lack of time for that course. In interviews with students they expressed increasingly the wish to have more time for independent study and consultation of the library or the Internet. One student stated:

*"Next programme students should have at least half an afternoon free for individual work, that is, searching information or consulting a lecturer. There should not be only classes, classes, classes." This would become one of the **recommendations** for revision of the common core.*

In spite of the lack of time (perceived by students), it was observed that students were often absent from classes. No lecturer had ever had a class with all students. In the December month the situation seemed to be worse, because of commitments of students in their work (for teachers examination meetings at schools, etc.). The absence aggravated the late handing in of assignments (cf. C12, 2001).

Whether lack of time, felt by students, was caused by too much content in the courses or by the problems that students had in adapting to an academic environment is difficult to decide based on the experiences of only one group of students.

*It seems, therefore, **advisable** to closely monitor the experiences of students of the second group that started in August 2002. In any case it is important to reflect on this aspect of the operational curriculum in relation to the intentions of a competence-based curriculum where students should be responsible for their learning and development and autonomous learning should be encouraged.*

Space

No data were collected on space. The faculty started its programmes with a basic infrastructure in place. In an evaluation meeting by staff (C11, 2001) it was observed that the one classroom of the faculty was too small. There was also need for airconditioned classrooms, decent toilets and a student canteen. During the first year improvements were made and, given the circumstances of a 'poor' university that is for about half of its budget dependent on donor money, staff and students learned to 'survive'.

Assessment

Assessment in the educational programmes should start with the elaboration of a student profile, describing the level of domain-specific and generic competence of students before starting the programmes. Data for this profile could be obtained

from entry tests, interviews or diagnostic assessments at the start of the programmes. Staff, when evaluating the first half of the common core, concluded that the selection of students started too late. Because of lack of time interviews with the students only took 5 minutes, much too short to get the necessary details for a student profile.

*It was **advised** to start the selection procedure already in March.*

An overview of assessment methods in eight core courses is given in Table 8.4, below.

Table 8.4. Assessment in eight core courses

| | LI | AE | EMA | CTD | Stats | ICT | Design | Res. |
|-----------------------------|----|----|-----|-----|-------|-----|--------|------|
| <i>Formative assessment</i> | | | | | | | | |
| MC-tests | x | | | | | | | |
| Assignments (group) | | x | x | x | | x | x | x |
| Assignments (individual) | | x | | | | | | |
| Diagnostic tests | | | | x | | | | |
| Tests | | | | | x | | | |
| Peer assessment | | | | | | | x | x |
| <i>Summative</i> | | | | | | | | |
| Test (open book) | | x | x | | x | | | |
| Assignment(s) | x | x | x | x | | x | x | x |
| Essay | | x | x | | | | | |

Note: LI: Learning & Instruction;
 AE: Adult Education;
 EMA: Educational management & Administration;
 CTD: Curriculum Theory & Development;
 Stats: Statistics;
 Res.: Research Methodology.

Formative assessment involved in many instances group assignments. In the last two courses of the common core, Design Methodology and Research Methodology peer assessment was used to assess the performance of other groups. Usually a group would present its work, after which another group gave immediate feedback. The assessment involved not so much the content of the presentation as well as presentation and discussion skills, thus, more generic competence than domain-specific competence. Students, in their evaluation, indicated that they had missed a feedback, by the lecturer, on the whole peer assessment procedure. They wanted to know how they had done in their peer assessment. In general they felt comfortable with the method and would like to continue with it in other contexts. Some peer assessment was also done in the ICT course during an assignment on project management.

In most courses the final assignment had a relation with the professional practice of the students. In the Educational Management & Administration course the students had to analyse a case from a Dutch context, because the lecturer did not feel competent enough to modify it for the Mozambican context. Students in their discussion of the case emphasised the difference in teacher salaries as one of the important aspects of the case, while, in the Dutch context, salaries would not have been the issue, because teacher salaries are overall quite good in the Netherlands.

This shows the importance of using cases that relate to the own, Mozambican, context.

Although sometimes the assessment criteria were not known to students and rules and regulations were only ready in the second year of their study, they did not complain about the assessment in their course evaluations or in the interviews. Students seemed to take things as they came, putting all the responsibility for assessment with the lecturers of the course. In the interviews students asked for more co-ordination, especially on the assignments, between lecturers in one course when this course was taught by more than one lecturer. It was the general impression of the students that there was an 'overkill' of assignments, leaving no time for more reading and producing more profound work. Students criticised the overload of tests and examinations in one course, for which they even had to return to university on a Saturday morning. Many students spent a long time in finishing their assignments, causing their work to pile up as the common core progressed.

8.4 GENERIC COMPETENCIES

8.4.1 Introduction

In the curriculum document (UEM, 2001), representing the formal curriculum, 10 generic competencies were presented as important for the curriculum of the post-graduate programmes. Time (and credit-points) were allocated to the acquisition and development of these generic competencies, in total 170 contact hours, representing 28% of the total contact time in the common core part of the masters programmes. The generic competencies were distributed over the nine core courses and suggestions were given on how to address the acquisition and development of these competencies. In general an integration in the course content was advocated, with a gradual introduction in the form of 'learning trajectories' (cf. Poortman, 2001; Timmers, 2001). The responsibility for further course planning and the inclusion of generic competencies was laid with the staff that would teach the courses. The designer-researcher kept 'feeding' the staff with information and made himself available for assistance, when needed. In the first weeks after the start of the common core, he distributed once more extensive information on generic

competencies. This included an example of competency statements for generic competencies, performance indicators and suggestions for assessment (SS1, 2001). In the last meeting of the IC (IC33, 2001) it was decided to form a taskforce on generic competencies, the Working Group on Generic Competencies (GTCCG). More on the GTCCG can be read in Sections 8.7.5 and 8.8.

8.4.2 Generic competencies in the operational and experiential curriculum

In one of its first meetings the GTCCG discussed the role of students in developing their competencies and concluded there should be a balance between own responsibility (constructivist ideas) and the organisation of learning trajectories by staff. The generic competencies to be developed had been chosen already for the students, but they should have some freedom to choose which ones they would work on and at what pace. Elsewhere in this chapter the tension is discussed between the freedom for students in a learning environment for self-directed learning and the tendency of staff to direct the learning processes in order to be sure that desired results would be obtained (content would be covered).

Interviews with staff involved in teaching the core courses and observations made during classes in various courses led to the conclusion that in most courses generic competencies were not explicitly addressed. The low level of development of some generic competencies was noted, e.g. English proficiency in the Curriculum & Instruction course, and reflective competencies, communication in writing and information management in the Adult Education course, although it was also observed that students did not have much opportunity to practice. The lack of analytical skills was attributed to the educational history of the students, where opportunities for debate and arguments had been absent. This had suppressed the development of a critical attitude. Similar observations were mentioned in the reflection of staff on their experiences in the first half of the common core (see Appendix 8.4).

Staff stated their intention to assess the development of generic competencies in one or another form, but in practice assessment did not take place, apart from informal feedback on communication competencies. This shows that in most cases the development of generic competencies had not been integrated in the courses, probably because staff had to put all their effort in teaching (for the first time) the disciplinary content of the courses. In addition, it was probably easier for staff to use new teaching methods with (more or less) known content than to create learning environments that would promote the development of generic competencies.

Instances in which generic competencies were specifically addressed were:

- *Introduction of portfolio.*

The Working group on Generic Competencies (GTCG) introduced the portfolio in the session where also the first self-assessment of generic competencies took place (4 September, 2001). The portfolio was not made a requirement in the final assessment (C31, 2001) and the already overloaded students did not use it, neither did the staff encourage the use of a portfolio.

- *Reflection on role of staff and students in CBE.*

The GTCG organised a session (19 September, 2001) where reflection took place on the role of students and staff in competence-based education (see Appendix 8.13). The session was also used to provide students with extra information related to the portfolio, involving a guide for the writing of a self-assessment report. The third activity was a feedback to students of the generic competencies self-assessment that they had been done before.

- *Peer assessment.*

During the course on Adult Learning (October, 2001) students had to prepare, in groups, criteria (performance indicators) for Social Interaction and Leadership competencies. The GTCG made a summary of the group work and provided feedback to the students. The summary was used as a guide for a peer-assessment exercise of these generic competencies during the ICT course (see below).

As mentioned above peer-assessment (of communication competence) took place in the last two courses of the common core; Design methodology and Research methodology.

- *Ethics.*

A workshop on ethics was held on 19 October, 2001. Starting with a word-web (concept map) of 'ethics', the concept of 'professional ethics' was singled out and students worked out some guidelines/aspects of ethical behaviour.

- *Project management.*

A workshop on Project Management took place during the ICT course in November 2001, consisting of two sessions, one of 4 hours and one of two hours. It was decided to link the workshop to the final task of the ICT course in which students had to do a 'mini-project'. For more details see Appendix 8.11.

- *Other activities.*

During the second part of the common core not many specific activities on the development of generic competencies took place, apart from an extra ICT workshop on the use of Internet and the demonstration of a software programme for the systematic storage of literature reviews and abstracts.

In the first (official) staff evaluation, on 5 December 2001, it was noted that the creation of learning environments for the development of generic competencies was problematic in some areas. It was proposed to organise a separate meeting to

discuss this, but no further decision was taken. A week later, during the (informal) reflection session, the issue of generic competencies was discussed once more. The results of the mini-questionnaire had indicated that staff had problems with the 'teaching', coaching and assessment of the development of generic competencies. Some progress had been made in the area of communication and group-work/social interaction. It was recommended that the list of generic competencies should be analysed critically and revised accordingly. Composing a portfolio should be made compulsory and be assessed in the next edition of the programme. Without an assessment in one or another form students would not do much. It was recommended to pay specific attention to reflective competencies during the second part of the Common Core. This recommendation did not come back on the agenda of the official evaluation meeting of February 2002, and was not realised. In fact, the attention for the development of generic competencies was in general less pronounced during the second part of the common core.

Because in the course evaluation instruments no specific questions were included on generic competencies, students responded, when writing about competencies, in more general terms ("The course was relevant because it developed my competencies"). Only for the Design Methodology course some students indicated that the course had been important for developing their capacity to solve problems. The weak position of generic competencies and the lack of attention for their development during the common core were confirmed by the outcomes of the interviews with students. When asked, during the second round of interviews what generic competencies had been addressed during the two courses in block 2 and what competencies had been developed students mentioned: competencies in ICT, English, research (although disputed by one student), communication and social interaction. All these competencies were mentioned only once, each time by a different student. Also in the third round of interviews, at the end of the common core, students did not mention any specific attention for the development of generic competencies, but, probably, thought of a more implicit development. Some students mentioned improved skills in writing essays (communication and research competencies) and ICT competencies.

8.5 SOME INFERENCES ABOUT THE 'ASSESSED' CURRICULUM

As argued above, the results and outcomes of the educational programmes, as represented in the assessed curriculum, could not be analysed yet because the first 'edition' of the programmes was planned to finish in August 2003, while this study covers a period up to May 2002. Nevertheless some preliminary results could be

mentioned, based on observations of staff and students, and on the self-assessment of the development of generic competencies by students.

8.5.1 Self-assessment by students of the development of generic competencies

After the more general information on competence-based education, including generic competencies, that was given during the opening session, a more specific information session was organised in the beginning of September 2001 (IS1, 2001). During this session a presentation was given about the competence concept and about generic competencies. Thereafter students completed the self-assessment instrument for generic competencies (see Section 8.2.1). During the first interviews, held a few days after the students had completed their first self-assessment, some questions were asked about generic competencies. Most of the interviewees found the list useful and all generic competencies important. One student was a little more apprehensive: "In some of them I have developed myself already. But I can always learn more. Many are also needed for research. For others it is a little more difficult to see what relation they have with practice. But we'll see."

The results for the 19 students that completed all three self-assessment exercises are summarised by Figure 8.2 (see for methods Section 8.2.1). As already argued in Section 8.2.1 the results can be taken as representative for the whole student population of 35 students.

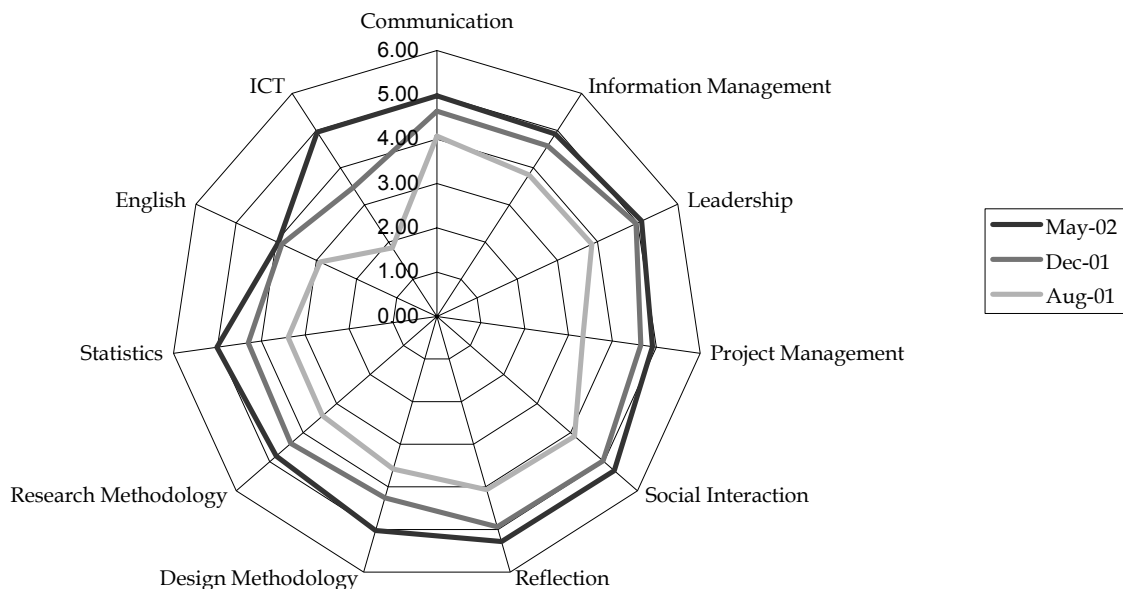


Figure 8.2. Competence profiles for generic competencies of 19 students

Through the profiles students indicated that they felt to have developed all eleven competencies during the common core, most clearly ICT and less clearly a number of 'social' competencies that scored already high in the first measurement. The effect of the course in 'academic English' is notable. After the course had finished students did not perceive much progress in their competence level in English. In project management a workshop and small project took place in the ICT course, in December, just before the second measurement and had apparently, in the opinion of the students, been effective.

A comparison of the perceived competence development by students of the three master programmes did not seem to result in many significant differences (see Appendix 8.10). Because of the small numbers of students (Curriculum and Instruction Development: 6 students; Adult Education: 5 students; Science and Mathematics Education: 8 students), statements with statistical rigour do not make sense and differences only indicate certain trends. For competency in statistics the first measurement gave a higher competence level for students in Science and Mathematics Education (average: 4.6) than students in the other two programmes (averages: 2.1 and 2.9). Both differences are significant at the 0.05 level (ANOVA with Tukey post-hoc test). In the later measurements the difference disappeared. In fact the average perceived competency in statistics (for all 19 students) at the end of the common core was quite high (5.0 on a six-point scale).

Self-assessment results are often suffering from bias. Highly competent respondents could underrate themselves, while respondents with a low competence would have a tendency to overrate (Orsmond, Merry & Reiling, 1997). Students may also have the tendency to answer in a social desirable way (Phillips & Clancy, 1972). When students rate themselves high on one trait they may rate themselves high as well on other traits, an aspect of the 'halo error' (cf. Pike, 1999). Thus the results do not say much in an absolute sense about the level of development of generic competencies. Nevertheless, self-assessment of generic competence could be used as an instrument in course evaluation for course developers and implementers, and in self-reflection for students.

The two lecturers that were responsible for teaching the last two courses of the common core were asked to rate 19 students on a number of generic competencies, who, at the end of their courses, completed the self-assessment instrument. A comparison of ratings by staff and students is given in Table 8.5, on the next page.

Table 8.5. Comparison of assessment of some generic competencies

| | Average students | Average Staff 1 | Average Staff 2 | Correlation Staff 1 | Correlation Staff 2 |
|----------------------|------------------|-----------------|-----------------|---------------------|---------------------|
| Communication | 5.0 | 3.7 | 4.2 | -0.01 | 0.35 |
| Info. management | 4.9 | 3.2 | 4.2 | 0.12 | 0.20 |
| Leadership | 5.1 | 3.6 | 3.8 | 0.32 | 0.50 |
| Project management | 4.9 | 3.2 | | -0.15 | |
| Social Interaction | 5.3 | 3.7 | 4.2 | 0.14 | 0.12 |
| Reflection | 5.3 | 3.6 | 4.1 | 0.20 | 0.35 |
| Design methodology | 5.0 | 3.1 | 3.5 | -0.01 | 0.20 |
| Research methodology | 4.8 | 3.3 | | 0.04 | |
| Statistics | 5.0 | 2.8 | | 0.18 | |
| English | 3.9 | 3.2 | 3.3 | 0.53 | 0.67 |

Staff rated consistently lower, one staff member more than the other. Only on competence in English and Leadership some congruence between the rating of staff and students could be observed, as shown by the relatively high correlation coefficients. From this single comparison no firm conclusions may be drawn about the validity of the assessment by students or by staff. However, developing more assessment instruments for staff and students, training and instruction on (self-) assessment of generic competencies and on peer-assessment might increase the validity both for staff and students.

8.5.2 Staff experiences

During the evaluations of the first half of the common core by staff it was observed that students lacked to a great extent study habits. They had no idea what a Masters programme meant and what the academic level of such a programme was. In the reflection session of December 2001 (C12, 2001) the following was remarked:

- The students are not used to teaching methods that presuppose their own responsibility for the learning.
- The students are competent in group work.
- The students are competent in oral communication.
- The students are not competent in written communication. In the other meeting (C11, 2001) it was remarked that students were also poor in Portuguese language and generally lacked writing skills.
- The students don't know how to read and to analyse written information (including bibliographical literature).
- The students have not enough time for learning activities.

It is striking that these observations almost exclusively concerned generic competencies and that no remarks were made about domain-specific aspects, such as the content of presentations by students and disciplinary knowledge.

Staff had noticed also that students lacked the capability to have 'multiple views' on matters and were often asking for just one clear definition of concepts and constructs that have multiple 'truths'. These epistemological beliefs could also be found with first year students of the UEM, according to a member of staff that was engaged in research on this matter. Further study or study elsewhere had apparently had not changed this situation. The point of the lack of conceptual depth was once more discussed in a meeting in February 2002 (C30, 2002). It was stated that students had been brought up in the wrong 'Philosophy of Education' in a politicised education system where they had to behave like politicians and would negotiate and 'manipulate' for good results without much attention for depth of thinking. In Section 4.4.3 'African culture' was characterised by a high power-distance and uncertainty avoidance, implying a strict hierarchy and a vivid bureaucracy.

In the opinion of some staff some students thought that the mere attendance of the programme would bring them the masters degree, which could explain their passive behaviour. On the other hand, it was argued, students did not know (had not been informed enough) what a masters study requires and implies. One student stated in an interview: "I learned how to write an essay, although there were no clear rules on how to do it." He observed that many students, with a *Licenciatura* degree from the Pedagogical University (UP) did not have experience with writing a thesis. "Thus, writing essays is new, and things like references, etc. is difficult for these students. These things were not explained to the students, although they were expected from them."

In general, staff, when reflecting on their experiences in the first half of the common core courses, thought that students should get more and better information from the moment they applied for a place in the post-graduate programmes. It was recommended to produce a clear brochure that would explain what a student could expect in terms of study load, academic level, English language, etc. Another suggestion involved a longer introductory course (at least two weeks) in which attention should be paid to study methods, ICT, English, etc.

Student experiences

During the three interviews students were asked about the 'impact' of the common core courses on their functioning as professional. In the first interview students were asked to tell something about problems they encountered in their daily professional practice. Most interviewees answered by giving a concrete example and also indicated that they hoped to get answers in the programme. One student responded by stating that there was, in general, a need for more theory in order to improve practice. The first course (Learning and Instruction/design of instructional materials) had already influenced their professional practice. A student stated "It helps me to analyse various educational or social problems and find the best ways to solve the problems." Another: "I changed already a course that I was giving, based on the new concepts."

In general students found the common core part of the masters programmes very relevant for their professional life.

In conclusion, not much could be said in 'hard' terms at this stage about expected results and outcomes of the competence-based approach to the post-graduate programmes. The observed lack of 'conceptual depth' of students might impact on the quality of the graduates, although students proved quite capable to identify their weaknesses (and strengths) and had developed their reflective competence. Extrapolating the experiences of students and staff, one could see the image appear of graduates with more knowledge and more competencies that would have a direct impact on their functioning as educational professionals.

8.6 THE ENACTED CURRICULUM AND ITS COMPETENCE-BASED CHARACTER

In Section 8.3 ten curriculum aspects have been analysed related to the operational and experiential curriculum. The aspect of generic competencies, as an eleventh aspect, was addressed in Section 8.4. A 'profile' of the implemented curriculum can now be obtained with help of the results of these sections and the list of questions that has been developed in Chapter 3 (literature review) and was used in Chapter 6 to describe the formal curriculum (see Table 8.6, below).

Table 8.6. Questions about the operational and experienced curriculum

| | Not sufficient | Sufficient | More than sufficient |
|---|----------------|------------|----------------------|
| <i>A. On the content of the programmes:</i> | | | |
| 1. Does the development of the programmes start with the formulation of a professional profile? If yes, how is this done? | | x | |
| 2. Is a graduate profile formulated? Does this profile contain competence standards? | x | x | |
| 3. Are domain-specific and generic competencies formulated for the programmes? | | x | |
| 4. Does the content follow from the formulated competencies? Is it clear how this was done? | x | | See below |
| 5. Is there integration of the content between courses in a programme or between programmes? How is the integration realised? | x | | |
| 6. How is the relation with the professional practice maintained? | | | See below |
| <i>B. Characteristics of the learning environment:</i> | | | |
| 7. What didactic approaches are used? | | | See below |
| 8. Are teachers functioning as 'cognitive guides'? How are they doing that? | | | |
| 9. How are students supported in creating their own learning environment? | | | |
| 10. How are students encouraged to reflect on their learning experiences? | | | See below |
| 11. Are differences addressed in the pace of development between students? | x | | |
| 12. Are authentic learning situations created? | x | | |
| 13. Are a variety of contexts created in the learning environment? | x | | |
| 14. Is the acquisition of knowledge related to the solving of practical problems (just-in-time knowledge)? How is this done? | | x | See below |
| 15. Is the acquisition and development of generic competencies addressed in the various courses? | x | | |
| 16. Is transfer of generic competencies promoted? If yes, how? | x | | |
| 17. Is ICT integrated in the programmes? | | x | |
| <i>C. On assessment</i> | | | |
| 18. Is there authentic assessment, focussed on competencies? If yes, how is this done? | | | See below |
| 19. Does formative assessment provide feedback to the students about the development of their competencies? | x | | |
| 20. Is a student portfolio included in the assessment? How is the portfolio assessed? | x | | |

Comments and notes on Table 8.6:

On the content of the educational programmes:

Most of the content had already been formulated in the formal curriculum, during the working out of course outlines. Therefore, the answers on the first six questions are the same as formulated already in the conclusion of Chapter 6 (Section 6.10.2). Backwards designing had not taken place in most courses, there was no integration of content and only in some courses a direct relation with the professional practice was established that influenced the content of the courses.

On the creation of learning environments

Courses were student-centred but 'teacher-led' in most cases. While students indicated that they would like more time for autonomous work, staff organised all learning experiences for them. In a few courses case studies or projects were introduced, but in most cases there was a common pattern of a brief lecture followed by assignments, usually worked out in groups. No special time was set aside for student reflection on their learning experiences and a system of study advisers that could have played a role in this reflection did not function. Nevertheless some reflection took place through course evaluations and self-assessment of generic competencies. Generic competencies were not specifically addressed in most of the courses, despite the efforts of the Working Group on Generic Competencies. Although there were initially many logistical problems, ICT was sufficiently integrated in the courses. Students used computers for word processing, statistical procedures, preparing Powerpoint presentations and searching information on the World Wide Web.

On assessment

Formative and summative assessment took place, mostly through tests and assignments, resulting in group- or individual reports, or essays. Some peer assessment was practised, involving mostly the assessment of presentation skills. Criteria for assignments were not always clear to students. Most students did not manage to hand in their assignments in time, causing a growing backlog as the common core progressed. The portfolio was introduced, but without a clear idea how to provide guidance to students on the use of a portfolio and how to assess its content. In practice, therefore, the portfolio was not used by students.

8.7 TECHNICAL PROFESSIONAL ASPECTS OF THE CURRICULUM IMPLEMENTATION PROCESS

8.7.1 Introduction

The process aspects of the implementation of the common core are described from a technical-professional point of view in Section 8.7.4. In line with the

communicative approach students were introduced as soon as possible into the concepts of competence and competence-based education and stimulated to participate on the 'platform of ideas' (Walker, 1990) and contribute to the further implementation process. On 8 August, 2001 the Faculty of Education started officially the three post-graduate programmes with 45 candidates, 15 per programme. In the first weeks of the common core programme of the three masters courses, the number of students dropped. Three students that belonged to the staff of the Pedagogical University had to withdraw because their employer forbid them to participate in the masters programmes of the faculty. Others withdrew mainly because of financial reasons. In the end the number of students stabilised at 35, still equally divided over the three programmes.

During the official opening session the Dutch curriculum expert, in collaboration with the designer-researcher introduced the philosophy behind the curriculum and the characteristics of competence-based education. Because not all students attended the opening session, the information about competence-based education was repeated later in a separate session (see Appendix 8.12). During the start week of the Masters programmes students were introduced to design methodology as a systematic way to identify and solve educational problems whose resolution can be given in the form of a 'product' (tangible or non-tangible). How students had conceptualised competence and CBE by the end of the common core is outlined in Section 8.7.2. The views of staff on the implementation of a competence-based curriculum are addressed in Section 8.7.3.

8.7.2 Students' conception of competence and competence-based education

About six weeks after they had commenced the common core courses, students discussed what the role of staff and students should be in the educational programme they had just entered (see Appendix 8.13). The descriptions of the desired roles of students show that students had a clear idea of self-directed, autonomous learning as a characteristic of competence-based education. This was once more confirmed in the plenary discussion where students criticised the lack of opportunities to really engage into group work or individual study, accompanied by staff. They found the timetable too overloaded with pre-arranged activities. Their description of the desired staff roles corresponded to their view of students as autonomous learners. Lecturers were seen as coaches and organisers/managers of the learning environments, although students did not exclude the role of a lecturer as transmitter of knowledge.

The results of 24 questionnaires (see Section 8.2.1) on the perception of students of competence and competence-based education, administered at the end of the

common core, can be found in Appendix 8.8. This appendix also contains a summary, as a first reduction of the data. A further reduction leads to the following observations about the conceptions of the 24 students:

1. On the definition of competency/competence (in Portuguese there is one word for both: *competência*).

None of the students described competency or competence as a behaviour, but either as the capacity to 'mobilise' and use attributes or as the attributes themselves. The descriptions that could be summarised as "the capacity to use knowledge and skills" come closest to the competency definition that was elaborated in Chapter 3.

2. On competence as the state of being competent.

Six students (25%) answered "To apply competencies in an appropriate way." This appears to be just a rephrasing of 'being competent' into 'having competencies', although the addition 'in an appropriate way' points to a certain level of competence that should be reached before a person can be called competent (cf. Eraut, 1994). The words 'apply competencies' refer to competence as a construct underlying behaviour (and not behaviour itself). The majority of the other answers (7 students) included the capability to apply certain attributes to accomplish tasks (some students stated 'at an appropriate level').

3. On the characteristics of competence-based education. The answers showed a good understanding of competence-based education, and are, because of their importance, given completely:

- Based on the knowledge to do (12x).
- Based on knowing (1x) or knowing to be (2x).
- Based on the development of certain competencies (8x).
- A narrow connection with the professional practice (6x).
- Student-centred (5x).
- Stimulating the capacity to transfer (2x).
- Emphasising the development of generic competencies (10x).

In the answers the orientation on the professional practice was clear. What was important for the students was the application of the knowledge (and skills) that they acquired. Interesting as well was the importance that students attached to the development of generic competencies in competence-based education.

4. On competencies that had not been sufficiently addressed.

Students indicated the importance of the acquisition and development of research and design competencies (mentioned 8 times). The observation has already been made that research and design could have been more integrated in

the whole common core, in stead of only appearing at the end in the two courses on research and design methodology. This was confirmed by the students' opinion. Students indicated also a need for a further development of English and ICT competencies.

5. On least developed competencies and ways to develop them.

The two competencies mentioned most were 'Project management' (11 times) and English (11 times). A considerable number of students would have liked to get more theoretical input and practice in project management. The aim of the small project during the ICT course was to promote the development of project management competencies in doing a research project. Although the management of larger projects requires the application of similar attributes the curriculum of the three masters programmes could not include a full-fledged course in project management. Nevertheless, students recognised the need to develop project management competence, probably because they encountered this in their professional practice.

Concerning English, students would have liked more formal classes in English, followed by a continuous practice. The use of English language seems a little contentious issue. The Masters programmes do not formally require English proficiency, although applicants for the programmes were informed that they would have to read English literature. The policy was that a low English proficiency should not be a barrier for entrance into the Masters programmes. Some of the Mozambican staff had also problems with the English language and might not enthusiastically welcome the use of more English in their classes in order to provide more opportunities for practice to the students.

8.7.3 Conceptions of staff on competence-based education

As mentioned in Section 8.2.1 eleven staff members answered individually and in groups a short questionnaire about their experiences with competence-based education. The results are given below, in a reduced form. The complete questionnaire and answers can be found in Appendix 8.7.

1. *Could you indicate on a five point scale (1 = completely disagree, 5 = completely agree) what your experiences were with teaching in a competence-based learning environment?*

The results are given in Table 8.7.

Table 8.7. Staff opinions on teaching experiences

| | Completely disagree | Disagree | Neutral | Agree | Completely agree | Average | Not answered |
|---|---------------------|----------|---------|-------|------------------|---------|--------------|
| I liked it | | | 2 | 3 | 5 | 4.3 | 1 |
| It was difficult | 2 | 3 | 2 | 3 | | 2.6 | 1 |
| In reality my course was not competence-based | 6 | 1 | 1 | 2 | | 1.9 | 1 |
| My students developed sufficiently their domain-specific competencies | | | 3 | 5 | 1 | 3.9 | 2 |
| My students developed sufficiently their generic competencies | | 1 | 6 | 2 | | 3.2 | 2 |

The eleven staff liked the teaching in a competence-based environment. The teaching was not too easy, but also not very difficult. They were quite sure that their courses were competence-based, but less sure about the development of generic competencies.

2. *Could you give three criteria that could be used to assess how competence-based a curriculum is?*

Answers given by individual staff members:

- Does the curriculum have a strong link with the professional reality? (8x)
- Does the curriculum emphasise the capacity to solve problems? (6x)
- Does the curriculum pay attention to the development of generic competencies? (3x)
- Does the curriculum lead to transfer of generic competencies? (3x)
- Does the curriculum encourage ownership for the students? (2x)
- Does the curriculum encourage self-evaluation and reflection? (2x)
- Does the curriculum make use of project-based education? (1x)

A further discussion of the individual results led to the following three criteria:

- Link with real professional tasks.
- Development of generic competencies.
- Focus on innovations and problem solving and making problems more explicit (defining problems).

Most of the criteria formulated by the staff of the faculty can be found in the list of questions formulated in the conclusion of the literature review (Section 3.8). The emphasis that staff put on the capacity to solve problems as an important aspect of CBE is not explicitly addressed in the list of questions. It is implied in, for example, the question how authentic learning environments are created.

3. Complete the following sentences:

- *My biggest problem with the competence-based approach is...*

Answers on this question were:

- o Lack of knowledge about a competence-based approach.
 - o Practical problems during the implementation.
 - o Changing my teaching methodology.
 - o How to turn a teacher into a facilitator.
 - o At what moment assess the competencies.
 - o Need for communication between the disciplines and with other professionals.
- *What I need most in this phase of implementation of the competence-based curriculum is ...*

Answers on this question were:

- o Assistance with practical (implementation) problems.
 - o Sharing of experiences with colleagues in- and outside the faculty.
 - o More information about theory and practice of competence-based education.
- *What I like most in a competence-based approach is ...*

Answers on this question were:

- o Methodological aspects, such as the internal consistency of the curriculum and the student-centredness, or "The freedom that the lecturer has to say, sometimes, nothing and let the students solve the problem under discussion."
- o Relation with the professional practice.
- o The problem oriented approach.

4. Name three conditions, necessary for a good implementation of the competence-based curriculum.

- Team work, exchange of experiences with colleagues.
- Sufficient material and logistic support.
- Room and encouragement for students to develop their competencies.
- Staff training.

Questions 3 and 4 address the implementation of the curriculum and the staff concerns. This will be further discussed in the next section on the technical-professional aspects of the curriculum implementation in the faculty.

8.7.4 A technical-professional view of the curriculum implementation in the faculty

In the two previous chapters, on the design and development of the curriculum it was shown that the communicative approach had been used as much as possible (cf. Visscher-Voerman et al., 1998). The involvement of all 'actors', and the continuous exchange of information between them, is also required for an effective implementation (cf. Fullan, 1985; Van den Akker, 1993). Because staff was now involved in the final preparation and teaching of their courses, communication decreased, although informally staff continued to exchange experiences. Plenary sessions on the proceedings in the common core took place just after the programme had started and half-way the common core (see Section 8.3.4). Two other, very long meetings were devoted to discuss the rules and regulations of the masters programmes. All staff were required to attend those meetings, while for a meeting to discuss the revision of the common core programme, at the end of June, only the programme co-ordinators were invited. Because the lack of 'managed communication', plans for the specialisation phase of the three programmes were developed in relative isolation, leading to an overlap of content in specialisation courses. Timetables with quite a different structure were presented, and staff complained that, because of a lack of co-ordination, there was not much opportunity for the students to follow courses in other programmes. Exemplary was also the fact that the decision to shorten the specialisation phase with two weeks was not communicated to all staff. One of the outcomes of the small staff survey after the common core (see the previous section), was that staff indicated team work as a condition for the 'good' implementation of CBE, and expressed the need for communication between the disciplines and with other professionals. Therefore, the decrease in communication appeared not to be the result of unwillingness of the staff, but rather the weak 'management of communication'.

Fullan (1991) mentions 'readiness' as one of the factors influencing initiation (and, as argued before, implementation). Staff readiness refers to the capacity of staff to handle the innovation. One aspect, elaborated by Hall and Hord (2001), are the concerns of staff when implementing a curriculum change. In Section 8.6.3 concerns of staff were mentioned. Staff expressed the need for more information and knowledge about competence-based education, the need for coaching and assistance in solving practical problems, the need to share experiences with colleagues, and the need for material and logistical support. As already stated in Chapter 7 staff concerns could be characterised in the Concerns Based Adoption Model (Hall & Hord, 2001) as partly personal and partly task-oriented. A continuing programme of staff development was necessary but only incidentally staff support was provided by the designer-researcher, who increasingly played

down his role as designer and took more distance as researcher (see also Section 8.8). Opportunities for staff development for junior staff, by attending sessions of their senior colleagues and Dutch experts, were not picked up. This was, again, probably not a sign of lack of interest, but lack of management experience of the programme co-ordinators who had their hands full in preparing and teaching their courses. The fact that no strong support or exemplary behaviour was shown by the leadership of the faculty, might be attributed to their lack of familiarity with teaching in a competence-based curriculum.

Staff, not satisfied with the competence levels of the students, indicated, as mentioned before in this chapter, that students had a low ability for self-directed learning. The experiences in the ICT course, where a learning environment had been created that required autonomous learning, confirm the problems students had in directing their learning. Some staff had the tendency to 'regress' into the classical, teacher-directed methods in order to 'have the students learn something'. The students, as adult learners, did certainly not show resistance against a learner-centred approach, as is often the case with students in formal education systems (cf. Weimer, 2002). It is clear from the above that staff should have an active and conscious role in the learning environment of students, as role-models and as coaches, becoming gradually more 'guide on the side' and less 'sage on the stage'. That would probably require staff development in parallel with student development.

In Chapter 3, some questions were formulated, related to staff development in competence-based education (see Table 8.8, below)

Table 8.8: Staff development during curriculum implementation

| | Not sufficient | Sufficient | More than sufficient |
|---|----------------|------------|----------------------|
| 1. Is reflection taking place by staff on their professional practice? How? | | x | See below |
| 2. Are the competencies of staff assessed and developed? How? | x | | See below |
| 3. Are the processes of competence development and professional development of staff managed by the faculty leadership? How? | x | | See below |

Staff reflection took place, although not regularly. In December 2001 and February 2002 some staff exchanged their experiences with the common core courses for which they had responsibility. During these reflection sessions student

competencies were addressed rather than staff competencies. Only in the June 2002 seminar some reflection on staff competencies took place. Staff assessment did not take place, because it might have been too early for such an exercise. However, plans for (formative) staff assessment, in conjunction with staff development were also absent, although staff kept asking for more opportunities for professional development. A few explicit staff development sessions on 'development research' were organised by the Dutch curriculum expert.

A number of initiatives was taken, related to management of the curriculum implementation. They all failed, due to lack of monitoring and direction of the (overloaded) leadership of the faculty. These initiatives involved:

- The installation of a system of student advisers. The task of these advisers (tutors) was to monitor the study progress of their students and take action when needed. In a session where students got explained what the role of student adviser would be, they got randomly assigned to an adviser. No further meetings were held. Because of the lack of staff, some lecturers from outside the faculty were appointed as student adviser, but students who had advisers outside the faculty complained that they never got the opportunity to see them.

That the system of student advisers did not work can be illustrated with the comment of a student that was interviewed in April 2002. She never had the opportunity to meet with her adviser who was a guest lecturer in one of the core courses. The co-ordinator of her programme apparently had told her that the issue of study advisers had been badly prepared. After that nothing more had happened.

- The overall co-ordinator of the masters programmes proposed that each lecturer would write a report on his/her course. This should include the course outline, an evaluation by the lecturer, and an evaluation by students. No official decision was taken on this proposal but staff was informed and raised no objections. The designer-researcher produced such a report on the ICT core-course for which he was responsible (see Appendix 8.14). Information about other course reports was not received, which could mean that the reports were not made available to interested staff or that no further reports were produced.
- In December the overall co-ordinator of the masters programmes announced that he had scheduled regular meetings on each Friday (for 30 minutes) with the co-ordinators of the three programmes. It was proposed to include in these meetings as well the lecturers involved in teaching a course at that time and the proposal was accepted. However, no further action was taken.

In order to monitor the implementation of a curriculum and obtain the flexibility for changes to improve the operational curriculum (evolutionary planning), formative evaluation should take place throughout the implementation (and design

and development). In Section 8.2.1 three formative evaluation sessions by staff were mentioned. Some core courses had an assessment by students (Appendix 8). Based on these evaluations and on interviews with students and staff the designer-researcher formulated in May 2002, after the ending of the common core, a number of principles for revision of this part of the masters programmes. These principles are presented in Box 8.2, below.

Box 8.2. Some recommendations for the revision of the first common core programme

1. Students should have more time to work independently during 'class hours' (week days from 14.00 to 19.00 hours).
 - It is proposed to have the Wednesday as much as possible free for this independent work.
 - In case of two courses per block, free Wednesdays should be distributed evenly over the courses, although students have the freedom to do what they think is necessary during the independent working time.
2. Students should receive more guidance on the development of competencies such as time management (sticking to deadlines), critical thinking (critical analysis of literature), literature review, scientific writing, etc.
 - It is proposed to have a longer introduction period, of four weeks with a number of activities in the areas indicated above. During these weeks basic competencies will be addressed (English, Mathematics and ICT).
 - During block 1 emphasis should be put on the role of reflective competencies and the need to build a portfolio.
 - Study- and research skills should be addressed as well in workshops during the first part of the Common Core.
3. The ICT course should be given as soon as possible to allow the other courses to benefit from the increased ICT skills of students.
 - It is proposed to schedule the ICT course in the first block, together with the course on Learning and Instruction.
4. It is not advisable to have 'heavy' courses together; if possible a more theoretical course should be combined with a more practice-oriented course.
 - It is proposed to offer the course 'Sociological and Perspectives' as a single course in block 2 and to combine Adult Education with Design methodology in block 4.
5. Because of the overlap between the courses 'Research Methodology' and 'Statistics' these courses should be offered in the same block. In this way students may transfer concepts and skills from one course to the other.
 - It is proposed to have 'Research Methodology' and 'Statistics' together in block 3.
6. Because many students had mathematical problems in the statistics course a separate remedial mathematics course should be given before the statistics course starts.
 - It is proposed to have a mathematics test during the introduction weeks, followed by the start of a mathematics course for those students who need it (during introduction weeks and block 1).

A scenario for a revised common core was added to the principles and distributed amongst staff for comments. A summary of staff comments as well as the relevant results of the final student questionnaire at the end of the common core (on the development of competencies) was once more distributed, together with four scenarios of a revised common core programme. Some interesting staff comments included:

1. Try to include more contact with the 'world of work', e.g. by inviting practitioners who could tell something about problems in the profession, best practices, etc.
2. Try to get more integration between the various courses. This could be done by scheduling 'project weeks' throughout the Common Core. Students will then get an assignment where they have to apply domain-specific competencies from various courses as well as generic competencies.

In the end (see also the next section) the principles and scenarios were discussed 'behind closed doors' by the faculty leadership and programme co-ordinators. Apparently some principles were amended and the overall co-ordinator of the Masters programmes got the assignment to make a proposal for a revised common core. No information was given to staff about the results. The plans for the revised common core changed a couple of times. A further discussion of the actual revisions in the common core falls outside the scope of this study. In fact, the start of the second 'edition' of the common core was rather chaotic because the academic year started a week later than planned and staff was ill informed about the common core in its entirety as well as aspects, such as the integration of generic competencies.

In absence of a clear curriculum leadership in the faculty the Working Group on Generic Competencies (GTCG) functioned de facto as the group that co-ordinated a number of curriculum activities. The most important activities included (C32, 2001):

- Making an inventory of the plans that lecturers had for the integration of generic competencies in their courses. An attempt was made to get from the lecturers involved their course outlines. This proved to be impossible because hardly anyone of the lecturers had (in September) finished their course outlines. Conversations with the lecturers of the various courses led to the impression that there were no clear plans for integration, only general ideas.
- The working group took the initiative to design a common form for the evaluation of the common core courses by students. There would be a common part for all courses (closed questions), a part where lecturers could add specific questions for their course (closed questions) and some open ended questions at the end. Most of the courses used the instrument. The results were used to formulate 'principles' of change (recommendations) for an improved version of the Common Core (see Box 8.2).

- The working group agreed to initiate the preparation for the ethics workshops in block 2. It intended also to call, at a later stage, a meeting to discuss the matter with all staff and, perhaps, form a larger 'working group' on ethics. During the first workshop an inventory could be made of ethical problems in the workplace that could form the basis of further action. The working group organised this first workshop. The working group tried also to prepare a collection of papers related to Professional Ethics in education. A second workshop was not held, due to time- and preparation constraints.
- After the various observations by lecturers that students lacked research competencies, the working group decided to design a draft 'research guide', that would provide basic information to students about research competencies and contain additional material to read and consult.
- During the last block of the Common Core a training session was given of a software programme to store literature, abstracts, etc. Students could use this program and easily copy it on a diskette for use elsewhere.
- The working group stressed the need to elaborate, a development plan related to 'generic competencies'. The development needs of the lecturers, involved in the Common Core should be defined, as well as a path towards full integration of generic competencies in the form of learning trajectories.

8.8 SOCIO-POLITICAL ASPECTS OF THE CURRICULUM IMPLEMENTATION

The conditions under which the curriculum was implemented were not unfavourable per se. If they, nevertheless, were not optimal, this was more due to the activity or lack of activity of the actors involved in the implementation than to circumstances. Therefore, this section will analyse the role of the various actors. One group of actors is new in this discussion: the students.

The UEM leadership

The leadership and administrative organs of the UEM did not intervene directly in the implementation of the curriculum of the faculty. Whether the absence of the Rector during the official start of the educational activities was a sign of this non-intervention, is difficult to answer. Fact is that members of the Installation Commission interpreted it as a lack of support (IC33, 2001). In Section 8.3.2 the absence was noted of a well functioning and transparent management of the finances at various levels in the university.

The Installation Commission

The IC met once during the implementation of the common core, shortly after the start of the educational programmes. The IC had been effectively reduced to three members, one of which was the designer-researcher. The other two were the Dean and the overall co-ordinator of the post-graduate programmes, functioning as a deputy-dean. Although the Dean emphasised that officially the IC still represented the leadership of the faculty no more meetings were held and the IC went quietly to rest. Instead, regular meetings, although not scheduled, but more or less decided upon by the Dean, were held between him and the overall co-ordinator of the post-graduate programmes. As mentioned above some meetings were held with the co-ordinators of the three master programmes and the co-ordinator of the undergraduate programme in Psychology.

The staff of the Faculty

The number of staff had increased in the first half of 2001, but not enough for teaching all courses. Because there was, until the last moment uncertainty about the staff, students did not know who was responsible for what. This situation continued for quite some time after the start of the common core courses.

Therefore, apart from the input of Dutch experts through the MHO co-operation, staff from other faculties or from outside UEM was recruited to assist. In the first half of 2002 three Dutch lecturers joined the faculty, co-financed by a Dutch organisation for development co-operation (PSO - Society for Personal Co-operation with Developing Countries, through ICCO - Interchurch organization for development cooperation). No special sessions were organised to introduce new staff to the particulars of a competence-based curriculum. Only the Adult education group organised a session in which the designer-researcher explained the competence concept and outlined the characteristics of competence-based education. The Dean recognised the danger of 'diluting' the competence-based approach when new staff would enter the faculty, but did not indicate ways to overcome this problem.

The opinions and concerns of staff have already been described in previous sections. One group of staff members should be mentioned separately, the Working group on generic competencies (GTCG), because this group fulfilled a catalytic role in the formative evaluation of the curriculum implementation. The CTCG, consisting of four staff including the designer-researcher, formulated its terms of reference as follows:

1. Observe the implementation of generic competencies in the curriculum of the various core courses.
2. Evaluate the experiences of lecturers and students with the development and assessment of generic competencies.

3. Provide assistance to lecturers during the implementation process.
4. Formulate proposals for improvement of the conditions for the development of generic competencies in next editions of the various masters programmes.
5. Assist the psychology programme in the formulation of generic competencies and the design and development of appropriate learning environments.

The students of the three masters programmes

The student assessment of courses, the interviews and the self-assessment of generic competencies show a student population that thought itself well capable for active and for co-operative learning. In Box 8.3, below, characteristics are given of 7 students that were interviewed.

Box 8.3. Some characteristics of seven students in the post-graduate programmes

Student background

When the students started their education, Mozambique was in its last years of colonialism, which meant that access to education was better than before. One student, 10 years older than the other six interviewees and, thus, educated in a strict colonial environment, told in the interview how he had to become catholic and be baptised, while his parents were protestant, in order to continue his education at the primary school. He could not go to the official secondary school (the Lyceum) because that was only possible for children of 'assimilados', Africans who had renounced their tribal customs and had assimilated the Portuguese culture (see Chapter 2). Therefore he joined the catholic seminary, without the intention of becoming a priest for that matter.

Some of the students chose the teaching profession voluntary. One liked it so much that he started already in his childhood teaching his little friends with help of banana leaves. Other students were 'forced' to start teaching after they finished secondary school because during the socialist government after independence central planning reigned and determined where secondary school graduates would be 'placed'. Another group ended up in teaching because there were no other jobs available.

Reasons for starting a post-graduate study in education

Five of the seven students that were interviewed applied for admission into the post-graduate programmes on their own and had not yet secured funding of entrance and course fees. That confirms the general picture of a group of very motivated students. The interviewees often indicated that they always had wanted to continue studying and increase their knowledge, in order to develop themselves in their professional life. One student stated: "Often we learn by doing but do not develop a more profound knowledge of the theory that we are applying." Two students got encouraged by their superiors to enter a masters programme. One of them stated that his superior had, in fact, wanted to join one of the educational programmes, but the Minister had not wanted to let him go. Two (female) students indicated that they had chosen to apply for a programme because it was offered 'at home' and the care for their family had prevented them to apply for a masters programme outside Mozambique.

Students felt already from the start of the programme restricted by the overload of planned learning activities. They recognised their weaknesses and strengths and demanded clarity in courses where it was not always clear what the criteria were for a good performance. Probably because staff was very busy 'surviving' in teaching their courses for the first time, the signals from the students were not received. Although student representatives had been chosen, students did not get really access to the process of creating their learning environments and apparently accepted that, being part of a culture with a high power distance (cf. Hofstede & Bond, 1984).

The Dutch partners

After the start of the masters programmes a steady stream of Dutch experts joined the Mozambican staff to teach jointly the various core courses. This also meant regular contact and shorter lines of communication during the presence of the Dutch in Maputo. When the visits subsided at the end of the common core, the complaints from the Dutch partners about the weak communication structure became, again, more audible. Still concerned about the lack of clarity on the administrative structure of the faculty the Dutch project co-ordinator (of the project involving University of Twente-UEM co-operation) produced a position paper (R11, 2002) about the further development of the faculty and the role of the co-operation project. A situational analysis was given, and seven strategic options were formulated to achieve more clarity on the administrative structure of the faculty. It was also proposed to have an internal evaluation in February/March and an external evaluation in May/June. The internal evaluation never took place, the external evaluation was held in July 2002. The position paper characterised the more 'interventionist' approach of some Dutch partners while others had a more demand-driven approach, responding to what signals were received from the faculty. Although the external evaluation, also called 'mid-term review' falls outside the scope of this study, it should be remarked that the 'tone' of the evaluation report was also strongly interventionist, not evaluating the projects but rather the weaknesses (and strengths) of the Faculty of Education. It was to be expected that this caused a sharp reaction from the leadership of the faculty, including the suggestion of neo-colonialism.

The designer-researcher

When the Working Group on Curriculum Development was abolished after the approval of the curriculum document by the Academic Council, and the Installation Commission de facto resolved after the meeting of 16 August 2001, the position of the designer-researcher had changed. He had gradually moved from the centre to a position where he had no access anymore to direct information on

developments within the faculty, nor did he have a directive role in the further curriculum implementation. In the first weeks after the start of the masters programmes he continued providing staff with information and proposals, related to a competence-based approach to the curriculum. Later on his only direct input in the implementation was through the GTCG and by setting an example in the course he was responsible for, the Multimedia and ICT course. The research activities, that is, the collection of data, continued, and were not only aimed at a reconstruction and analysis of the curriculum implementation, but also at formative evaluation. Activities, such as the reflection with staff on the first part of the common core, were an example of these formative activities. This led sometimes to misunderstandings from the side of the overall co-ordinator of the Masters programmes who thought himself responsible for all curriculum affairs and, therefore, also for calling formally all meetings that related to the curriculum of the faculty. The remark in the field notes of the designer-researcher: "Read yesterday evening in a magazine: 'indecisiveness is the lowest degree of freedom'. A true motto for this faculty!!" illustrated the difficulty that the designer-researcher had in not being able anymore to act as designer.

8.9 CONCLUSION

In this chapter the implementation of a competence-based curriculum for three post-graduate programmes at the Faculty of Education of the UEM has been reconstructed and analysed, focusing on the common core part of the programmes. Three points of view in the analysis involved the characteristics of the implemented curriculum (substantive focus), the technical-professional aspects of the implementation process and socio-political aspects that influenced the implementation.

The analysis from the first point of view relates to the research questions:

1. *What are the characteristics of the implemented competence-based curriculum in the context of the Faculty of Education at UEM, as operationalised by the staff and experienced by the students?*
2. *What is the quality of the outputs and outcomes of the competence-based curriculum in the Faculty of Education at UEM?*

From the analysis of ten curriculum aspects and from answering a list of questions about competence-based characteristics of the implemented curriculum the following can be concluded:

- In most courses the content did not follow directly from the graduate profile. The 'missing link' was probably the formulation of competence standards. A clearer formulation of the intended outcomes of the educational programmes in terms of 'proof of competence' could have helped in aligning the content of courses to the graduate profiles, especially for the courses that related directly to the educational programmes. The relation of content and graduate profiles was less obvious for the 'auxiliary' courses, such as ICT, statistics, and research methodology, but it would still be necessary to indicate their utility in developing competence. Some of the 'rationales' of these courses addressed this issue.

In addition more reflection would be needed on the role of disciplinary knowledge in an academic competence-based education programme. Should the profession be the point of departure and the capability to collect 'just-in-time' knowledge be the most important competency? Or would a broad knowledge of the discipline be required for acquiring expertise and academic depth?

- Institutionalised contacts with the professional practice in the Mozambican context had not been established yet. It might be too early and the faculty might not have capacity enough yet to establish these contacts. Nevertheless, the leadership of the faculty and the co-ordinators of the educational programmes should be constantly aware of this need and discuss possibilities to address this.
- The initial learning environments in most courses led to promising starts for the development of competencies. Staff (and students) should regularly reflect about a gradual increase of the autonomy of students. Student-centred approaches alone would not be enough, because they could still involve strong teacher-led learning environments, where teachers prescribed the behaviour of their students through an overloaded timetable with an overkill of assignments. In the end students should be fully responsible for their learning and for proving that they had developed the competencies required for academic educational professionals. Conditions that would be conducive for such learning environments would include:
 - reflection by staff;
 - clear curriculum leadership that would recognise the need for staff development;
 - a system of student advisers to accompany reflection by students on their way to full autonomy;
 - use of portfolio as an aid in developing reflective competencies.
- For the creation of authentic learning environments contacts with the 'world of work' would be indispensable.
- It is clear that the attention for the development of generic competencies had fallen victim to the attention for domain-specific competencies and disciplinary

knowledge. For almost all local staff it was the first time that they were teaching their courses and for many it was also the first time that they were doing so to adults in a post-graduate setting. However, before a pattern is established in which generic competencies are 'implicitly' addressed, ways should be discussed with staff to have explicit attention for the development of generic competencies, for example through learning trajectories.

- The assessment is an important part of each curriculum and, in most cases, directs the learning of students (cf. Biggs, 2002; Dochy & Moerkerke, 1997). It is clear that, after the first experiences with the common core courses, more co-ordination is required in assessment methods within and between courses. Also, discussion and reflection should take place on the characteristics of good assignments. Competence-based education requires complete clarity for students about assessment criteria and, ideally, students being responsible for the proof of their competence.

As said before the research question on the assessed curriculum, that is the quality of the graduates and the impact on the education system, is difficult to answer, based on the results of the common core only. From the student interviews, the course evaluations and the self-assessment of generic competencies by students, the inference could be made that the educational programmes would be effective and have an impact. Students emphasised how what they got to know and experienced in the courses had consequences for their professional practice.

Students were in general positive about content and learning environments and accepted the assessment as it came, without much criticism. In their self-assessment of generic competencies a development of all competencies was perceived, with a strong development in ICT competencies. They showed a good understanding of the concepts of competence and competence-based education.

From a technical-professional point of view the guiding research question was:

What procedures and principles have been followed during the implementation of a competence-based curriculum for the Faculty of Education at UEM?

The prevailing communicative approach, involving all staff, was continued by the Dutch side, but less prominently by the Mozambican staff, because they got increasingly involved in their own courses. Nevertheless they emphasised in one of their reflections on the programme the importance of contacts with colleagues and exchange of experiences.

The fact that three initiatives for more staff reflection (a study advisers system, the elaboration of course reports and regular meetings with co-ordinators and lecturers in the courses) were started, but not continued, can be attributed to a lack of human

resource capacity with too many tasks for a leadership with too few members. Nevertheless, it is clear that more opportunities for staff reflection and staff development would have helped in increasing the coherence of the common core part and the likeliness of continued co-operation between the programmes during the specialisation and research phase of the curriculum.

Formative evaluation during the implementation of the common core took place, mainly through reports of the designer-researcher. Proposals for a revised common core in the next 'edition' of the programmes were not discussed with all staff, and probably not seen by the leadership of the faculty as opportunities for staff reflection and development.

In this chapter the socio-political aspects of the curriculum implementation have been addressed through consideration of the roles of various actors, as was done in the previous chapters. The analysis of the activities of these actors provides an answer to the research question

What conditions and activities have influenced the implementation of a competence-based curriculum for the Faculty of Education at UEM?

The implementation of the curriculum took place under the formal leadership of one person, the Dean who, perhaps because of his unique (formal) leadership status, did not delegate much to other staff. The overall co-ordinator of the masters programmes functioned as a Deputy-dean, but without formal status, which may have contributed to the failure of a number of initiatives in the area of formative evaluation of the curriculum implementation (see above).

Incidents such as the extremely long meetings on rules and regulations that required the presence of all staff while the revision of the common core programme was discussed by leadership and programme co-ordinators only, suggest a bureaucratic culture (Cusworth & Franks, 1993). As described in chapter 4, in this culture work is done according to rules and procedures and decision are taken along a strong hierarchical road in which the leadership has the final word. The Dutch, including the designer-researcher functioned much more in a task-oriented culture, where expertise is more important than personal power or place in the bureaucratic structure (Cusworth & Franks, 1993). Intercultural communication, as outlined in Section 4. 4.5, might be of help in these cases to clarify the different cultural 'stances' of the actors in the curriculum implementation project and to identify what was the influence of culture and what of personality and competence of the actors.

CHAPTER 9

Summary, discussion and recommendations

The final chapter of this study starts, in Section 9.1, with a summary of the research project and its findings. The summary is structured along the three points of view or 'lenses' that have been used in the analysis of the reconstructed curriculum development process: substantive aspects, technical-professional aspects and socio-political aspects. The discussion part of the chapter, in Section 9.2, addresses the research methodology and devotes a separate sub-section on the roles of the researcher-designer during the curriculum development process and research. Section 9.2 ends with a discussion of the findings of the study, using the intervention model that has been developed and presented in Chapter 5 as a frame of reference. This discussion results, in Section 9.3, in characteristics for a competence-based curriculum in the context of higher education in developing countries, and in a number of procedural guidelines for the design, development and implementation of such a curriculum. The section continues with specific recommendations for further development and implementation activities in the Faculty of Education at UEM and for further research. A final comment, in Section 9.4, addresses the dissemination of the study and the usability of its findings, conclusions and recommendations for curriculum development projects in similar contexts.

9.1 SUMMARY

9.1.1 Introduction

In 1999 the Eduardo Mondlane University (UEM) in Maputo, Mozambique decided to re-open its Faculty of Education, that had been closed in 1985, after the education and training of teachers had been moved to a separate institution for Higher Education. An Installation Commission got the task to co-ordinate the setting up of the faculty and the design and development of the curriculum for a number of graduate (Licenciatura) and post-graduate (Masters) programmes. Almost from the start of its activities in 1999 the Installation Commission worked

together with experts from three Dutch Universities, the Free University Amsterdam, the University of Groningen, and the University of Twente. A university-wide curriculum reform process that had started at about the same time and that emphasised the need to make the curricula more relevant for the Mozambican society pointed towards a diminishing distance between academic and professional education. It was in this context that the Installation Commission decided to take the road towards a competence-based curriculum for its educational programmes. The journey along that road is the subject of this study that started late 1999, when the Installation Commission made its choice for a competence-based curriculum.

The study focuses on the design and development of the curriculum for three post-graduate programmes (Adult Education, Curriculum and Instruction Development, and Science and Mathematics Education) and the implementation of its first part, a common core for all three programmes. Two problem statements form the point of departure for this study. The first problem or main question is *whether it could be expected that competence-based education of academic educational professionals would lead, in the end, to an improvement of the low quality and efficacy of the education system in Mozambique*. The second problem is *how a competence-based curriculum would look like in the context of the Faculty of Education at UEM in Mozambique, and how such a curriculum can be designed, developed and implemented*.

This study aims to contribute to Education in Mozambique by carefully documenting (reconstructing) the 'quest' for a competence-based curriculum, followed by analysis of and reflection on the curriculum as 'product' and the processes and procedures of design, development and implementation of the curriculum. The reconstruction and analysis that form the main part of this study are labelled development research (Van den Akker, 1999), resulting in a carefully documented example of the development of a competence-based curriculum in an African Higher Education setting and in procedural guidelines and recommendations. The context of the study is the Faculty of Education of an African University in a country that is still one of the poorest in the world. The outcomes of the study might be of use in comparable contexts (institutions for Higher Education in developing countries), but also contribute in general to the knowledge about competence-based approaches in Higher Education. Formative research/evaluation activities took place as well during the design, development and implementation of the curriculum and were aimed at realising educational programmes with a high internal and external consistency (Kessels, 1999b).

The literature review in Chapter 3 of this study addresses, amongst others, the question on what grounds a choice might be made for competence-based

education. The present society could be characterised as becoming more and more complex, dynamic and knowledge-intensive. This requires professionals who are able to respond confidently and expertly to new situations and problems, and who, next to solid domain-specific knowledge and skills, also have the ability to acquire knowledge and know-how that is just-in-time and on-the-spot. Learning in professional contexts has become more important and general, academic (higher) education is, therefore, becoming more professional or profession-oriented. This all implies that a curriculum with a competence-based approach could be an appropriate choice.

From the vast and varied literature on the concept of competence (and competency) a competence model has been developed in this study (see Figures 3.1 and 3.2) that encapsulates an integrated, holistic view of the competence concept and follows to a large extent the ideas of Hager and Gonczi (1996). This has led to a definition of *competency* as:

the capability to choose and use (apply) a combination of knowledge, skills and attitudes with the intention to realise a task in a certain context, while personal characteristics such as motivation, self-confidence, willpower are part of that context.

Other important 'key concepts' in competence-based education are:

- *Competence* as the capacity to realise 'up to standard' the key occupational tasks (see below) that characterise a profession. A *competent* professional shows a satisfactory (or superior) performance. The difference with competency is that competence is output-oriented, while competency is input-oriented. Competency is what makes somebody competent.
- *Key occupational tasks* are the tasks that are characteristic for a profession. The competencies that are needed for the realisation of occupational tasks can be classified as *domain-specific competencies*, including disciplinary and cross-disciplinary competencies, and *generic competencies*.
- *Generic competencies* are defined in Chapter 3 as competencies that are needed across jobs or professions and can be transferred, that is, utilised in new occupational or life situations.

Further analysis and synthesis of the literature resulted into a list of 'indicators' of competence-based education that could be used to assess the outcomes of the design, development and implementation process in the Faculty of Education on their competence-based character. The setting up of the Faculty of Education at UEM and the design, development and implementation of its curriculum can be seen as interventions aimed at responding to a need. A model is presented in Chapter 5 of this study in which the substantive and procedural aspects of the intervention are formulated in the form of hypotheses or heuristic statements (see

Box 5.1). The most 'encompassing' hypothesis in the model, linking the design and development process with the immediate outcomes of the intervention, combines the substantive and procedural aspects and resembles the heuristic formulations used in development research (cf. Van den Akker, 2002). This so called 'development hypothesis' is formulated as:

A design and development process with characteristics D_1, D_2, \dots, D_k will produce a curriculum with characteristics C_1, C_2, \dots, C_m that, when implemented along the procedural guidelines P_1, P_2, \dots, P_n , will lead to competent educational professionals.

The researcher had also roles as designer and as member of staff (member of the Installation Commission). The importance of these roles changed, as will be discussed in Section 9.2.2. Nevertheless, the study that is described in this thesis, took place after the researcher-designer had physically withdrawn from the faculty and the curriculum development process and could, therefore, still be labelled 'reconstructive study', aimed at formulating characteristics of a competence-based curriculum and articulating and defining design principles (cf. Van den Akker, 1999). The term 'reconstructive study' implies the actual reconstruction of the curriculum development process, followed by analysis and reflection. The analysis was done from three points of view or 'lenses', representing three aspects of the curriculum development process or three types of curriculum questions (cf. Van den Akker, 2003). The *substantive aspects* are for each phase of the curriculum development process addressed through the question: "*What are the characteristics of the curriculum that has been designed, further developed and implemented?*" Next to 'product' questions there are also process questions addressing the procedural and contextual aspects of the development process. The question that addresses the *technical-professional aspects* of the curriculum development process has been formulated as "*What procedures and principles have been followed during the development (or design or implementation) of a competence-based curriculum for the Faculty of Education at UEM?*" The question about *socio-political aspects* of the curriculum development process was: "*What conditions and events and what beliefs and actions of the various stakeholders (actors) have influenced the development (or design or implementation) of a competence-based curriculum for the Faculty of Education at UEM?*" The analysis and reflection of these three aspects of the curriculum development process assisted in the formulation of the development hypothesis as a heuristic statement outlining the characteristics of a competence-based curriculum for the Faculty of Education at UEM that, when designed, developed and implemented along certain procedural guidelines, could result in graduates as competent educational professionals.

The data for the reconstruction of the curriculum development process and for the analysis and reflection came from documents produced during the various phases

of the process, from the outcomes of workshops, from the reports and minutes of meetings, from the results of a needs assessment, as well as the outcomes of interviews and questionnaires amongst Mozambican staff and students, and Dutch counterparts. During the implementation of the curriculum the designer-researcher wrote almost continuously field notes about procedures and principles followed, decisions made, and about conditions and activities that influenced the development of a competence-based curriculum for the faculty.

The reconstruction, analysis and reflection have been done distinguishing three phases in the curriculum development process. The first phase includes the 'prologue' to the decision to re-open the Faculty of Education and the design phase (see Chapter 6). The next two phases address the development of a 'formal curriculum' (Chapter 7) and the implementation of the curriculum of the common core programme (Chapter 8). In each phase the three lenses were used for the analysis of substantive and procedural aspects of the curriculum development process. The next sub-sections give the results of the analysis.

9.1.2 Substantive aspects of the curriculum development process

During the *'prologue'* (May 1997 – November 1999), that preceded the *design phase* of the curriculum of the faculty (November 1999 – July 2000), only a few substantive aspects were addressed because the curriculum was hardly discussed at this stage.

The prologue started with deliberations about the future of two Dutch-funded projects in the area of academic support in Science and Mathematics for first year students and in the area of staff development, followed by the appointment of a 'Commission for the re-opening of the Faculty of Education' by the Rector in January 1998. In the final report of this commission, presented in July 1999, the (re-) opening of the faculty was justified, and proposals were made for the educational programmes that should be offered by the faculty. A new commission was appointed, the 'Installation Commission', consisting of staff from the two projects mentioned above, a chairman that had been involved in the former Faculty of Education, and a member from the planning directorate of the UEM. Within the Installation Commission initial ideas about the curriculum ranged from a deep theoretical approach to the curriculum with much attention for philosophy and sociology of education, to a more pragmatic, profession-oriented approach. The Vice-rector Academic Affairs of UEM, who was at that time responsible for the university-wide reform of the curriculum, advocated a more profession-oriented curriculum. The three Dutch partner universities that collaborated with the Installation Commission from its start onwards, in a pre-project (and later on in the project), co-operated along the lines advocated by the Vice-rector and one Dutch partner university introduced the notion of a competence-based curriculum.

As described in Chapter 6 of this study the decision, that a competence-based curriculum would be the endpoint of the curriculum development process, was taken at the first joint planning workshop for the curriculum in the faculty, in November 1999, marking the start of the *design phase*. At the same time the author of this study, who was also a member of the Installation Commission, started the research project and announced his research intentions to the Installation Commission and Dutch partners. He functioned from that moment onwards as a 'designer-researcher'.

Design activities of the designer-researcher and the Dutch expert from the University of Twente, who would be responsible for assistance in the overall curriculum development process, together with the outcomes of discussions during a first curriculum workshop of February 2000, led to the formulation of a number of curriculum aspects or elements of the intended, competence-based curriculum. Although at the end of the design phase an intended curriculum could not yet be presented to the stakeholders of the curriculum development process, its main characteristics had been formulated by the designer-researcher (see Box 6.6) in collaboration with staff, Installation Commission and Dutch partners.

The curriculum development process resulted at the end of the *development phase* (July 2000 to August 2001) in a formal curriculum represented by a curriculum document (UEM, 2001) and some course outlines, representative of courses in the core part of the post-graduate programmes. The three post-graduate programmes (Adult Education, Curriculum and Instruction Development, and Science and Mathematics Education), as described in the curriculum document, would cover two years, a total of 80 'teaching weeks'. During the first part of the programmes a common core programme of 30 weeks would be offered with nine 'core courses' and short 'accompanying' courses to develop rapidly competencies in English, ICT and basic Mathematics. The second part of the programmes would be the specialisation phase for the three programmes and would cover 20 weeks of specialisation courses. The remaining 30 weeks would be used for a final research project, leading to the Masters title. The details are given below, in Figure 9.1.

Based on criteria for a competence-based curriculum that were formulated in Chapter 3 of the study it is concluded in Chapter 7 that the formal curriculum described in the curriculum document showed its competence-based character in a number of aspects. Graduate profiles had been formulated for the three post-graduate programmes, as well as domain-specific and generic competencies, based on professional profiles described on basis of a needs assessment and the expert view on the various professional areas. The document provided general directions for the creation of competence-based learning environments, and formative

assessment of students' progress in the form of a portfolio was recommended. However, it was not always clear how the (disciplinary) content had been derived from the graduate profile or the domain-specific and generic competencies.

| | 9 Core Courses | Contact hours | 10 generic competencies | Contact hours | Auxiliary courses | Contact hours |
|---|---|---------------|-------------------------------------|---------------|--|--|
| CORE 30 weeks 600 contact hours | Learning and Instruction | 45 | Communication | 40 | English | 40 |
| | Sociological and anthropological aspects of education in Mozambique | 45 | Information management | 30 | Computer introduction | 10 |
| | | | Research methodology and statistics | 10 | | |
| | Adult learning | 45 | Project management | 10 | | |
| | Curriculum theory and development | 45 | Social interaction | 10 | | |
| | Educational administration and management | 36 | Reflective competencies | 30 | | |
| | (Multi)media and ICT in education | 36 | Ethics | 10 | | |
| | Design methodology | 36 | Design methodology | 10 | | |
| | Research methodology | 36 | Multi-media, ICT | 10 | | |
| | Statistics (including basic Mathematics) | 56 | Leadership | 10 | | |
| | TOTAL | 380 | | 170 | | 50 |
| 3 Specialisations 200 contact hours 10 weeks | Mathematics & Science education | 200 | Adult Education | 200 | Curriculum and Instruction Development | 200 |
| Another 200 contact hours for the specialisations in about 20 weeks | | | | | | |
| | | | | | | Research Design Project 1200 working hours, 30 weeks |

Figure 9.1. Structure of the post-graduate programmes

There was, for the common core part as well as the specialisation phase of the programmes, no integration between content of the courses, for example in overarching themes. No specific indications had been given of the use of authentic learning environments (or authentic assessment) in a variety of professional contexts. Although generic competencies had been identified and the responsibility for their development had been distributed among the various courses in the common core, their integration into these courses was insufficiently addressed in the curriculum document. Analysis of four outlines of core courses on various curriculum aspects showed that two of these courses had a sufficient competence-based character. A clearer formulation of the intended outcomes of the educational programmes in terms of 'proof of competence', including the formulation of competence standards could have helped in aligning the content of courses to the graduate profiles, especially for those common core courses that related directly to the educational programmes (such as Adult Learning, Learning and Instruction, Curriculum Theory and Development). In addition the study concludes that more reflection would be needed on the role of disciplinary knowledge in an academic competence-based education programme and, at the same time, institutionalised contacts with the professional practice in the Mozambican context should be established.

The three post-graduate programmes started in August 2001 with, after some early withdrawals, 35 students, almost equally divided over the three programmes.

From the reconstruction and analysis of the *implementation of the common core curriculum* (August 2001 - April 2002) it can be concluded that the initial learning environments in most courses led to promising starts for the development of competencies. However, most courses lacked a strategy for a gradual increase of the autonomy of students, implying that students, in the end, would become fully responsible for their learning and for proving that they had developed the competencies required for academic educational professionals. The study identifies as necessary conditions for the development and implementation of such strategies a clear and supportive curriculum leadership, a regular reflection by staff on their practice and a close monitoring of students' practice, coaching of students and promotion of self-reflection by students on their way to full autonomy (using the portfolio as an aid).

Because the integration of generic competencies had not been sufficiently addressed in the formal curriculum, it is not surprising that the reconstruction and analysis of the enacted curriculum (as operationalised by staff and experienced by students) showed that the development of generic competencies fell victim to the attention for domain-specific competencies and disciplinary knowledge. Another point that follows from the reconstruction and analysis of the implementation of

the common core is that more co-ordination would be required in selection and use of assessment methods within and between courses. Competence-based education requires complete clarity for students about assessment criteria and, ideally, students being responsible for the proof of their competence.

As stated above this study covers design, development and implementation of the curriculum until the end of the first part of the post-graduate programmes, that is, the common core part. Therefore, the (research) question about the quality of the graduates (assessed curriculum) and their impact on the education system (attained curriculum) cannot be answered on basis of the results of the common core part of the post-graduate programmes. The results of the student interviews and the course evaluations by students suggest that the educational programmes might be effective and have the desired impact. In their self-assessment of generic competencies students perceived a development of all competencies, with a strong development in ICT competencies. Students also showed a good understanding of the concepts of competence and competence-based education.

9.1.3 Technical-professional aspects of the curriculum development process

Throughout the design, development and implementation of the curriculum, the designer-researcher, the Dutch curriculum expert and to a smaller extent the Installation Commission operated within the 'communicative paradigm' (Vischer-Voerman et al., 1999). Thus, curriculum development was done on the basis of consensus amongst stakeholders on what the problems were and what kind of curriculum should be developed in order to address these problems. The participants of early workshops and seminars emphasised the role of stakeholders in the curriculum development process and the importance of 'small steps' in implementing innovations, thus showing their preference for a communicative approach to the curriculum design and development process.

Internal consistency was aimed for through the alignment of all steps of the curriculum development process, including the formulation of professional and graduate profiles based on the results of a needs assessment. However, as shown in an evaluation of the formal curriculum by the researcher and four experts, the choice of content, and the design of learning environments were less aligned to a (intended) competence-based curriculum (see Section 7.10.2). External consistency was maintained by starting each curriculum workshop with the reconfirmation of decisions on curriculum aspects that had been taken in previous workshops. New steps were extensively discussed with all staff, throughout the design and development phases. Mozambican staff could be characterised in their involvement in the development of a competence-based curriculum as on their way from (in

terms of the model of De Feiter et al, 1995) the mechanical stage to the routine stage of development. In the words of the model this means a transition from uncertainty about use and dilution of an innovation because of adaptation to personal, professional capacity and motivation to willingness and ability to make an honest effort and attempts to adapt the innovation for standardised application, although remaining sceptical about immediate effects. This transition as well as the route to the next (professional) stage implied continued training and boosting the confidence of teaching staff, which was done, amongst others, through the activities of a staff working group, the 'Study Group', that, amongst others, prepared the needs assessment, and through the various workshops. A principle of 'pressure and support' was applied as well, where pressure came mainly from the Dutch counterparts and designer-researcher. This sometimes conflicted with the communicative, 'constructivist' approach, when the Dutch (and the designer-researcher) took initiative too soon and did not give time to the Mozambicans to construct their own solutions to the problems they encountered. The prevailing communicative approach was continued by the Dutch side during the implementation of the common core, but less prominently by the Mozambican staff, because they got increasingly involved in their own courses and did not share their experiences with other staff.

A number of initiatives to monitor and support the curriculum implementation (such as a system of study advisers for students, the requirement that each lecturer would elaborate an evaluative report on his course and the intention to meet weekly with the programme co-ordinators and lecturers that would, at that time, be teaching a course) was announced by the leadership of the faculty but did not materialise (see Section 8.7.4). This could be attributed to a lack of human resource capacity with too many tasks for a leadership with too few members. Formative evaluation during the implementation of the common core took place, mainly through activities and reports of the designer-researcher. Proposals for a revised common core in the next 'edition' of the programmes were not discussed with all staff, and were apparently not recognised by the leadership of the faculty as opportunities for staff reflection and development.

9.1.4 Socio-political aspects of the curriculum development process

The socio-political aspects of the curriculum development process could be described by the following conditions and activities that influenced the development and by the following roles of the various actors:

- Relevant conditions and activities included the issue of *finances*. Regular funding from the UEM administration proved far too little for the start-up activities and the curriculum development process and the faculty had to rely to a large extent

on funding by NUFFIC, the Dutch donor. Because the Installation Commission did not manage to get a smooth system going of transfer of funds for various start-up activities, a proper planning was seriously hampered.

- In terms of *staffing* the faculty, the study concludes in Chapter 7 that staff still had a 'sub-critical mass' during the early phases of the curriculum development process. The number of staff had increased in the first half of 2001, but not enough for teaching all courses when the faculty started its programmes. The official position of staff in co-ordinating roles remained unclear throughout the period described in the study. The only official landmarks were the (re-)opening of the faculty (after the decision to do so was withheld for some time) and the appointment of the Dean. This led to a situation where all power and responsibilities were concentrated in the only officially appointed leader (the Dean), which was thought by various actors to be a too heavy burden for one person in view of such a complicated process as the setting up of a new faculty (see Section 7.11).
- In the earlier stages of the curriculum development process *staff development* was provided by the Dutch experts (and the designer-researcher). However, the faculty leadership did not continue with the principle of 'pressure and support', nor developed a vision on staff development in relation to the implementation of change.
- *Communication*, even at the level of exchanging 'raw' information, was experienced problematic by the Dutch counterparts, as well as by Mozambican staff of the faculty. Although several times a communication structure was promised, this structure did not materialise in practice. This could have been caused by the difference in conceptions and beliefs on the role of communication between the Mozambicans and their Dutch counterparts. Hall (1983) distinguishes between high context and low context communication. High context communication is less verbally explicit, less written and less formal, and involves a more internalised understanding of what is communicated. Low context communication is rule oriented, public, external and accessible, and involves a network of interpersonal connections of shorter duration. It is task-centred. Although it are, in the end, the individuals that count, broad-brush differences between cultures of the Northern-European and African countries in terms of communication have been described as low-context versus high context (cf. Hall & Hall, 1990; Victor, 1992).

Various actors played a role in the curriculum development process.

- The *UEM leadership*, through the Rector, was in favour of a re-opening of the faculty. Although the early commissions had the task to investigate the

possibility and feasibility of re-opening the faculty, the UEM leadership made clear what the choice should be. The Vice-rector Academic Affairs supported indirectly the choice for a competence-based curriculum by advocating a vision of graduates as agents of change in the Mozambican society and pushing for a more profession-oriented curriculum in faculties of the UEM. After the Vice-rector Academic Affairs had left and no new Vice-rector was appointed, the UEM leadership did not intervene anymore in the curriculum development activities of the faculty. The Academic Council applauded the curriculum proposals and the University Council approved the plans for the faculty, although with some critical notes. No use was made of the opportunity to present the innovative curriculum plans of the faculty and the development process as an example for curriculum reform in other faculties, although the Academic Council made some recommendations in this direction.

- The early 'appearance on stage' of the *Dutch partner universities* has been an important factor in the curriculum development process. In absence of other donors and partners, and with a paucity of staff and expertise in curriculum development the Installation Commission had to lean heavily on Dutch expertise alone. In the initial stages of the curriculum development process the Installation Commission felt 'out of control' and overwhelmed by the Dutch input, but agreed consciously with the direction taken: the road towards a competence-based curriculum.
- The fact that only a small part of the *Installation Commission* was active with only one member (the Dean) with an official status did not contribute to the commission's capacity to manage the many development issues. Problems about the curriculum leadership and the role of the designer-researcher in the curriculum development process were resolved through the creation of the Working Group on Curriculum Development (GTDC), but not much changed in practice because most initiative in the curriculum development process was left to one member of the GTDC, the designer-researcher. The frequency of meetings of the Installation Commission reduced gradually during the development phase and the commission had its final meeting during the implementation of the common core, shortly after the start of the educational programmes. Although the Installation Commission was not officially dissolved it saw its task as finished with the start of the educational programmes. In a formal sense the implementation of the curriculum took place under the leadership of one person, the Dean, who, perhaps because of his unique (formal) leadership status, could not delegate much to other staff. The overall co-ordinator of the Masters programmes did not have such a formal status, which may have contributed to the fact that a number of initiatives in the area of formative evaluation of the curriculum implementation did not have a follow-up after their announcement.

- *Staff* worked, from the early stages of the curriculum development process, with enthusiasm and motivation, although with some caution in adopting the innovative competence-based curriculum. The newly recruited staff often lacked experience in teaching in higher education and had initially insufficient competence in the area of curriculum development. Staff competence was developed through their participation in the Study Group where the needs assessment was prepared and curriculum development issues discussed. The Study Group ceased functioning during the implementation of the curriculum. At that time the integration of generic competencies in the core courses was promoted by a new group of staff, the Working Group for Generic Competencies (GTCCG). This group fulfilled as well a catalytic role in the formative evaluation of the curriculum implementation. No special sessions were organised to introduce staff that joined the faculty at a later stage to the educational vision of the faculty and the particulars of a competence-based curriculum. Nevertheless, the Dean of the faculty recognised the danger of 'diluting' the competence-based approach when new staff would enter the faculty without a proper introduction into the curriculum.
- The student assessment of courses, the interviews and the self-assessment of generic competencies showed a *student population* that thought itself well capable for active and for co-operative learning and recognised their weaknesses and strengths. Students felt from the start of the programme restricted in the development of their competencies by the overload of planned learning activities and, on the other hand, the lack of clarity in some courses about criteria for a good performance. Probably because staff was very busy 'surviving' in teaching their courses for the first time, the signals from the students were not always received. Although students had chosen representatives, suggesting some influence, they did not really get involved in creating their own learning environments and apparently accepted that, which is not surprising in a culture with a high power distance (cf. Hofstede & Bond, 1988).
- After the start of the Masters programmes a steady stream of *Dutch experts* joined the Mozambican staff to co-teach the various core courses. This also meant regular contact and shorter lines of communication during the presence of the Dutch experts in Maputo.
- The main curriculum design and development activities were left to the *designer-researcher* who was responsible for three curriculum development workshops for staff of the faculty, the co-organisation of a working visit to the Netherlands (in March 2001 with the purpose to further develop the core courses and elaborate course outlines), and assistance of staff during the elaboration of course outlines. During the working visit most of the staff responsible for the core courses

worked in the three Dutch universities that co-operated with the faculty on the elaboration of course outlines and discussed also general aspects of the curriculum development process. After the working visit the direct involvement of the designer-researcher diminished because the planning of courses in the three educational programmes was done in the three groups and not anymore in the Study Group. When the Working Group on Curriculum Development was abolished, and the Installation Commission de facto dissolved, the position of the designer-researcher changed. He had gradually moved from the centre of the curriculum development process to a position where he had no access anymore to direct information on developments within the faculty, nor did he have a directive role in the further curriculum implementation.

Some problems in the co-operation between the faculty and its Dutch partner universities might be explained by differences in culture. The curriculum development process took place in the (Mozambican) context of a bureaucratic culture (Cusworth & Franks, 1993). The Dutch, including the designer-researcher functioned much more in a task-oriented culture, where expertise is more important than personal power or place in the bureaucratic culture. Intercultural communication, could have helped to clarify the different cultural 'stances' of the actors in the curriculum implementation project and to identify what was the influence of culture and what of personality and competence of the actors.

9.2 DISCUSSION

This section starts with a discussion of the research methodology used in this reconstructive case study with embedded 'moments of formative research'. An understanding of the roles of the researcher and his reconstructive and formative activities is essential for this study and therefore Section 9.2.2 is devoted to the role of the researcher in the curriculum development process and in the accompanying research. The section ends with a discussion of the findings of the study. The 'intervention model' that has been introduced in Chapter 5 is used to formulate, based on the findings, a number of substantive and procedural guidelines for the design, development, and implementation of a competence-based curriculum in the context of higher education in developing countries.

9.2.1 Discussion of the research methodology

This study concerns the reconstruction, analysis and reflection applied to the design, development and implementation of a competence-based curriculum for the Faculty of Education of UEM. These three elements of investigation form

together the 'reconstructive study' of the curriculum development process. Embedded in the reconstruction and analysis are small (formative) design studies that were done at various moments during the curriculum development process, aimed at "optimization of the quality of the intervention as well as testing design principles" (Van den Akker, 1999, p.6). While formative research activities during the curriculum development process were aimed at optimising product and process, the reconstruction and analysis can be seen as an evaluation of the quality of the product, that is, the curriculum in its various representations, and an analysis of the curriculum development process. This analysis has been done through a technical-professional lens, emphasising the procedural aspects and a socio-political lens, focussing on 'actors and factors'.

The study differs from reconstructive development research of multiple cases (cf. Van den Akker, 1999), where comparison and analysis of the cases leads to the articulation and specification of design principles (cf. Kessels, 1993). This study concerns the reconstruction of a single case, through a rich description, based on a multitude of data sources, followed by analysis and reflection. It resembles the 'case study in the process of curriculum change' of the Keele project (Shipman, 1974), where the researcher went 'inside a curriculum project', became a participant and afterwards did a reconstruction and analysis of the project. The idea of a participant-observer (and evaluator) appears as well in the studies of Walker (1975) that led him to the identification of the three basic phases in curriculum development: platform, deliberation and design.

As mentioned in the previous section the research project was guided by two problem statements, involving an investigation of competence-based education and its potential role for higher education in Mozambique, and the characteristics of 'product and process' of the design, development and implementation of a competence-based curriculum for the Faculty of Education at UEM. A literature study (Chapter 3) and the analysis of a needs assessment (Section 7.4) address the first problem statement. In order to address the second problem statement the author of this thesis collected, as a researcher, data that would later be used for the reconstruction and analysis of products and processes of the development of a competence-based curriculum for the faculty. The data collection covered the period November 1999, the beginning of the design phase, to June 2002 when the first 'edition' of the common core programme had ended. In his role as designer the author of this study was also involved in formative research activities.

The evaluation of product and process through an intervention model, inspired by Rossi and Freeman (1993) and Rossi, Freeman and Lipsey (1999) summarises the results of the study through various 'hypotheses' or 'heuristic statements' (see Box

5.1, repeated as Figure 9.2 in this chapter). It models the reconstruction and analysis as a 'virtual experiment' in which the hypotheses play a role as propositions. The mental exercise aimed at formulating the hypotheses goes along the following lines:

- Educational programmes are conceptualised as interventions that respond to a certain need (have a certain impact).
- In order to have an impact the programmes should have certain characteristics. In the case of the Faculty of Education the curriculum should be sufficiently competence-based.
- In order to have a curriculum with the required characteristics certain principles and procedures of design and development should be followed.
- A curriculum with the required characteristics should be implemented along certain recommended procedural guidelines in order to result in immediate outcomes that would in the end lead to the desired impact and answer the need.

The mental exercise results, as is shown in Section 9.2.3, in a list of indicators for the assessment of the competence-based characteristics of a curriculum, and a number of procedural guidelines that follow from the analysis of the reconstructed curriculum development process. Section 9.2.3 shows that the intervention model can be used to depict the 'final analysis' of design, development and implementation of an intervention.

The analysis of the reconstructed curriculum development process and the formative evaluation during design, development and implementation involved qualitative as well as quantitative methods. The data from various sources and collected through various methods resulted in a thorough, 'rich' reconstruction of the curriculum development process. In hindsight the reconstruction could have been enriched even more if the data on the development and implementation of all courses in the common core would have been collected. Unfortunately data on the course 'Sociological and anthropological aspects of education in Mozambique' were not collected, although this does not invalidate the analysis and reflection because it concerns only one of the nine core courses. The various roles of the researcher are possible sources of subjectivity and thus bias, which is particularly a danger for qualitative research (cf. Lincoln & Denzin, 1998). The roles and their relation to the research that was done are discussed below in Section 9.2.2.

9.2.2 Reflection on the researcher as designer and as member of staff

When the researcher started his research, in November 1999, he assumed as well the role of designer, who developed, together with the Dutch curriculum expert, the first design proposals for a competence-based curriculum. After the curriculum development workshop of February 2000 his designer role was made official

through his membership in the Working group on Curriculum Development, that was a sub-committee of the Installation Commission. As member of the Staderp project, the later Centre of Academic Development he was a member of the faculty staff. He also participated from early 1997 in the discussions about the re-opening of the faculty and got appointed as member of the Installation Committee. These various roles all interfered with the curriculum development process and the research activities, although over time in different degrees.

The designer role was more prominent at the beginning of the curriculum development process, especially during the design phase of the curriculum development process, resulting into an intended curriculum. During the development phase (the translation of the intended curriculum into a formal curriculum) staff acted as co-developers. This resulted into a curriculum document under joint authorship of designer-researcher, members of the Study Group and Installation Commission, and course outlines that had been written by staff that was responsible for the courses and without a direct authorship of the designer. After the formal curriculum stage the designer role diminished even more and the role as researcher/observer became more important, because staff was now fully responsible for the operationalisation of the formal curriculum and the designer-researcher only acted as designer when asked by staff for assistance. At the same time his influence as 'leader' in curriculum issues (some staff gave him the nickname 'general of the generic competencies') had diminished considerably because the Installation Commission had de facto been dissolved while the curriculum leadership had effectively not been taken over.

Shipman (1974) describes his roles as researcher and increasingly as participant in a curriculum project as follows:

"It would also be misleading to suggest that the researcher's role was consistent. I was accepted as a sociologist who would observe, question and test. But soon I became participant observer, then took on small jobs for the team as participant without observing, and by the end seemed to have a consultant role on the professional side and was one of the boys on the personal side. This made it a delightful enterprise and enabled this blend of insider/outsider report to be produced. But it may have reduced my objectivity" (p. ix).

The designer-researcher went more or less the reverse way, starting as team member, becoming a designer and later on more and more observer. But he remained 'one of the boys on the personal side'. In Shipman's study independent contributions of other 'insiders' appear in the text as comments on his observations and analysis. The author of this study has, apart from constantly being aware of potential bias, used the informed opinion of other 'critical outsiders' within UEM but outside the faculty and experts from the Netherlands. In his assessment of the formal curriculum, based

on the curriculum document that had been produced at the end of the development phase (UEM, 2001), he used triangulation by comparing his assessment results with those of four experts in order to further reduce bias. The opinions of these experts coincided largely with the assessment of the designer-researcher.

In two other studies involving development research the role of the researcher has been addressed. Thijs (1999) observes, in her study on the potential of peer coaching for curriculum reform in Botswana, that stakeholders were also co-designers of the intervention. She describes her researcher role as 'dedicated participant' and 'critical outsider, similar to what in this study has been described as 'designer' and 'researcher'. She warns for bias because the researcher might be less critical in case of her own design activities. The involvement by the designer-researcher of critical outsiders in the reconstruction and analysis has been mentioned above. The use of various data sources and various methods in collecting data signified triangulation through "multiple occurrences or representations of the processes being studied" or "a different picture and slice of reality" (Denzin, 1994, p. 6464-6465). This means that the perception of the researcher was shaped by multiple sources of information representing multiple perspectives, thus preventing bias in interpreting the data during the reconstruction and analysis of the curriculum development process.

Odenthal (2003) mentions the advantage of being a dedicated participant in getting, through a more intensive contact, more and deeper insights in the phenomena under study. There is, on the other hand, the difficulty of being able to keep the distance, needed for an unbiased view (cf. Flick, 1998; Van Maanen, 1988). During the research described in this study the researcher had an outspoken role as dedicated participant throughout the curriculum development process. It is described by Lincoln and Denzin (1998) as one of the possibilities to "speak authentically about the experience of the Other" (p.411). By carefully documenting and reporting the different perspectives the study has stayed close to this process and offers readers the opportunity to build their own interpretation for use in his own context (cf. Van den Akker, 1999, p. 12). The danger of socially desirable answers in interviews or questionnaires, when the researcher has intensive contact with the respondents has been noted by the researcher, but the intensity of the contacts allowed, as argued above, more insight in the perceptions and motives of staff and students and helped in 'extracting' unbiased, critical answers from the respondents. Socially desirable answering could, however, not totally be avoided, due to cultural influences such as a high power distance (Hofstede, 1994), where authority and inequality of power are emphasised, and high context communication (Hall, 1983), where there is no emphasis on passing on information, as most of it lies in the context.

9.2.3 Discussion of the intervention model and the curriculum development process

In Chapter 5 the intervention model, adapted from Rossi, Freeman and Lipsey (1999), was introduced as a contextual framework for the analysis of the reconstructed curriculum in its various phases of development. The model is given below in Figure 9.2. Most of the statements or 'hypotheses' in this model can now be answered and completed, based on the reconstruction and analysis of design, development and implementation as elaborated in Chapters 6, 7, and 8.

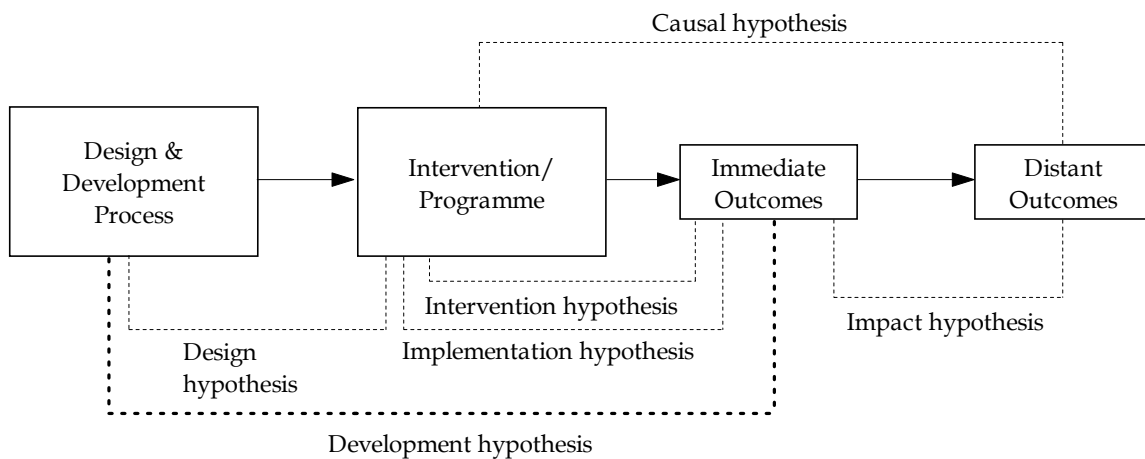


Figure 9.2. An intervention model of the curriculum development process

The **causal hypothesis**: "*The sub-optimal functioning of organisations/institutions involved in education and training is caused by a lack of institutional knowledge and capacity*" was addressed to some extent in the needs assessment. Section 7.4 mentions that almost 80% of 61 representatives of the education and training sector in Mozambique indicated that it would make a big difference for their institution, if qualified professionals could be recruited. The problems that institutions and organisations experienced as a result of the lack of competent educational professionals were the lack of specialised institutional knowledge, the low level of didactical and pedagogical competence, and the lack of capacity to manage interventions.

As argued in previous chapters the **impact hypothesis**: "*Having graduates as competent educational professionals raises the institutional knowledge and capacity of organisations/institutions involved in education and training*" falls outside the scope of this study. Although some inferences could be made about the immediate outcomes, not much could be said with certainty about the distant outcomes of the intervention (the impact of the three post-graduate programmes).

In Table 5.4 the **intervention hypothesis**: "*A competence-based educational programme with characteristics C_1, C_2, \dots, C_m will lead to competent educational professionals*" has been related to the intended curriculum. In combination with the implementation hypothesis the intervention hypothesis can also be seen as a statement about the formal/written curriculum that, when implemented as expected, should result in competent educational professionals. Therefore, the characteristics C_1, C_2, \dots, C_m could be considered characteristics of the intended and formal curriculum. The characteristics of an intended competence-based curriculum have been elaborated in Section 6.7.2 and formulated as criteria for the design of a competence-based curriculum in Box 6.6 (see also Section 9.3.3).

The question what are competent educational professionals has been partly answered by the needs assessment and the formulation of professional and graduate profiles. It has been noted that competence standards were lacking in most courses, which makes the analysis of the 'assessed curriculum' more difficult at this stage. Chapter 8 concludes that not much could be said in measurable terms about the assessed curriculum, but that some extrapolations could be made from the experiences of staff and students. Students experienced an increase of their knowledge and a development of relevant competencies that had a direct impact on their functioning as educational professionals. Staff noticed the conceptual shallowness of the work of some students, indicating poorly developed competencies in research and critical reasoning. The development of these generic competencies had apparently not been addressed sufficiently in the various core courses.

In the **design hypothesis**: "*A design and development process with characteristics D_1, D_2, \dots, D_k will produce a (formal) curriculum with characteristics C_1, C_2, \dots, C_m* " the 'produced' curriculum is in Goodlad's terms the formal curriculum. The design and development process should lead to a formal curriculum that resembles as closely as possible the intended curriculum and will do so when the procedural guidelines D_1, D_2, \dots, D_k are followed. The two overarching principles should be internal and external consistency (cf. Kessels, 1999b). Three procedural guidelines were formulated in Chapter 6 as 'lessons' drawn from the workshops in the initial stage of the curriculum design phase:

1. *It is important to have a group of stakeholders/participants that is large and diverse enough to create a 'platform of ideas' leading to the design of a 'functional' curriculum. (cf. Walker, 1990).* The metaphor of a 'platform' also refers to the fact that a large and diverse group of stakeholders can form a strong support-base for building the curriculum. Functional implies in the first place external consistency, but the input of stakeholders could also contribute to internal consistency of the curriculum (cf. Kessels & Plomp, 1999).

2. *It is important to involve all staff in the design and development process and create during the process opportunities for learning and development.*
3. *It is important to set up a functional communication network, linking all the actors involved in the curriculum development process. Communication could help, amongst others, to address certain characteristics of change (cf. Fullan, 2001), such as (the lack of) clarity or the complexity. It could also facilitate reflection on the roles of the various actors with various cultural backgrounds in the process.*

The assessment of the formal curriculum in Chapter 7, based on a list of characteristics of competence-based education that was compiled in Chapter 3, led to the observation that not all aspects had a strong competence-based character or had been sufficiently elaborated. This concerned aspects such as assessment, the alignment of content to the professional profile, the authenticity of learning situations, and the integration of generic competencies. On the other hand, the curriculum documents were hailed by the Academic Council for their logic, and clarity and detail, in other words their internal consistency. The search for causes of the deviation of the formal curriculum from the intended curriculum results into the identification of procedural guidelines (guidelines 4 and 5, see below) that were not followed and thus led to a curriculum with different characteristics. In Section 7.10.2 it was observed that the curriculum document and course outlines for the common part of the post-graduate programmes should be considered a first prototype of a competence-based curriculum for the faculty, showing to a great extent the stage of development of staff. Three reflections can be made here. In the first place the cyclical (or spiral) nature of the design, development and implementation of the curriculum, implies a continuous evaluation of product and process. Secondly the close involvement of staff in the design and development process implies a need for a strong staff development programme resulting into staff as competent co-designers and developers. The need for staff development was already formulated in the early stages of the curriculum development process, as indicated above. In the third place, because of the prominent place of staff in the design and development process, the role of the designer-researcher was restricted, because he was not solely responsible for all aspects of the formal curriculum. 'Flaws' in the formal curriculum could be remedied by producing a next prototype and having a strong 'curriculum leadership' that would manage the whole curriculum development process. Thus, the following additional procedural guidelines could be formulated:

4. *The formal curriculum, as represented by the curriculum document and course outlines, should be revised regularly through implementation and evaluation of subsequent 'prototypes'.*

5. *In a curriculum development process where staff members are co-designers and developers, the (curriculum) leadership should manage this process by providing clear directions and support at the same time.*

The procedural guidelines that have been formulated for the design hypothesis are also valid for the **implementation hypothesis**: "*Implementation of a competence-based curriculum along the procedural guidelines P_1, P_2, \dots, P_n will lead to competent educational professionals*". The implementation hypothesis concerns the enacted curriculum, operationalised by staff, experienced by students and the assessed curriculum with 'competent educational professionals'. Again, these curriculum representations should resemble as closely as possible the intended curriculum.

During the implementation of the common core quite some formative evaluation took place, involving staff and students. At crucial moments, such as a meeting about the revision of the common core, not all staff was involved. Students were heard, had chosen representatives but were not deliberately encouraged to take responsibility for their own competence development. Therefore, the following procedural guideline can be formulated:

6. *During the implementation phase of the curriculum development process formative evaluation should be done involving all relevant staff and students. Apart from separate reflection by staff and by students, a 'consultative council' could be formed consisting of staff, students and leadership of the faculty that should deliberately discuss curriculum implementation issues.*

A student-centred approach where students would increasingly take responsibility for their own competence development would necessarily have an impact on the socio-political and cultural fabric in the faculty, putting students at moments 'on par' with staff and leadership. A consultative council would be a symbol of this new context.

The integration of generic competencies was one of the issues for which the designer-researcher proposed to establish a working group. This Working group for Generic Competencies initiated some activities and formulated proposals for the integration of generic competencies, but was not heard by the leadership of the faculty. As observed above it also fulfilled a catalytic role in the formative evaluation of the curriculum, because it was the only group in which curriculum implementation issues were discussed next aspects of the generic competencies. From this experience the following procedural guideline could be formulated:

7. *Special implementation issues could best be addressed by forming working groups. These groups should have an official status and their activities should regularly appear on the agenda of leadership meetings.*

Curriculum implementation takes place in interplay with four 'forces' (cf. Van den Akker, 1998b). There are 1) curriculum intentions (as represented in intended and formal curriculum and in curriculum materials); 2) context factors (support from administration, strong curriculum leadership, co-operating colleagues); 3) curriculum experiences and effects (students); and, finally, as a very important force, the teachers/lecturers. These aspects of curriculum implementation have been addressed already in various procedural guidelines and in the design criteria for a competence-based curriculum. One aspect of the teacher as important factor in the implementation needs some additional emphasis. It concerns the role of staff development. In Chapter 4, three aspects of change implementation that are essential for the 'users' (Fullan, 1991) were given as 1) sufficient clarity of the innovation; 2) readiness at organisation level and at the level of capacity of the users; and 3) sufficient support during the implementation. In Chapter 8 the observation was made that, in terms of readiness, almost all local staff were teaching for the first time their courses that were part of an innovative curriculum. For many it was also the first time that they were doing so with adults as students, in a post-graduate setting. The need for a continuous staff development has been emphasised throughout this study. It could best be part of an overall implementation plan that would take steps not too big (cf. Van den Berg & Vandenberghe, 1999) and remain within the 'zone of proximal innovation', the 'Vygotskian' term applied by Rogan et al. (2002) to their 'theory of implementation'. Based on the above reflection on curriculum implementation aspects and the need for an implementation plan, the following procedural guideline could be formulated for curriculum implementation:

8. *Implementation of an innovative curriculum should occur along an implementation plan with the following characteristics:*
- Have a flexible 'script' of implementation steps.
 - Include instruments for formative evaluation and monitoring.
 - Contain a staff development plan.
 - Outline a clear and easily accessible support structure.

Process and product in the development of a competence-based curriculum for the faculty, from first design steps to immediate outcomes (competent educational professionals) are represented through the **development hypothesis**: "*A design and development process with characteristics D_1, D_2, \dots, D_k will produce a curriculum with characteristics C_1, C_2, \dots, C_m that, when implemented along the procedural guidelines P_1, P_2, \dots, P_n , will lead to competent educational professionals*".

The characteristics of the design and development process leading to the (formal) curriculum and the procedural guidelines that would lead to the intended

(immediate) outcomes have been described above under the various 'partial' hypotheses. Some observations on the entire curriculum development process result into additional guidelines related to the development hypothesis.

The first observation concerns the role of the profession, the 'world of work' in the curriculum development process. The stakeholders, mentioned in the first procedural guideline, include members of the Mozambican educational community outside the UEM. They partly represented, during the early workshops in the curriculum development process, the world of work. However, a more institutionalised and continuous contact should have been established with the professions that relate to the educational programmes of the Faculty of Education. The needs assessment offered an excellent opportunity to do this, but the results of this exercise were not discussed with the world of work nor were they communicated to the interviewees that participated in the needs assessment. Especially in competence-based education with its strong link between competence and the realisation of (key) occupational tasks a direct and free-flowing contact with the world of work is imperative. The importance of institutionalised contacts with representatives of the education sector as professional area is formulated in the following procedural guideline:

9. *For the realisation of a competence-based curriculum an institutionalised form of contact with the education profession is essential.* One possibility would be to create a 'reference group', a kind of advisory board, consisting of representatives of the faculty, UEM and the education profession.

In the literature on 'managing change' (see Section 4.3.3) the importance of physical and human resources has been emphasised (cf. Fullan, 1985; Rogan et al., 2003; Verspoor, 1989). In terms of human resources the most important aspect was the assistance and co-operation by experts from the Dutch partner universities. The behaviour of the Dutch was not always as the Mozambicans would expect and vice versa. Knowledge of the own cultural background and that of the 'other' could assist in explaining certain 'unexpected' behaviour. Describing the culture of a country or a city in that country or an institution in that city could be done with instruments provided, for example, by Hofstede (1994) with his four dimensions, by Cusworth and Franks (1993) with their descriptions of cultures of organisations, or by Hall (1983) with his concepts of time, context, and space. This inevitably leads to generalisations because no African/European country is the same and no Mozambican/Dutchman is the same. Nevertheless, these conceptions of culture may be used as instruments to facilitate a 'third stance' (Kramsch, 1993) from which both parties could engage in intercultural communication while contemplating their own culture 'from a distance'. In the form of a procedural guideline the above could be summarised as:

10. *The curriculum development process will be more effective when all actors in the process are aware of the influence of cultural background on the behaviour of themselves and the others and when they have developed intercultural communication competency.*

This reflection on the curriculum development process ends with a consideration of some 'principles' for the implementation of change (see Section 4.3.3) formulated by Hall and Hord (2001):

- Change is a process, not an event. This statement, adapted from Fullan and Miles (1992), suggests that change is a long process and is not 'overcoming' the actors involved in the change, but should be monitored and managed. The Faculty of Education at UEM is still in the middle of the implementation of its innovative curriculum. The end of the journey has not been reached yet and, therefore, competent monitoring and 'navigation' are needed to keep the road with a clear sense of direction.
- An organisation does not change until the individuals within it change. Throughout this study the need for staff development has been emphasised. Life-long learning should not be preached only, but also practiced. This requires a continuous reflection and study by staff and leadership of the faculty. Experts from outside could play an important role, but should not be used to offer a menu of educational alternatives from which staff can choose. Rather, reasoning along constructivist lines, staff (and leadership) of the faculty should construct their own conceptions and operationalisations of competence-based education and use the outside expertise to support them in their construction activities.
- Administrator leadership is essential to long-term change success. Two other statements of Hall and Hord (2001) refer to similar aspects: "Although both top-down and bottom-up change can work, a horizontal perspective is best", and "Mandates can work." These two statements seem a little contradictory if one interprets 'mandate' as an assignment, a 'marching order', but when one takes 'mandate' as the delegated authority to take decisions, it refers as well to the 'horizontal perspective'. As argued in Chapter 4, managers of successful programmes try to stay as close as possible to the implementation process in the classrooms (Verspoor, 1989). This did not happen during the various phases of the curriculum development process in the faculty, especially the implementation phase. Causes might have been the lack of administrative capacity in the faculty, resulting in too few doing too much, and perhaps the impediments of a bureaucratic culture where leadership would not communicate with staff outside a formal context.
- Facilitating change is a team effort. In line with the above this statement once more reiterates the importance of collaboration between staff, leadership,

designer-researcher and outside actors. The recommendations of Little (1981) talk about being informed about each other's practices, for example in the classroom, and about co-operation during all phases of the curriculum development process. Especially in a bureaucratic culture a well developed formal communication structure should keep information flowing between the actors. This might lead to more informal communication, feeding the team spirit and motivation. Co-operation should also be managed, for example through regular reflection sessions, peer teaching, and observing each other's teaching.

9.3 RECOMMENDATIONS

In the final part of this concluding chapter of the study recommendations are formulated. The previous chapters (6, 7 and 8) contained the reconstruction of the curriculum development process, followed by an analysis on substantive aspects and procedural aspects or 'product' and 'process'. Analysis of the substantive aspects of the curriculum that has been designed, developed and implemented included ten curriculum elements (cf. Van den Akker, 2003) and, as a separate aspect, generic competencies. The analysis was guided by an 'assessment instrument' that was obtained from a literature study. Procedural aspects were analysed through technical-professional and socio-political lenses. A reflection on the reconstruction and analysis was done (in Section 9.2.3) with help of an 'intervention model' that describes the curriculum development process from front-end analysis to impact. The reflection resulted in a number of characteristics of a competence-based curriculum and a number of procedural guidelines for design, development and implementation of such a curriculum. These recommendations could be seen as the most important design principles that are the results of this study and that may be used by designers in comparable contexts, for example interested other institutions of higher education in developing countries. Some of the recommendations are general enough to be usable in the context of (higher) education in more developed countries as well. For the sake of convenience the design criteria for a competence-based curriculum and the procedural guidelines for design, development and implementation that were formulated in Section 9.2.3 are repeated in Section 9.3.1. This is followed by more specific recommendations for further development in the Faculty of Education and recommendations for further research.

9.3.1 General recommendations

Design criteria for a competence-based curriculum and the procedural guidelines for design, development and implementation of such a curriculum were

formulated as a result of the reconstruction, analysis and reflection of the curriculum development process (see Section 9.2.3) and are repeated below.

1. A competence-based curriculum should have the following characteristics:
 - A competence-based curriculum (CBC) is based on the future occupational practice of the graduate.
 - Curriculum development is based on the elaboration of professional and graduate profiles and identification of competencies.
 - Curriculum content, learning environment and assessment depend on the identified competencies (principle of backwards designing).
 - Learning environments and assessment are focussed on competencies and aligned.
 - A CBC is learner-centred and the learning process is central.
 - In a CBC the role of the teacher is that of a 'cognitive guide'.
 - A CBC has a constructivist approach.
 - A CBC includes the development of generic competencies.
2. It is important to have a group of stakeholders/participants that is large and diverse enough to create a 'platform of ideas' leading to the design of a 'functional' curriculum. (cf. Walker, 1990).
3. It is important to involve all staff in the design and development process and create during the process opportunities for learning and development.
4. It is important to set up a functional communication network, linking all the actors involved in the curriculum development process.
5. The formal curriculum, as represented by the curriculum document and course outlines, should be revised regularly through implementation and evaluation of subsequent 'prototypes'.
6. In a curriculum development process where staff members are co-designers and developers, the (curriculum) leadership should manage this process by providing clear directions and support at the same time.
7. During the implementation phase of the curriculum development process formative evaluation should be done involving staff and students.
8. Special implementation issues could best be addressed by forming working groups. These groups should have an official status and their activities should regularly appear on the agenda of leadership meetings.
9. Implementation of an innovative curriculum should be done through an implementation plan that should have the following characteristics:
 - Be a flexible 'script' of implementation steps.
 - Include instruments for formative evaluation and monitoring.
 - Contain a staff development plan.
 - Outline a clear and easily accessible support structure.

10. For the realisation of a competence-based curriculum an institutionalised form of contact with the professional practice is essential.
11. The curriculum development process will be more effective when all actors in the process are aware of the influence of cultural background on the behaviour of themselves and the others and they have developed intercultural communication competency.

9.3.2 Recommendations for further development

The following is recommended with respect to the further development and implementation of a competence-based curriculum for the Faculty of Education at UEM.

1. *It is important to set up a functional communication network, linking all the actors involved in the curriculum development process.*

This recommendation, also formulated as procedural guideline 3 in the previous section, has been heard from the beginning of the curriculum development process and has been mentioned throughout this study. Further comment is, therefore, not necessary.

2. *Regular contacts should take place between staff of the various educational programmes and the 'world of work'.*

Staff should always stay informed about the latest developments in Mozambique in their professional fields. This could help them in creating authentic learning environments, for example through actualised cases. Staff should also solicit the opinion of professionals about the education and training of professionals and, at the same time, inform them about the competence-based programmes in the faculty. A critical examination of professional and graduate profiles should take place, based on the informed opinion of expert professionals, in- and outside Mozambique. In procedural guideline 8 the establishment of a form of 'institutionalised contact' is recommended, for example through a 'reference group'.

3. *A continuous reflection should take place on the implementation of the curriculum, followed by new cycles of redesign and development.*

This does not mean that every year a completely new curriculum has to be implemented. One should rather think in terms of 'successive approximation' of the ideal competence-based curriculum, implying that each next 'prototype' of the formal and enacted curriculum should differ less from its predecessor.

Elements of a continuous reflection are:

- Standardised course evaluations by students. Standardisation would help in processing the data and comparing the results.

- An institutionalised (programmed) exchange of experiences in the various educational programmes at all levels. Meetings could have a fixed agenda and could be prepared by collecting views, experiences, and questions in advance.
 - The status of competence-based education in the faculty should be monitored, for example through a check-list as used in this study (see also below).
4. *Further development activities should take place in a number of areas, mentioned below.* The best way to promote these activities would be through the establishment of working groups that have a formal status, discuss their work regularly with the leadership of the faculty and communicate continuously with the staff.

Areas where further development is needed:

- **Assessment:** assessment procedures should be 'harmonised' between the different educational programmes. The role of students in determining their own assessment should be considered. This would include the introduction of a portfolio as the basis of assessment of acquired and developed competence.
 - **Generic competencies:** the list of generic competencies should critically be assessed on its relevance. Certain generic competencies in this list, such as research competencies, design competencies and ICT competencies should be addressed from the beginning of the programmes. For all generic competencies learning trajectories should be developed. A development plan would help to gradually introduce the development of generic competencies.
 - A profound discussion should take place within the faculty about the role of disciplinary knowledge in the (competence-based) curriculum. This should include a reflection on the perceived controversy of 'academic' versus 'professional' curriculum. It should also address the alignment of the content of the educational programmes and the professional and graduate profiles.
5. *Students should be involved to a greater extent in their own development.* Procedural guideline 6 recommends to include students in the reflection on curriculum implementation. Reflection on their own development is one of the generic competencies, mentioned in the curriculum document. This reflection could be promoted through the use of a portfolio and the introduction of a system of student advisers that could 'coach' the students during their development in the educational programmes.
6. *Responsibility for the further curriculum development should be formalised and institutionalised.*

Throughout this study the necessity of a clear, competent and dedicated curriculum leadership had been emphasised. There would be need for a 'champion' of competence-based education, who could monitor the further development process, assist the staff in their professional development in this area and be a reference point for methodological and strategic aspects of the

curriculum. Staff development involving the new and the old staff as well as a 'guard' with some formal power could prevent a dilution of the competence-based characteristics of the curriculum.

7. *In case of assistance by foreign experts in the establishment of the faculty and the development of its curriculum, the role of cultural background should be discussed at an early stage.*

The importance of awareness of one's own culture and that of the other and the role of intercultural communication has been emphasised in various parts of this study.

8. *The efforts to improve the infrastructure of the faculty should be continued.*

Not much has been said in this study about the infrastructure of the faculty, other than that students had some reservations but were, in general, satisfied with the physical conditions of their learning environment. Much has been achieved in a short time and it should be recommended to continue particularly the efforts to get a well-stocked library and a well-equipped computer room for students.

9.3.3 Recommendations for further research

Further research related to the design, development and implementation of a competence-based curriculum in the Faculty of Education at UEM should include:

1. *The development and piloting of a set of instruments for monitoring and formative evaluation of further curriculum development and implementation.*

These instruments should facilitate the communication between staff about their programmes and courses and could provide valuable material for further study on the 'how and what' of competence-based education in the context of Higher Education in Mozambique. The instruments would include questionnaires for course assessment by students, checklists for the monitoring of various curriculum aspects, instruments for staff reflection. Perhaps a 'monitor of the status of competence-based education' in the faculty could be developed.

2. *A reconstruction and analysis of the specialisation phase and research phase of the educational programmes, in the same way as the implementation of the common core part of the post-graduate programmes has been reconstructed and analysed.*

This would make it possible to relate the immediate outcomes of the programmes to the characteristics of the curriculum and its implementation. In a similar way research could be done on the graduate programmes offered by the faculty, for example the Psychology programme.

3. *Student outcome studies.*

The impact of the programmes offered by the Faculty of Education could be measured through longitudinal studies of the professional career of graduates. This could result in an assessment of the 'distant outcomes' of the educational

intervention, as described in the intervention model in Chapter 5. Knowledge of the distant outcomes might allow the verification or rejection of the causal hypothesis linking the need for the educational programmes to the improvement of the quality of the education system in Mozambique. It would, however, be difficult to determine what part, in case of an improvement, could be attributed to the impact of the educational programmes of the faculty.

9.4 A FINAL COMMENT

It has certainly been a unique opportunity to design, develop and implement a new, innovative curriculum for a Faculty of Education in a university of a Southern African country. Much has been achieved in a short time and the curriculum of the three post-graduate programmes is definitely different than the average educational programmes in faculties of education in the region. The Faculty of Education at UEM has shown its commitment to develop competence-based curricula, not only for post-graduate but also under-graduate programmes. It should, in its contacts with other faculties and departments of UEM, for example when designing teacher education programmes (educational options), show the same commitment. Hopefully the faculty will continue on the road towards competence-based education. To remain 'on the move', the curriculum should go through various cycles of evaluation, redesign, redevelopment and implementation. Only in that way 'implementation failure' can be avoided and the validity, practicality and effectiveness of the curriculum increased. At the same time it should be realised that reality is often not as makeable as we would wish.

The research on the curriculum development process has already been communicated to an African audience at a number of regional conferences or published in regional journals (Kouwenhoven, 2001 ; Kouwenhoven & Januário, 2001; Kouwenhoven, Howie & Plomp, 2003). The dissemination of the findings of this study inside and outside Mozambique could inform other faculties at UEM, other institutions for higher education in Mozambique and in the region about theoretical and practical aspects of designing, developing and implementing competence-based education based on the case of the Faculty of Education at the Universidade Eduardo Mondlane University in Mozambique. With this study in hand the faculty might join the frontline debates about Higher education in the 21st Century and continue the reflection and research on the design, development and implementation of competence-based education.

REFERENCES

- Adkins, J. (1997). *Metacognition: Designing for transfer*. Retrieved October 4, 2002 from <http://www.usask.ca/education/coursework/802papers/Adkins/ADKINS.PDF>
- Alverno College Faculty (1985). *Assessment at Alverno College, revised edition*. Milwaukee: Alverno Productions.
- American Academy of Physician Assistants (1996). *Professional competence - A position paper prepared by the educational council of the American Academy of Physician Assistants*. Retrieved August 16, 2002 from <http://www.aapa.org/policy/professional-compet.html>
- Anderson, J.A. (1983). *The architecture of cognition*. Cambridge, MA: Harvard University Press.
- Argyris, C., & Schön, D. (1974). *Theory in practice: Increasing professional effectiveness*. San Francisco: Jossey-Bass.
- Argyris, C., & Schön, D. (1978). *Organizational learning: A theory of action perspective*. Reading, MA: Addison Wesley.
- Armanto, D. (2002). *Teaching multiplication and division realistically in Indonesian primary schools: A prototype of local instructional theory*. (Doctoral dissertation). Enschede: University of Twente.
- Ashcraft, M.H. (1994). *Human memory and cognition*. New York: Harper Collins
- Ashworth, P.D., & Saxton, J. (1990). On 'competence'. *Journal of Further and Higher Education*, 14 (2), 3-25.
- Association for the Development of Education in Africa (1999). Higher education in Africa: the way forward. *ADEA Newsletter*, 11 (1). Retrieved on November 12, 2002 from www.adeanet.org/newsletter/Vol11No1/en_01.html
- Association of African Universities, & the World Bank (1997). *Revitalizing universities in Africa: Strategy and guidelines*. Washington: World Bank.
- Atkinson, A. (2001). *Models of key, transferable skills delivery in HEIs in England and Wales*. Paper presented at the 2nd Annual Skills Conference, held at the University of Hertfordshire, Hatfield, July 11-12.
- Bailey, T., & Merritt, D. (1995). *Occupational job analysis*. Retrieved April 4, 2002 from <http://ncrve.berkeley.edu/abstracts/MDS-777/Projects3.html>

- Baily, A. (1994). Personal transferable skills: the role of higher education. In P. Wright (Ed.), *Industry and Higher Education*. Buckingham: Society of Research in Higher Education and Open University Press.
- Baldwin, G., & Arias, A (1994). *The evolution of electronic pedagogy in an outcome based learning environment: a formative evaluation*. Retrieved July 19, 2002 from <http://indian.monterey.edu/gbaldwin/csumb-obe.html>
- Bannink, E.A. (2001). *Learning in contexts: four cases in higher education*. (Doctoral dissertation). Amsterdam: University of Amsterdam.
- Bates, I. (1995). The competence movement: Conceptualising recent research. *Studies in Science Education*, 25, 39-68.
- Beeby, C.E. (1966). *The quality of education in developing countries*. Cambridge, MA: Harvard University Press.
- Beer, M., Eisenstat, A., & Spector, B. (1990). *The critical path to corporate renewal*. Boston, MA: Harvard Business School Press.
- Beile, P.M. (1997). Great expectations: Competency-based training for student media center assistants. *MC Journal: The Journal of Academic Media Librarianship*, 5 (2). Retrieved March 15, 2002 from <http://wings.buffalo.edu/publications/mcjrnl/v5n2/beile.html>
- Bell, J.C., & Mitchell, R. (2001). Competency-based versus traditional cohort-based technical education: a comparison of students' perceptions. *Journal of Career and Technical Education*, 17 (1), 5-22.
- Benjafield, J.G. (1997). *Cognition*. Upper Saddle River, NJ: Prentice Hall.
- Benjamin, H. ([1939] 1975). The saber-tooth curriculum. In M. Golby, J. Greenwald, & R. West (Eds.), *Curriculum design*. London: Croom Helm/Open University Press.
- Benner, P. (1984). *From novice to expert: excellence and power in clinical nursing practice*. Menlo Park, CA: Addison-Wesley.
- Bennett, N., Dunne, E., & Carré, C. (1999). Patterns of core and generic skill provision in higher education. *Higher Education* 37 (1), 71-93.
- Bereiter, C. (2002). Design Research for Sustained Innovation. *Cognitive Studies, Bulletin of the Japanese Cognitive Science Society*, 9(3), 321-327.
- Bereiter, C., & Scardamalia, M. (1996). The Handbook Of Education And Human Development: New models of learning, teaching and schooling. In D. Olson, & N. Torrance (Eds.), *Rethinking Learning* (pp. 485-513). Cambridge, MA: Basil Blackwell.
- Berliner, D.C. (2002). Educational research: the hardest science of all. *Educational Researcher*, 31 (8), 18-20.
- Berman, P., & McLaughlin, M. (1979). *An exploratory study of school district adaptations*. Santa Monica, CA: Rand Corporation.
- Biggs, J. (2002). *Aligning the curriculum to promote good learning*. Paper presented at the conference Constructive Alignment in action: imaginative curriculum symposium, held in London, November 4.

- Birkett, W.P. (1993). *Competency based standards for professional accountants in Australia and New Zealand*. Sidney: Australian Society of Certified Practicing Accountants.
- Blackmore, P. (1999). A categorisation of approaches to occupational analysis. *Journal of Vocational Education and Training* 51 (1), 61 - 78.
- Boekaerts, M. (1999). Self regulated learning: Where we are today. *International Journal of Educational Research*, 31 (6), 445-458.
- Bolhuis, S.M., & Kluvers, C. (1998). Procesgericht onderwijs in het studiehuis [Process-oriented education in the study home]. In J. van den Akker, J. Pieters, I. Visscher-Voerman, & A. Wald (Eds.), *Studiehuis en onderwijsonderzoek* [Study home and educational research] (pp. 99-104). Leuven: Garant (Studiehuis, 4).
- Bolton, A., Brown, R.B., & McCartney, S. (1999). The capacity spiral: four weddings and a funeral. *Journal of Vocational Education and Training*, 51(4), 585-605
- Bontius, I., Den Boogert, K., & Huisman, J. (2001). *Het leren van competenties: drie ideaaltypische opleidingsontwerpen* [The learning of competencies. Three typical curriculum designs]. 's Hertogenbosch, the Netherlands: CINOP.
- Boon, J., & Van der Klink, M. (2001). *Scanning the concept of competencies: how major vagueness can be highly functional*. Paper presented at the 2nd Conference on HRD Research and Practice across Europe, University of Twente, Enschede, January 2001.
- Boreham, N., & Samurçay, R. (1999). *Models for the analysis of work competence: A critical review*. Paper presented at the European Conference on Educational Research, Lahti, Finland, September 22-25.
- Bos, E.S. (1998). *Competentie, verheldering van een begrip* [Competence, clarification of a concept]. Heerlen, the Netherlands: Open Universiteit Nederland.
- Bourdieu, P. (1985). The genesis of the concepts of habitus and field. *Sociocriticism*, 1 (2), 11-24.
- Bowden, J.A., & Masters, G.N. (1993). *Implications for higher education of a competency-based approach to education and training*. Australian Government Publishing Service: Canberra.
- Boyatzis, R.E. (1982). *The competent manager: A guide for effective management*. New York, NY: Wiley.
- Boyatzis, R., Leonard, D.C., Rhee, K.S., Wheeler, J.V. (1996). Competencies can be developed, but not in the way we thought. *Capability* 2 (2). Retrieved November 12, 2002 from <http://www.lle.mdx.ac.uk/hec/journal/2-2/2-2.htm>
- Brandsma, T.F. (1993). *Beroepsprofiel- en leerplanontwikkeling: De koninklijke weg als naïef traject?* [The development of professional profiles and curriculum development: The royal track as naïve routet?] (Doctoral dissertation). Enschede: University of Twente.
- Bransford, J.D., Brown, A.L., & Cocking, R.R. (Eds.). (2000). *How people learn. Brain, mind, experience, and school. Expanded edition*. Washington D.C: National Academy Press.

- Broad, M.L., & Newstrom, J.W. (1992). *Transfer of training: Action-packed strategies to ensure high payoff from training investments*. Reading, MA: Addison-Wesley.
- Brown, A. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. *The Journal of the Learning Sciences*, 2(2), 141-178.
- Brown, A. (1998a). *The search for 'key qualifications' - going beyond current conceptions of core (key) skills*. Warwick, UK: University of Warwick, Institute for Employment Research.
- Brown, A. (1998b). Designing effective learning programs for the development of a broad occupational competence. In W.J. Nijhof, & J.N. Streumer (Eds.), *Key Qualifications in work and education* (pp. 165-186). Dordrecht: Kluwer Academic Publishers.
- Brown, B.L., (1998). *Task analysis strategies and practices*. ERIC Clearinghouse Adult, Career and Vocational Education. Practical Application Brief. Retrieved April 20, 2002 from <http://ericacve.org.docs/taskanal.htm>
- Brown, J.S., Collins, A., & Duguid, S. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18 (1), 32-42.
- Brundrett, M. 2000. The question of competence: The origins, strengths and inadequacies of a leadership training paradigm. *School Leadership and Management*, 20, (3), 353-370.
- Bryce, J., & McCurry, D. (1999). *Cross-curricular competencies: An Australian perspective*. Paper presented at the British Educational Research Association Annual Conference, held at the University of Sussex, Brighton, September 2-5.
- Buendía Gómez, M. (2000). *Educação moçambicana: história de um processo* [Mozambican education: history of a process]. Maputo: Livraria Universitária.
- Bunk, G.P. (1994). Competentie-ontwikkeling in de Duitse beroepsopleidingen [Development of competence in German vocational education and training] *Beroepsopleiding*, 1, 8-15.
- Burke, J.B., Hansen, J.H., Houston, W.R., & Johnson, C. (1975). *Criteria for describing and assessing competency programs*. Syracuse, NY: Syracuse University, National Consortium of Competency Based Education Centers.
- Buskermolen, F., Parra, de la., B. (1998). Een wereld in beweging [A world in motion]. In F. Buskermolen, B. de la Parra, & R. Slotman (Eds.), *Het belang van competenties in organisaties* [The importance of competencies in organisations] (pp.17-28). Utrecht: Lemma.
- Cairns, L. (1996). Capability: Going beyond competence. *Capability*, 2 (2). Retrieved January 21, 2003 from <http://www.lle.mdx.ac.uk/hec/journal/2-2/3-5.htm>
- Callender, C. (1992). *Will NVQs work? Evidence from the construction industry*. Sussex: University of Sussex/Institute of Manpower Studies.
- Candy, P.C., Crebert, G., & O'Leary, J. (1994). *Developing lifelong learners through undergraduate education*. Canberra: National Board of Employment, Education and Training.

- Carnevale, P., Gainer, L., & Meltzer, A. (1990). *Workplace basics: The essential skills employers want*. San Francisco: Jossey-Bass.
- Central Commission for Curriculum Reform (CCCC) (1999). *A new curriculum framework for the UEM (a proposal)*. Maputo: UEM.
- Chappell, C., & Hager, P. (1994). Values and competency standards. *Journal of Further and Higher Education*, 18 (3), 12-23.
- Charles, C.M. (1998). *Introduction to educational research*. Second edition. White Plains, NY: Longmans Publishers.
- Chebucto Community Net (1995). *Background on competencies*. Retrieved March 19, 2002 from <http://www.chebucto.ns.ca/~ac200/DACUMcomps.html>
- Cheetham, G., & Chivers. G. (1996). Towards a holistic model of professional competence. *Journal of European Industrial Training*, 20 (5), 20-30.
- Cheetham, G., & Chivers. G. (1998). The reflective (and competent) practitioner: a model of professional competence which seeks to harmonise the reflective practitioner and competence-based approaches. *Journal of European Industrial Training*, 22 (7), 267-276.
- Chi, M., Glaser, R., & Farr, M. (1988). *The Nature of Expertise*. Hillsdale, NJ: Erlbaum.
- Chomsky, N. (1965). *Aspects of a theory of syntax*. Cambridge, MA: Harvard University Press.
- Chomsky, N. (1957). *Syntactic structure*. The Hague, the Netherlands: Mouton.
- Chumbow, S.B., & Iguisi, O. (1997). Summary of seminar report. In O. Iguisi (Ed.), *Culture dimensions to appropriate management and sustainable development in Africa* (pp. 18-46). Paris: UNESCO.
- CIA. (2002). The world factbook 2002, Mozambique. Retrieved November 19, 2002, from <http://www.cia.gov/cia/publications/factbook/geos/mz.html>
- Clandinin, J., & Connelly, F.M. (1992). Teacher as curriculum maker. In P. Jackson (Ed.), *Handbook of research on curriculum* (pp. 363-401). New York: Macmillan.
- Cobb, P., Confrey, J., DiSessa, A., Lehrer, R., & Schauble, L. (2003). Design experiments in educational research. *Educational Researcher*, 32 (1), 9-13.
- Cobern, W.W. (1996). *Traditional culture and science education in Africa: merely language games?* Paper presented at the meeting for traditional culture, science and technology, and development, held in Tokyo, September 28.
- Coffey, D. (1992). *Schools and work: developments in vocational education*. London: Cassell.
- Collins, M. (1991). *Adult education as vocation*. London: Routledge.
- Colo (Association for knowledge centres vocational education and business and industry). (2002). Relevante begrippen in de competentiegerichte kwalificatiestructuur [Relevant terms in the competence-based qualification structure]. Zoetermeer: Colo. Retrieved May 12, 2003 from http://www.colo.nl/Kwalificatiestructuur/ontwikkelingsproject/Eindadvies/Begrippenlijst_kwalificatiestructuur.doc

- Cooper, K. (2002). A 'common language' for transferable skills. *Teaching Forum*, 50, 27-29.
- Cormier, S., & Hagman, J. (Eds.). (1987). *Transfer of learning. Contemporary research and applications*. New York: Academic Press.
- Cornford, I. (2001). *Generic competencies: A review of some recent literature and analysis from an historical perspective. Working Paper 01-04*. Sidney: UTS Research Centre for Vocational Education and Training.
- Cotton, K. (1993). *Developing employability skills*. Portland, OR: NorthWest Regional Educational Laboratory.
- Cresswell, J.W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage.
- Crittenden, B. (1995). Liberal and vocational education: convergence or confusion? In C. Collins (Ed.), *Curriculum stocktake*. Canberra: Australian College of Education
- Cronbach, L.J., & Suppes, P. (1969). *Research for tomorrow's schools: Disciplined inquiry for education*. New York: Macmillan.
- Cuban, L. (1988). A fundamental puzzle of school reform. *Phi Delta Kappan*, 70 (5), 341-344.
- Cusworth, J.W., & Franks, T.R (Eds.) (1993). *Managing Projects in Developing Countries*. New York, Longman Scientific & Technical.
- Dall'Alba, G., & Sandberg, J. (1996). Educating for competence in professional practice. *Instructional Science*, 24 (6), 411-437.
- Davenport, T., & Prusak, L. (1998). *Working knowledge*. Harvard: Harvard Business School Press.
- De Bie, D., & Mostert, P. (2000). Competentie, over de overbodigheid van een modieus begrip. [Competence, on the redundancy of a trendy concept]. *Onderzoek van Onderwijs*, June, 20 - 22.
- Debling, G. (1989). The employment department/training agency standards programme and NVQs: implications for education. In J.W. Burke (Ed.), *Competency based education and training*. London: The Falmer Press.
- De Feiter, L.P., Vonk, H., & Van den Akker, J. (1995). *Towards more effective teacher development in Southern Africa*. Amsterdam: VU University press.
- De Groot, A.D. (1980). *Over leerervaringen en leerdoelen* [On learning experiences and learning objectives]. Deventer: Van Loghum Slaterus.
- De Kleijn, J. (1998). *Indicatoren voor de constructie van een leeromgeving met afnemende sturing vanuit het uitgangspunt leren-leren* [Indicators for the construction of a learning environment from the point of departure 'learning to learn']. Occasional paper. Amsterdam: Hogeschool Holland. Retrieved September 18, 2002 from http://www.oro.hva.nl/files/attachments/lp_curr_leerlijn_jos.308-0.pdf
- Delors, J. (1996). *Learning, the treasure within. Report to UNESCO of the international commission on education for the twenty-first century*. Paris: UNESCO Publications.

- Delors, J., & Draxler, A. (1999). In: *Comments on the DeSeCo expert opinions*. Neuchâtel: Swiss Federal Statistical Office.
- Denzin, N.K. (1994). Triangulation in educational research. In T. Husén & T.N. Postlethwaite (Eds), *The international encyclopedia of education* (pp. 6461-6466). Oxford: Pergamon.
- Denzin, N.K., & Lincoln, Y.S. (1994). *Handbook of qualitative research*. Thousand Oaks, CA: Sage Publications.
- Denzin, N.K., & Lincoln, Y.S. (2000). *Strategies of qualitative inquiry*. Thousand Oaks, CA: Sage Publications.
- Dhillon, J., & Moreland, N. (1996). Participant's experience of a competence-based professional development programme: A case study. *Journal of Vocational Education and Training* 48 (4), 370-382.
- DiSessa, A.A. (1979). Representation of knowledge: a meaning for the computational metaphor. In J. Lockhead & J. Clement (Eds.), *Cognitive Process Instruction*. Philadelphia; The Frankling Institute Press.
- Dison, L., & Rule, P. (1996). Bridging the subject-student divide. *Academic Development*, 2 (2), 83-97.
- Dochy, F., & Moerkerke, G. (1997). The present, the past and the future of achievement testing and performance assessment. *International Journal of Educational Research*, 27, 415-432.
- Down, C., Fechner, S., & Lilly, M. (1997). *Tapping into commonsense and experience: Using the key competencies to enhance workplace practice - research report*. Melbourne: Australian Competency Research Centre.
- Down, C., Martin, E., Hager, P. & Bricknell, L. (1999). *Graduate attributes, key competence and judgments: exploring the links*. Paper presented at the HERDSA Annual International Conference, Melbourne, July 12-15.
- Dreyfus, H.L., & Dreyfus, S.E. (1986). *Mind over machine. The power of human intuition and expertise in the era of the computer*. New York: Free Press.
- Dröge, F. (2001). *Teaching competencies in tertiary education in the Netherlands*. Keynote Presentation, at the 2nd Annual Skills Conference, held at the University of Hertfordshire, Hatfield, July 11-12.
- Drok, J. (1998). Een model voor een projectmatige benadering van curriculum vernieuwingen [A model for a project-based approach to curriculum innovations]. *Onderzoek van Onderwijs*, 27, 38-41.
- Druckman, D., & Bjork, R.A. (1994). *Learning, remembering and believing: Enhancing human performance*. Washington DC: National Academy Press.
- Drummond, I., Nixon, I., & Wiltshire, J. (1998). Personal transferable skills in higher education: The problems of implementing good practice. *Quality Assurance in Education*, 6 (1), 19-27.
- Eduardo Mondlane University (1991). *The present and prospects for the future, Vols. 1 and 2*. Maputo: Eduardo Mondlane University.

- Eduardo Mondlane University (1997). *Proposal for a strategic plan for the five-year period 1998-2002, draft #4*. Maputo: Eduardo Mondlane University.
- Eduardo Mondlane University (1998). *Strategic plan 1999-2003*. Maputo: Eduardo Mondlane University. Available from: <http://www.uem.mz/plano/eindex.htm>
- Eduardo Mondlane University (1999). *Annual report 1997/99*. Retrieved November 28, 2002 from <http://www.uem.mz/ranual99/index.htm>
- Education Action. (2000). Reflect in Mozambique. *Education Action*, 12, January 2000. Retrieved November 22, 2002, from <http://reflect.actionaid.net/resources/publications/EA12Eng/mozambique.htm>
- Eisner, E.W. (1979, 1996). *The educational imagination: On the design and evaluation of school programmes*. New York: Macmillan.
- Elam, S. (1971). *Performance based teacher education - What is the state of the art?* Washington D.C.: American Association of Colleges of Teacher Education.
- Ellström, P (1996). *The many meanings of occupational competence and qualification*. Paper presented at Workshop 1 within the project new Forms of Basic and Further Education of Professionals for Vocational Education and Training, held in Hydra, Greece, April 25-27.
- Ellström, P.E. (1998). The many meanings of occupational competence and qualification. In W.J. Nijhof, & J.N. Streumer (Eds.), *Key qualifications in work and education* (pp.39-50). Dordrecht, the Netherlands: Kluwer Academic.
- Engestrom, Y. (1994). Non Scolae Sed Vitae Discimus: Toward overcoming the encapsulation of school learning. *Learning and Instruction*, 1, 243-259.
- Eraut, M. (1994). *Developing professional knowledge and competence*. London: Falmer Press.
- Eringa, K., Rietveld, J., & Zwaal, W. (2000). *Assessment en development centers voor studenten* [Assessment and development centres for students]. Groningen, the Netherlands: Wolters-Noordhoff.
- Ethnologue (2002). Languages of Mozambique. Retrieved November 22, 2002, from http://www.ethnologue.com/show_country.asp?name=Mozambique
- Evans, K. (1995). Competence and citizenship: Towards a complementary model for times of critical social change. *British Journal of Education and Work*, 8, 14-27.
- Everwijn, S.E.M. (1996). *Leerdoelstellingen en de ontwikkeling van competenties: een conceptueel kader*, *Handboek Effectief Opleiden* (pp. 1.01-1.21). [Learning objectives and the development of competencies: a conceptual framework. Handbook effective education and training] (pp. 1.01-1.21). 's Gravenhage: DELWEL Uitgeverij.
- Everwijn, S.E.M. (2000). Het hoe, wat en waarom van competentiegericht onderwijs [The how, what and why of competence-based education]. In K. Schlusmans, R. Slotman, C. Nagtegaal, & G. Kinkhorst (Eds.), *Competentiegerichte leeromgevingen* [Competence-based learning environments] (pp. 63-78). Utrecht: Lemma.

- Everwijn, S., & Palm, H. (1993). Bruikbare kennis en vaardigheden. [Useable knowledge and skills]. *Opleiding en Ontwikkeling*, 11, 13-19.
- Farmer, J.A., Jr., Buckmaster, A., & LeGrand, B. (1992). Cognitive Apprenticeship. *New Directions in Adult and Continuing Education*, 55, 41-49.
- Fauzan, A. (2002). *Applying realistic mathematics education (RME) in teaching geometry in Indonesian primary schools*. (Doctoral dissertation). Enschede: University of Twente.
- Featherman, D., & Carson, J. (1999). On concepts of competence: a commentary. In *Definition and selection of competencies. Comments on the DeSeCo expert opinions*. Retrieved October 25, 2002 from http://www.statistik.admin.ch/stat_ch/ber15/desecco/comments_desecco_expert_opinions.pdf
- Feuer, M.J., Towne, L., & Shavelson, J. (2002). Scientific culture and educational research. *Educational Researcher*, 31 (8), 4-14.
- Field, L., & Drysdale, D. (1991). *Training for competence: A handbook for trainers and teachers*. London: Kogan Page.
- Finn, B. (1991). *Young people's participation in post-compulsory education and training*. Canberra: Australian Education Council.
- Finn, R. (1993). *A synthesis of current research on management competencies. Working paper HWP 10/93*. Henley-on-Thames, UK: The Henley Management College.
- Flagg, B. N. (1990). *Formative evaluation for educational technologies*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Fletcher, S. (1979). *Analysing competence: Tools and techniques for analysing jobs, roles and functions*. London: Kogan Page.
- Flick, U. (1998). *An introduction to qualitative research*. London: Sage.
- Franklin K. (1997). National vocational qualifications, Scottish vocational qualifications and competence-based education and training: from de Ville to Beaumont. *Journal of Vocational Education and Training* 49 (4), 511-530.
- Freire, P. (1970). *Pedagogy of the oppressed*. New York: Continuum.
- Fry, P., & Utui, R. (1999). *Promoting access, quality and capacity-building in African higher education. The strategic planning experience at the Eduardo Mondlane University*. Washington: The World Bank, ADEA Working Group on Higher Education.
- Fullan, M. (1985). Change processes and strategies at the local level. *Elementary School Journal*, 84 (3), 391-420.
- Fullan, M. (1991). *The new meaning of educational change*. Second edition. New York: Teachers College Press.
- Fullan, M. (1992). *Successful school improvement: the implementation perspective and beyond*. Buckingham: Open University Press.
- Fullan, M. (1993). *Changing forces: probing the depths of educational reform*. Bristol, PA: Falmer Press.

- Fullan, M.G. (1994). Coordinating top-down and bottom-up strategies for educational reform. *Systemic reform: Perspectives on personalizing education*, September 1994. Retrieved June 6, 2003 from <http://www.ed.gov/pubs/EdReformStudies/SysReforms/fullan1.html>
- Fullan, M. (2001). *The new meaning of educational change*. Third edition. New York: Teachers College Press.
- Fullan, M., & Hargreaves, D.H. (1992). *Teacher development and educational change*. London: The Falmer Press.
- Fullan, M.G., & Miles, M.B. (1992). Getting reform right: What works and what doesn't. *Phi Delta Kappan*, 73 (10), 744-752.
- Garavan, T.N., & McGuire, D. (2001). Competencies and workplace learning: some reflections on the rhetoric and the reality. *Journal of Workplace Learning* 13 (4), 144-163.
- Gardner, H. (2002). The quality and qualities of educational research. *Education Week*, September 4, 2002.
- Gergen, K. (1995). Social construction and the educational process. In L. Steffe & J. Gale (Eds.). *Constructivism in education*, (pp.17-39). New Jersey: Lawrence Erlbaum Associates, Inc.
- Gibbons, M. (1998). *Higher education relevance in the 21st Century*. Paper presented at the UNESCO World Conference on Higher Education, Paris, 5-9 October, 1998. Retrieved October 17, 2001 from http://www-wds.worldbank.org/servlet/WDServlet?pcont=details&eid=000094946_9912220532351
- Gilbert, T.F. (1978). *Human competence: Engineering worthy performance*. New York: McGraw Hill.
- Gonczi, A. (1994). *Developing a Competent Workforce*. Adelaide: National Centre for Vocational Education Research.
- Gonczi, A. (1997). Future directions for vocational education in Australian secondary schools. *Australian and New Zealand Journal of Vocational Education Research*, 5, 77-108.
- Gonczi, A. (1999). Competency- based learning: a dubious past -an assured future? In D. Boud, & J. Garrick (Eds.), *Understanding learning at work* (pp. 180-197). London: Routledge.
- Gonczi, A. (2001). *Advances in educational thinking and their implications for professional education. Working Paper 01-14*. Sidney: UTS Research Centre for Vocational Education and Training.
- Gonczi, A., Curtain, R., Hager, P., Hallard, A., & Harrison, J. (1995). *Key Competencies in on-the-job training: A report*. Sydney: RCVET.
- Gonczi, A., Hager, P., & Athanasou, J. (1993). *The development of competence-based strategies for the professions: national office of overseas skills recognition research article no.8*. Canberra: Australian Government Publishing Service.

- Gonczi, A., Hager, P., & Oliver, L. (1990). *Establishing competency-based standards in the professions*. Canberra: Australian Government Publishing Service.
- Goodlad, J., Klein, M., & Tye, K. (1979). The domains of curriculum and their study. In J.I. Goodlad, M.F. Klein, & K. Tye (Eds.), *Curriculum inquiry: The study of curriculum practice* (pp. 43-76). New York: McGraw-Hill.
- Gorsline, K. (1996). A competency profile for human resources, no more shoemakers' children. *Human Resource Management*, 35 (1), 53-66.
- Gow, K., & McDonald, P. (2000). Attributes required of graduates for the future workplace. *Journal of Vocational Education and Training*, 52 (3), 373-396.
- Gravemeijer, K.P.E. (1994). *Developing realistic mathematics education*. Utrecht: Cds Press.
- Gravemeijer, K.P.E., & Cobb, P. (2001). *Designing classroom-learning environments that support mathematical learning*. Paper presented at the AERA annual conference, held in Seattle, April 10-14.
- Griffin, P., & Gillis, S. (1997). *Evaluation of Assessment Processes and Practices*. Paper presented at the National Centre for Vocational Education Research Conference, The University of Melbourne, July 9-11.
- Griffioen, A. (2002). *Gewapend beton. Op zoek naar een stevig fundament voor competentiegericht onderwijs* [Reinforced concrete. In search for a solid foundation for competence-based education]. (Masters thesis). Utrecht: CLU, Universiteit Utrecht.
- Grugulis, I. (1997). The consequences of competence: a critical assessment of the management NVQ. *Personnel Review* 26 (6), 428-44.
- GTZ (Corporation for technical Co-operation). (2000). *Introduction of competence-based education and training (CBET) to reform technical/vocational education and training (TVET) Systems in East and Southern Africa: Status, challenges, perspectives*. Retrieved March 11, 2003 from <http://www.gtz.de/wbf/dokumente/CBETworkshop.zip>
- Gubbay, J. (1994). A critique of conventional justification for transferable skills. In D. Bridge (Ed.), *Transferable skills in higher education*. Norwich: University of East Anglia/ERTEC.
- Habermas, J. (1971). *Knowledge and human interests*. Boston (MA): Beacon Press.
- Hager, P. (1993). Conceptions of Competence. *Philosophy of Education*, 1993. Retrieved November 30, 1999 from http://www.ed.uiuc.edu/EPS/PES-Yearbook/93_docs/HAGER.HTM.
- Hager, P. (1994). Is there a cogent philosophical argument against competency standards? *Australian Journal of Education*, 38, 3-18.
- Hager, P. (1995). Competency standards - a help or a hindrance? An Australian perspective. *The Vocational Aspect of Education*, 47 (2), 141-151.
- Hager, P. (1996). *Conceptualising the key competencies*. Paper presented at the ERA-AARE Joint Conference, Singapore, November 25-29.
- Hager, P. (1999). The role of generic outcomes in adult education. *Studies in Continuing Education*, 21(1), 45-56.

- Hager, P., Athanasou, J., & Gonczi, A. (1994). *Assessment technical manual*. Canberra: AGPS.
- Hager, P., & Gonczi, A. (1996). What is competence? *Medical Teacher*, 18 (1), 15-18.
- Hager, P., Gonczi, A., & Athanasou, J. (1994). General issues about assessment of competence. *Assessment & Evaluation in Higher Education*, 19 (1), 3-16.
- Hager, P., Gonczi, A., & Oliver, L. (1990). *Competency-based approaches to professional education*. Paper presented at the annual conference of the Australian Association for Research in Education, held in Sydney.
- Hager, P., & Hyland, T. (2003). Vocational education and training. In N. Blake, P. Smeyers, R. Smith, & P. Standish (Eds.), *The Blackwell guide to the philosophy of education* (pp. 271-287). Oxford: Blackwell Publishing.
- Halal, W. (1998). *The infinite resource: Creating and leading the knowledge enterprise*. San Francisco: Jossey Bass.
- Hall, E.T. (1983). *The dance of life*. New York: Anchor Books.
- Hall, E.T., & Hall, M.R. (1990). *Understanding cultural differences*. Yarmouth, Main: Intercultural press.
- Hall, G.E., & Hord, S.M. (2001). *Implementing change: Patterns, principles, and potholes*. Boston: Allyn and Bacon.
- Hall, G.E., & Jones, H.L. (1976). *Competency-based education: A process for the improvement of education*. Englewood Cliffs NY: Prentice Hall.
- Hamel, J., Dufour, S., & Fortin, D. (1993). *Case study methods*. Newbury Park, CA: Sage Publications.
- HBO-raad (1999). *Protocol proefaccreditering [Protocol pilot accreditation]*. Den Haag: HBO-raad.
- Heeks, R. (1999). *Reinventing government in the information age*. London and New York, Routledge.
- Herling, R.W. (2000). Operational definitions of expertise and competence. In R.W. Herling, & J. Provo (Eds.), *Strategic perspectives of knowledge, competence, and expertise* (pp. 8-21). San Francisco: Berrett-Koehler.
- Herrington, J., & Oliver, R. (2000). Exploring situated learning in multimedia settings. *Educational Technology Research and Development*, 48 (3), 23-48.
- Hesketh, B. Andrews, S., & Chandler, P. (1989). Training for transferable skills: the role of examples and schemas. *Educational training and Technology International*, 26 (2), 156-165.
- Heywood, L., Gonczi, A., & Hager, P. (1992). *A guide to development of competency standards for professions*. National office of overseas skills recognition: Research paper No. 7. Canberra: AGPS.

- Hocog Inos, R., & Quigley, M.A. (1995). *Synthesis of the research on educational change. Part 4: The teacher's role*. Honolulu: Pacific region Educational Laboratory. Retrieved on August 24, 2003 from <http://www.prel.org/products/products/SynthesisPart4.pdf>
- Hofstede, G. (1994). *Culture and Organizations. Intercultural cooperation and its importance for survival. Software of the mind*. London: HarperCollins Publishers.
- Hofstede, G., & Bond, M.H. (1988). The Confucian Connection: from cultural roots to economic growth. *Organizational Dynamics*, 16 (4), 4-21.
- Holmes, L. (1994). *Is competence a 'confidence trick'?* Paper presented at the conference of The Competence Network, Centre for Labour Market Studies, University of Leicester, December 1, 1994.
- Holmes, L. (2001). *Decontaminating the concepts of 'learning' and 'competence': education and modalities of emergent identity*. Paper presented on the Second International Conference on Critical Management Studies, Manchester.
- Hooyer, B., & Nedermeijer, B. (2000). Het ontwerpen van een competentiegericht curriculum voor de HEO-opleiding Asian Trade Management [The design of a competence-based curriculum for the Higher Economic Education programme in Asian Trade Management]. In K. Schlusmans, R. Slotman, C. Nagtegaal, & G. Kinkhorst (Eds.), *Competentiegerichtte leeromgevingen (pp. 117-136)* [Competence-based learning environments]. Utrecht: Lemma.
- Hountondji, P.J. (1998). Review of fabrics of unemployment: The crisis of African universities. *NORRAG News*, 23, 6-10.
- Houston, R.H. (1980). An analysis of the performance-base teacher education movement. In G. Fardig (Ed.), *Prospects of performance-based vocational teacher education; proceedings of national invitational conference at Orlando, Fla., March, 1980*. Orlando, Fla.: College of Education, Central University of Florida.
- Hövels, B. (1998). Qualification and labour markets: Institutionalisation and individualisation. In W.J. Nijhof, & J.N. Streumer (Eds.), *Key qualifications in work and education (pp.51-61)*. Dordrecht, the Netherlands: Kluwer Academic.
- Hövels, B., & Römkes, L. (1993). *Notities over kwalificaties* [Notes on qualifications]. Den Bosch: CIBB.
- Huberman, M. (1983). Recipes for busy kitchens. *Knowledge: Creation, Diffusion, Utilization* 4 (4), 478-510.
- Huberman, A.M., & Miles, M.B. (1998). Data management and analysis methods. In N.K. Denzin, & Y.S. Lincoln (Eds.), *Collecting and interpreting qualitative materials (pp. 179-210)*. Thousand Oaks: Sage Publications.
- Huitt, W. (1997). *The SCANS report revisited*. paper delivered at the Fifth Annual Gulf South Business and Vocational Education Conference, Valdosta State University, Valdosta, GA, April 18.

- Husén, T. (1994). The idea of the university: Changing roles, current crisis and future challenges. In T. Husén (Ed.), *The role of the university: A global perspective*. (pp. 7-31). Tokyo: United Nations University.
- Hyland, T. (1994). *Competence, education and NVQs: dissenting perspectives*. London: Cassell.
- Hyland, T. (1995). Behaviourism and the meaning of competence. In P. Hodkinson, & M. Isett (Eds.), *The challenge of competence* (pp.44-57). London: Cassell.
- Hyslop-Margison, E. J (2000). The employability skills discourse: A conceptual analysis of the career and personal planning curriculum. *Journal of Educational Thought*, 34 (1), 59-72.
- IFAC Education Committee (2001). *Competence-based approaches to the preparation and work of professional accountants*. New York: International Federation of Accountants.
- Iguisi O.V. (1994). Appropriate management in an African culture. *Journal of Management in Nigeria*, 30 (1), 16-24.
- Iguisi, O. (1997). The role of culture for appropriate management and indigenous development in Africa. In O. Iguisi (Ed.), *Culture dimensions to appropriate management and sustainable development in Africa*. (pp. 18-46). Paris: UNESCO.
- Iguisi O.V., & Hofstede G. (1993). *Industrial management in African culture*. Maastricht: University of Limburg Press.
- ILO (International Labour Organization) (1993). *The 40 most frequently asked questions about competence*. Retrieved September 2, 2002 from <http://www.ilo.org/public/english/region/ampro/cinterfor/temas/complab/xxx/7.htm>
- ILO (International Labour Organization) (1998). *World employment report 1998-99: Employability in the global economy*. Geneva: ILO.
- International Bureau of Investigation. (2002). *Curriculum change and social cohesion in conflict-affected societies (July 2002 - June 2003). Proposal of Mozambique*. Retrieved November 22, 2002 from http://www.ibe.unesco.org/Regional/social_cohesion/sc_mozam.htm#III
- Jaccard, J., & Wan, C.K. (1996). *LISREL approaches to interaction effects in multiple regression*. Thousand Oaks, CA: Sage Publications.
- Jackson, N., & Jordan, S. (2000). Learning for work: Contested terrain? *Studies in the Education of Adults*, 32 (2), 195-211.
- Januário, F. (2000). *Post-graduate programme in science and mathematics education. Report on the needs assessment*. Maputo: Universidade Eduardo Mondlane.
- Januário, F., & Kouwenhoven, W. (2001). *Design and development process of mathematics and science education post-graduate programme: A needs assessment*. In: Proceedings of the 9th Conference of the Southern African Association for Research in Mathematics, Science and Technology Education, 17 - 20 January 2001, Maputo, Mozambique.

- Jasinski, M. (1996). *Teaching and learning the key competencies in vocational education and training*. Adelaide: Western Adelaide Institute of TAFE.
- Jick, T.D. (1983). Mixing qualitative and quantitative research methods: triangulation in action. In J. van Maanen, (Ed.), *Qualitative methodology* (pp. 135-148). Beverley Hills, CA: Sage Publications.
- Jochems, W., & Schlusmans, K. (2000). Competentiegericht onderwijs in een elektronische leeromgeving [Competence-based education in an electronic learning environment]. In K. Schlusmans, R. Slotman, C. Nagtegaal, & G. Kinkhorst (Eds.), *Competentiegerichte leeromgevingen* [Competence-based learning environments] (pp. 47-62). Utrecht: Lemma.
- John, S.L. (1995). *A mid term reflection on the introduction of a competence based professional studies course at the Guernsey College of Further Education*. Strathclyde, UK: University of Strathclyde.
- Jones, L., & Moore, R. (1995). Appropriating competence: the competency movement, the New Right and the 'culture change' project. *British Journal of Education and Work*, 8 (2), 78-91.
- Kalton, G. (1983). *Introduction to survey sampling*. Newbury Park, CA: Sage.
- Kämäräinen, P., & Streumer, J. (1998). Curriculum development, new learning environments and transfer of innovations in Europe. In *Vocational education and training - the European research field: background report*. Thessaloniki: CEDEFOP.
- Kaufman, R. (1997). Needs assessment basics. In R. Kaufman, S. Thiagarajan, & P. MacGillis (Eds.), *The guidebook for performance improvement: Working with individuals and organizations* (pp.107-129). San Francisco, CA: Pfeiffer & Co.
- Kearns, P. (2001). *Generic skills for the new economy*. Adelaide: National Centre for Vocational Education Research.
- Kearns, P., & Papadopoulos, G. (2000). *Building a learning and training culture: The experience of five OECD countries*. Adelaide: NCVER.
- Kegan, R. (1999). Competencies as 'working epistemologies': Ways we want adults to know. In: *Comments on the DeSeCo expert opinions*. Neuchâtel: Swiss Federal Statistical Office.
- Kelly, A., West, M., & Dee, L. (2001). Staff involvement in the design of a key skills curriculum model: a case study. *The Curriculum Journal*, 12 (2), 179-190.
- Kerka, S. (1997). *Constructivism, workplace learning, and vocational education*. Eric digest No. 181. Columbus, OH: Eric Clearinghouse on Adult Career and Vocational Education.
- Kessels, J.W.M. (1993). *Towards design standards for curriculum consistency in corporate education*. (Doctoral dissertation). Enschede: University of Twente.
- Kessels, J.W.M. (1999a). Het verwerven van competenties: kennis als bekwaamheid [The acquisition of competencies: knowledge as capability]. *Opleiding en Ontwikkeling*, 1/2-1999, 7-11.

- Kessels, J. (1999b). A relational approach to curriculum design. In J. van den Akker, R.B. Branch, K. Gustafson, N. Nieveen, & T. Plomp, (Eds.), *Design approaches and tools in education and training* (pp. 59-70). Dordrecht: Kluwer Academic Publishers.
- Kessels, J. (2000a). *De academie in bedrijf. De omstrede dualisering van het wetenschappelijk onderwijs* [The Academy at work. The contested dualisation of higher education. Paper presented at the Educational Research Days, held at the University of Leiden, the Netherlands, May 25.
- Kessels, J. (2000b). Het ontwerpproces als leerproces [The design process as learning process]. *HRD Thema*, 1 (1),16-21.
- Kessels, J. (2001). *Verleiden tot kennisproductiviteit* [Winning over to knowledge productivity]. Inaugural lecture. Enschede, the Netherlands: Universiteit van Twente.
- Kessels, J.W.M., & Plomp, T. (1999). A systematic and relational approach to obtaining curriculum consistency in corporate education. *Journal of Curriculum Studies*, 31 (6), 679-709.
- Kidd, J.B., & Robins, P.C. (2000). Improving cross-cultural projects through better communication. In R.A. Lundin (Ed.), *Projects as business constitutes and guiding motives*. Norwell: Kluwer Academic Publishers.
- Kirkpatrick, D.L. (1998). *Evaluating training programs-The four levels*. 2nd edition. San Francisco: Berret-Koehler Publishers.
- Kirschner, P., Van Vilsteren, P., Hummel, H., & Wigman, M. (1997). The design of a study environment for acquiring academic and professional competence. *Studies in Higher Education*, 22 (2), 151-171.
- Klarus, R. (1998). Competenties erkennen: een studie naar modellen en procedures voor leerwegaafhankelijke beoordeling van beroepscompetenties [Recognition of competencies: a study into models and procedures of learning-path independent assessment of competencies]. (Doctoral dissertation). Nijmegen: University, Nijmegen, The Netherlands.
- Klarus, R. (2000). Beoordeling en toetsing in het nieuwe onderwijsconcept. [Assessment in the new education concept]. In J. Onstenk. (Ed.), *Op zoek naar een krachtige beroepsgerichte leeromgeving. Fundamenten voor een onderwijsconcept voor de bve-sector*. [In search for a powerful profession-oriented learning environment. Fundamentals for an education concept in vocational and adult education] (pp.167-204). Den Bosch, the Netherlands: CINOP.
- Klein, M.F. (1991). *The politics of curriculum decision-making*. Albany: State of New York University Press.
- Knafl, K.A., & Breitmayer, B.J. (1989). Triangulation in qualitative research: issues of conceptual clarity and purpose. In J.M. Morse (Ed.), *Qualitative nursing research: as contemporary dialogue* (pp. 226-239). Rockville, MD: Aspen.
- Kouwenhoven, W. (1999). *Report of a mission by staff of the Rijks Universiteit Groningen, Universiteit Twente and Vrije Universiteit Amsterdam to the Universidade Eduardo Mondlane, from 15 to 26 November, 1999*. Maputo: UEM, Comissão Instaladora.

- Kouwenhoven, W. (2000a). *Report of a workshop on the design and development of the curriculum in the Faculty of Education, held at the Universidade Eduardo Mondlane on 27 and 28 July, 2000*. Maputo: UEM, Comissão Instaladora.
- Kouwenhoven, W. (2000b). *Needs Assessment for the development of the curriculum of four educational programmes in the Faculty of Education at UEM*. Maputo: UEM, Comissão Instaladora.
- Kouwenhoven, W. (2001a). *Report of a workshop on the design and development of the curriculum in the Faculty of Education, held at the Universidade Eduardo Mondlane from 29 January to 2 February, 2001*. Maputo: UEM, Comissão Instaladora.
- Kouwenhoven, W. (2001b). *Education for academic professionalism: reflection and research on the design and development of a competence-based curriculum for a new Faculty of Education*. Paper presented at the 9th Boleswa International Research Symposium, Gaborone, 28 July - 4 August 2001.
- Kouwenhoven, W., Howie, S., & Plomp, T. (2003). The role of needs assessments in developing competence-based education in Mozambican higher education. *Perspectives in Education*, 21 (1), 135-154.
- Kraak, A. (1999). *Competing education and training policy discourses: A 'systematic' versus 'unit standards' framework*. Capetown: Juta.
- Kramsch, C. (1993). *Context and culture in language teaching*. Oxford: Oxford University Press.
- Kramsch, C. (2002). In search of the intercultural. *Journal of Sociolinguistics* 6 (2), 275-285.
- Kukla, A. (2000). *Social constructivism and the philosophy of science*. London: Routledge.
- Kupper, H., & Van Wulfften Palthe, A. (2001). *Competency-based curriculum development, Experiences in agri-chain management in The Netherlands and in China*. Paper presented at the 11th Annual World Food and Agribusiness Forum in Sydney, Australia, June 25 - 27.
- Langerbein, H. (2000). Does aid do harm? Africa remains the world's poorhouse despite massive assistance. *D+C Development and Cooperation*, 3. Retrieved November 25, 2002 from <http://www.dse.de/zeitschr/de300-6.htm>
- Lankard, B.A. (1996). *Job training versus career development: What is VocEd's role?* Columbus, OH: Eric Clearinghouse on Adult Career and Vocational Education. Retrieved April 4, 2002 from <http://ericacve.org/docs/dig171.htm>
- Lankard Brown, B. (2002). *Myths and realities. Generic skills in career and technical education*. Columbus, OH: Eric Clearing house on Adult, Career, and Vocational Education.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.
- Lawler, E.E. (1994). From job-based to competency-based organizations. *Journal of Organizational Behavior*, 15, 3-15.

- Leathwood, C., & Philips, D. (2000). Developing curriculum evaluation research in higher education. Process, politics and practicalities. *Higher Education*, 40 (3), 313-330.
- Leithwood, K., & Montgomery, D. (1982). A framework for planned educational change: Application to the assessment of program implementation. *Educational Evaluation and Policy Analysis*, 4, 157-167.
- Levy, M. (1987). *The core skills project and work-based learning*. Sheffield: MSC/FESC.
- Lewis, T. (1991). Towards a liberal vocational education. *Journal of Philosophy of Education*, 25, 95-108.
- Lilly, M., Younger, A., Rumsey, D., Down, C., Cleary, M., & et al. (1996). *Integrating key competencies: Identification and further integration of key competencies into the curriculum, delivery, assessment and reporting of apprenticeships*. (Vol. 1). Melbourne: Office of Training and Further Education.
- Lincoln, Y.S., & Denzin, N.K. (1998). The fifth moment. In N.K. Denzin, & Y.S. Lincoln (Eds.), *The landscape of qualitative research. Theories and issues* (pp. 407-430). Thousand Oaks: Sage Publications.
- Ling, P. (1999). *Assessing competency*. Paper presented at the HERDSA Annual International Conference, Melbourne, July 12-15.
- Little, J.W. (1981). The power of organizational setting (Paper adapted from final report, *School success and staff development*). Washington D.C.: National Institute of Education.
- Lodewijks, J. (1995). Leren in en buiten school: op weg naar krachtige leeromgevingen [Learning in and outside school; towards powerful learning environments]. In: R. Verwayen-Leih, & F. Studulski (Eds.), *De leerling en zijn zaak* [The pupil and his cause]. Utrecht: ARO.
- Loucks, S., Bauchner, J., Crandall, D., Schmidt, W., & Eiseman, J. (1982). *People, policies and practices: Examining the chain of school improvement. Vol. I: Setting the stage for a study of school improvement*. Andover, MA: The Network.
- Luckett, K. 1996. *Curriculum development: Reflecting on our practice*. Paper presented at the SAAAD Curriculum Development Workshop, Bloemfontein, Republic of South Africa.
- Lukes, S. (1977). *Power: A radical view*. London: Merlin.
- Lundvall, B., & Johnson, B. (1994). The learning economy. *Journal of Industry Studies*, 1 (2), 23-42.
- Maamouri, M., & Wagner, D. (2001). *University and technology-for-literacy/basic education partnership in developing countries (UTLP): Roundtable overview*. Paper presented at the Experts Roundtable: University and Technology-for-Literacy/Basic Education Partnership in Developing Countries (UTLP), held in Paris, September 10-12.
- MacDonald-Ross, M. (1973). Behavioural objectives – a critical review. *Instructional Science*, 2, 1-51.

- MacIsaac, D. (1996). *Nontraditional science education research*. Retrieved October 1, 2002 from <http://sce6938-01.fa00.fsu.edu/nontraditional.html>
- Mager, R.F. (1962). *Preparing instructional objectives*. Palo Alto, CA: Fearon.
- Makhudu, N. (1993). Cultivating a climate of co-operation through Ubuntu. *Enterprise*, 68, 40-41.
- Mandlate, E. (2000). *Masters programme in curriculum and instructional development. Needs assessment*. Maputo: Universidade Eduardo Mondlane.
- Mansfield, B. (1989). Competence and standards. In J.W. Burke (Ed.), *Competency based education and training*. London: The Falmer Press.
- Marchese, T.J. (1997). The new conversations about learning: Insights from neuroscience and anthropology, cognitive science and work-place studies. In B. Cambridge (Ed.), *Assessing Impact: Evidence and Action* (pp.79-95). Washington, DC: American Association for Higher Education.
- Mário, M., Buendía Gomez, M., Kouwenhoven, W., Alberto, A.A., & Waddington, C. (2001). *Review of education sector analysis in Mozambique, 1990 – 1998*. Paris: UNESCO, Working group on Education Sector Analysis.
- Mário, M., Cassy, B., Kouwenhoven, W., Mandlate, E., Pereira, L.F., Tchernych, V., & Ústa, Z. (1999). *Project of the re-opening of the Faculty of Education*. Maputo: UEM, Commission for the re-opening of the Faculty of Education.
- Mário, M., Fry, P., Levey, L., & Chilundo, A. (2001). *Higher education in Mozambique. A case study*. Maputo: MESCT. Retrieved January 6, 2003 from http://www.foundation-partnership.org/case_studies/mozambique.php
- Marquardt, M.J. (1997). The learning organization – the critical paradigm for corporate success in the 21st century. *Training and development in Australia*, 24, 3-8.
- Marsh, C.J. (1997). *Perspectives: Key concepts for understanding curriculum*. Washington D.C.: The Falmer press.
- Marsh, C.J., & Willis, G. (1999). *Curriculum: Alternative approaches, ongoing issues 2 ed.* Upper Saddle River (NJ): Prentice Hall.
- Marshall, K. (1991). NVQs: An assessment of the 'outcomes' approach in education and training. *Journal of Further and Higher Education*, 15 (3), 56-64.
- Marzano, R.J., Brandt, R.S., Hughes, C.S., Jones, B.F., Presseisen, B.Z., Rankin, S.C., & Suhor, C. (1988). *Dimensions of Thinking*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Maslowski, R., & Visscher, A. (1999). The potential of formative evaluation in program design models. In J. van den Akker, R.B. Branch, K. Gustafson, N. Nieveen, & T. Plomp, (Eds.), *Design Approaches and Tools in Education and Training* (pp. 137-144). Dordrecht: Kluwer Academic Publishers.
- Massey, A. (1999). Methodological triangulation, or how to get lost without being found out. In G. Walford & A. Massey (Eds.), *Explorations in methodology, studies in educational ethnography, Vol.2* (pp. 183 – 197). Stamford: JAI Press. Retrieved October 3, 2002 from <http://www.freeyourvoice.co.uk/htm/triangulation1.htm>

- Mathijssen-Jansen, E. (1999). Het hbo, een competentiegerichte leeromgeving?! [The hbo: a competence-based learning environment?!]. Document for the project Learning to Learn, Hogeschool van Amsterdam.
- Mayer, E. (1992). *Putting General Education to Work: The Key Competencies Report*. Canberra: Australian Government Publishing Service.
- Mayer, R. (1996). Learners as information processors: Legacies and limitations of educational psychology's second metaphor. *Educational Psychologist*, 31(3/4), 151-161.
- MCEETYA (Ministerial Council on Employment, Education, Training & Youth Affairs) (1996). *Report on the outcomes of the key competencies pilot phase*. Melbourne: MCEETYA.
- McKenney, S. (2001). *Computer-based support for science education material developers: Exploring potentials*. (Doctoral dissertation). Enschede: University of Twente.
- McKillip, J. (1987). *Need analysis: Tools for the human services and education*. Newbury Park, CA: Sage
- McLeish, A. (1990). *An existential response to competence statements*. *Educational Change and Development*, 10 (2), 4-5.
- Melton, R.F. (1997). *Objectives, competences and learning outcomes; developing instructional materials in open and distance learning*. London: Kogan Page.
- Mertens, D. (1974). Schlüsselqualifikationen: Thesen zur Schuburg einer modernen Gesellschaft [Key qualifications: themes for education and training in a modern society]. *Mitteilungen aus der Arbeitsmarkt und Berufsforschung*, 7, 314-325.
- Miles, M.B. (1992). *40 years of change in schools: Some personal reflections*. Address to Division A (Administration), American Educational Research Association Meeting, San Francisco.
- Milton, J. (1999). *Interpreting competence differently: lessons for university strategy*. Paper presented at the HERDSA Annual International Conference, Melbourne, July 12-15.
- Ministério de Educação (1990). *Educação em Moçambique. Problemas e perspectivas* [Education in Mozambique, problems and perspectives]. Maputo: MINED.
- Ministério de Educação (1998). *Education Sector Strategic Plan 1999-2003 - Reviving Schools And Expanding Opportunities*. Maputo: MINED.
- Ministério do Ensino Superior Ciência e Tecnologia (MESCT) (2000). *Analysis of the current situation of higher education in Mozambique*. Maputo: MESCT.
- Mirabile, R.J. (1997). Everything you wanted to know about competency modeling. *Training and Development*, pp. 73-77.
- Mitchell, L. (1989). The definition of standards and their assessment. In J.W.Burke (Ed.), *Competency based education and training*. London: The Falmer Press.
- Moerkamp, T., & Onstenk, J. (1991). *Van beroep naar opleiding. Inventarisatie van procedures voor het ontwikkelen van beroeps(opleidings-)profielen* [From profession to schooling. Inventarisation of procedures for the development of professional and curriculum profiles]. Utrecht: RVE Adviescentrum Volwasseneneducatie.

- Moerkerke, G. (1996). *Assessment for flexible learning*. Utrecht: Lemma.
- Monteiro, N.T. (n.d.). *Mozambique: women in the informal economy*. Retrieved November 22, 2002, from <http://dana.ucc.nau.edu/~nm5/Precis.html>
- Moodly, L. (2000). *Lessons for assessment: A case study of Australia and the UK*. Paper presented at the conference: 'Academic development: Changes and Challenges', held at Rhodes University, Grahamstown, RSA, December 4-6.
- Moseley, L., & Heaney, M.J. (1994). Needs assessment across disciplines. *Performance Improvement Quarterly*, 7 (1), 60-79
- Moss, J. (1981). LCBE: Limiting competence-based education or let's curb behavioural excesses. *Journal of Industrial Teacher Education*, 19 (1), 14-18.
- Motschnig-Pitrik, R., & Holzinger, A. (2002). Student-centered teaching meets new media: Concept and case study. *Educational Technology & Society* 5 (4), 160-172.
- Moy, J., Brown, K., Winchester, J., Stone, J., & Schwenke, C. (1996). *Workplace keys: Improving your training with the key competencies*. Sydney: Research Center for Vocational Education and Training.
- Mulcahy, D. (2000). Turning the contradictions of competence: competency-based training and beyond. *Journal of Vocational Education and Training*, 52 (2), 259-280.
- Mulder, M. (1992). *The curriculum conference: evaluation of a tool for content justification*. (Doctoral dissertation). Enschede: University of Twente.
- Mulder, M. (2001). Competence Development - Some background thoughts. *International Journal of Agricultural Education and Extension*, 7 (4), 147-159.
- Musonda, L.W. (1999). Teacher education reform in Zambia ... is it a case of a square peg in a round hole? *Teaching and Teacher Education*, 15, 157-168.
- Nandja, D. (2000). *Programa de pós-graduação em educação de adultos. Relatório sobre o levantamento de necessidades* [Post-graduate programme in adult education. Report on the needs assessment]. Maputo: Universidade Eduardo Mondlane.
- Nasseh, B. (1996). *Continuing professional education models*. Retrieved December 11, 2002 from <http://home.bsu.edu/~00b0nasseh7profess.html>
- National Committee of Inquiry into Higher Education (UK) (1997). *Higher education in the learning society*. Leeds: NCIHE. Retrieved February 25, 2003 from <http://www.leeds.ac.uk/educol/ncihe/>
- Nedermeijer, J., & Pilot, A. (2000). *Beroepscompetenties en academische vorming in het hoger onderwijs* [Professional competencies and academic schooling in higher education]. Groningen: Wolters-Noordhoff.
- Newitt, M. (1995). *A history of Mozambique*. Johannesburg: Witwatersrand University Press.
- Nielsen, P.A. (2001). *Capturing knowledge within a competence*. Aalborg: Aalborg university. Retrieved November 20, 2001 from www.iamot.org/paperarchive/152A.PDF

- Nieveen, N. (1997). *Computer support for curriculum developers: A study on the potential of computer support in the domain of formative curriculum evaluation* (Doctoral dissertation). Enschede: University of Twente.
- Nijhof, W.J. (1998). Qualifying for the future. In W.J. Nijhof, & J.N. Streumer (Eds.), *Key qualifications in work and education* (pp.19-38). Dordrecht, the Netherlands: Kluwer Academic.
- Nijhof, W.J., & Remmers, J.L.M. (1989). *Basisvaardigheden nader bekeken* [A closer look at key qualifications]. Enschede: University of Twente, Department of Educational Science and Technology.
- Nijhof, W.J., & Streumer, J.N. (1994). *Verbreed beroepsonderwijs* [Broad vocational education]. Enschede: University of Twente.
- Nijhof, W.J., & Streumer, J.N. (1998a). Flexibility in vocational education and training: an introduction. In W.J. Nijhof, & J.N. Streumer (Eds.), *Flexibility in training and vocational education*. Utrecht: Lemma.
- Nijhof, W.J., & Streumer, J.N. (1998b). The demarcation issue: Introduction. In W.J. Nijhof, & J.N. Streumer (Eds.), *Key qualifications in work and education* (pp.11-16). Dordrecht, the Netherlands: Kluwer Academic.
- Nisbet, J. (1990). *Teaching thinking: an introduction to the research literature*. Spotlight 26. Edinburgh: Scottish Council for Research in Education.
- Nolan, D.J. (1998). *Regents College: The early years*. Virginia Beach, VA: Donning Publishers.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge creating company*. New York: Oxford University Press.
- Nordhaug, O., & Gronhaug, K. (1994). Competencies as resources in firms. *International Journal of Human Resource Management*, 5 (1), 89-103.
- Norris, N. (1991). The trouble with competence. *Cambridge Journal of Education*, 21 (3), 331-341.
- Norton, R.E. (1996). *DACUM handbook*. Columbus (OH): Center on Education and Training for Employment, College of Education, The Ohio State University.
- Nowlen, P.M. (1990). New expectations, new roles: A holistic approach to continuing education for the professions. In R.M. Cervero, J.R. Azzarett, & Associates (Eds.), *Visions for the future of continuing professional education* (pp. 15-23). Athens: Georgia Center for Continuing Education, University of Georgia.
- NSTF (National Skills Task Force) (2000). *Skills for all: Proposals for a national skills agenda*. Sheffield: DfEE.
- Oates, T. (1998). A converging system? Explaining difference in the academic and vocational tracks in England. In W.J. Nijhoff, & J.N. Streumer (Eds.), *Key Qualifications in work and education* (pp. 91-116). Dordrecht: Kluwer Academic Publishers.

- Odenthal, L.E. (2003). *Op zoek naar balans: een onderzoek naar een methode ter ondersteuning van curriculumvernieuwing door docenten* [In search for balance: an investigation into a method to support curriculum innovation by teachers]. (Doctoral dissertation). Enschede: University of Twente.
- Ohio State University. (1995). *OCAP: Occupational competency analysis profiles. Vocational instructional materials laboratory*. Columbus: Center on Education and Training for Employment, The Ohio State University.
- Oliver, R., & McLoughlin, C. (1999). *Using Web and problem-based learning environments to support the development of key skills*. Paper presented at the annual Australasian Society for Computers in Learning in Tertiary Education Conference held in Brisbane, Australia, December 5-8.
- Onderwijsraad [Education Council]. (2002). *Competenties: Van complicaties tot compromis. Studie*. [Competencies: From complication to compromise. A study.]. Den Haag: Onderwijsraad.
- Onderwijsraad [Education Council]. (2003). *Leren in een kennissamenleving. Verkenning* [Learning in a knowledge society. An exploration]. Den Haag: Onderwijsraad.
- Onstenk, J.H.A.M. (1997). *Lerend leren werken: brede vakbekwaamheid en de integratie van leren, werken en innoveren* [Learning to work while learning: broad occupational capability and the integration of learning, working and innovating]. (dissertation). Delft: Eburon.
- Onstenk, J.H.A.M., Moerkamp, T., Voncken, E., & Van den Dool, P.C. (1990). *Leerprocessen in stages* [Learning processes in internships]. Amsterdam: SCO-Kohnstamm Instituut.
- Onwuejeogwu, M.A. (1997). *Common cultural values central for effective managerial and administrative training programmes for growth and development in Africa: an analysis based on ethnographic, anthropological and historical data*. In O. Iguisi (Ed.), *Culture dimensions to appropriate management and sustainable development in Africa*. Paris: UNESCO.
- Organisation for Economic Co-operation and Development [OECD]. (2000). *Knowledge management in the learning society. Education and skills*. Paris: OECD/CERI.
- Orsmond, P., Merry, S., & Reiling, K. (1997). Students and tutors perception of a good essay. *Research in Education*, 58, 81-84.
- Parry, S.B. (1996). The quest for competences: Competency studies can help you make HR decision, but the results are only as good as the study. *Training*, 33, 48-56.
- Partido FRELIMO. (1989). *Para um consenso nacional sobre a normalização da vida. Relatório do comitê central ao 5º congresso*. [Towards a national consensus on the normalisation of life. Report of the central committee to the 5th congress]. Maputo: INLD.
- Patton, M.Q. (1987). *How to use qualitative methods in evaluation*. London: Sage Publications.

- Perkins, D.N., & Salomon, G. (1996). Transfer of learning. In T. Plomp, & D.P. Ely (Eds.), *International encyclopedia of educational technology* (2nd ed.), pp. 64-68. Oxford: Pergamon.
- Phillips, D.L., & Clancy, K.J. (1972). Some effects of 'social desirability' in survey studies. *American Journal of Sociology*, 77 (5), 921-938.
- Pike, G.R. (1999). The constant error of halo in educational outcomes research. *Research in Higher Education*, 40 (1), 61-86.
- Pintrich, P.R. (1999). The role of motivation in promoting and sustaining self-regulated learning. *International Journal of Educational Research*, 31 (6), 459-470.
- Polanyi, M. (1996). *The tacit dimension*. London: Routledge and Kegan.
- Poortman, C.L. (2001). *Guidelines for designing a learning trajectory on educational design for the curriculum of the Faculty of Education, Universidade Eduardo Mondlane*. (Masters thesis). Enschede, the Netherlands: Twente University.
- Posner, G.J., & Rudnitsky, A.N. (1997). *Course design: A guide to curriculum development for teachers*. Fifth edition. New York: Longman.
- Prahalad, C.K., & Hamel G. (1990). The core competencies of the corporation. *Harvard Business Review*, May/June, 79-91.
- Prinsloo, E.D. (1998). Ubuntu culture and participatory management. In P.H. Coetzee, & A.P.J. Roux (Eds.), *Philosophy from Africa, a text with readings* (pp. 41-51). Cape Town: Oxford University Press Southern Africa.
- Prinsloo, F.E. (2001). *A competency framework for newly qualified chartered accountants. An exploration of key development issues*. Port Elizabeth, South Africa: University of Port Elizabeth.
- Public Accountants' and Auditors' Board. (2001). *The curriculum framework for registered accountants and auditors in South Africa*. Retrieved January 22, 2003 from <http://www.paab.co.za/Education/Education-NewCurriculum.pdf>
- Raelin, J.A., & Cooledge, A.S. (1995). From generic to organic competencies. *Human Resource Planning* 18 (3), 24-33.
- Ramsay, John (1993). The hybrid course: Competences and behaviourism in higher education. *The Journal of Further and Higher Education*, 17 (3), 70-89.
- Reber, A.S. (Ed.). (1995). *Penguin dictionary of psychology*. London: Penguin Books.
- Reeves, T.C. (2000). Socially responsible educational technology research. *Educational Technology*, 40(6), 19-28.
- Reigeluth, C.M., & Frick, T.W. (1999). Formative research: A methodology for improving design theories. In C.M. Reigeluth (Ed.), *Instructional-design theories and models: A new paradigm of instructional theory* Vol. II (pp. 633-651). Hillsdale, NJ: Lawrence Erlbaum.
- Ribeiro, M.R. (1999). *Curriculum development and socio-cultural context. The case of primary education in Mozambique*. (Masters thesis). Maputo/Stockholm: INDE/Stockholm Institute of Education.

- Richey, R.C., Fields, D.C., & Foxon, M. (with Roberts, R.C., Spannaus, T., & Spector, J. M.) (2001). *Instructional design competencies: The standards* (3rd ed.). Syracuse, NY: ERIC Clearinghouse on Information and Technology. ED 453 803
- Richey, R.C., & Nelson, W. (1996). Developmental research. In D. Jonassen (Ed.), *Handbook of research for educational communications and technology* (pp. 1213-1245). New York: Simon & Schuster.
- Richey, R.C., Spannaus, T.W., Spector, T.M. (1999). *The revised IBSPIT Instructional Design Competencies: Practical and Theoretical implications*. Paper delivered at the 1999 Annual Convention of the Association for Educational Communication and Technology at Houston, Texas.
- Robbins, C. (1963). *Higher Education*. Report of the committee under the chair-manship of Lord Robbins. London: HMSO.
- Rogan, J.M., Grayson, D.J., Van den Akker, J., Ndjalane, T., Dlamini, S., & Aldous, C. (2002). *The implementation of C2005 in Mpumalanga: Towards a theory of implementation*. Paper presented at the annual conference of the Southern African Association for Mathematics, Science and Technology Education, held 22-26 January, 2002 in Durban, South Africa.
- Rogers, C. R. (1983). *Freedom to learn for the 80's*. New York: Charles E. Merrill Publishing Company.
- Romiszowski, A.J. (1996). Systems approach to design and development. In T. Plomp & D.P. Ely (Eds.). *International encyclopedia of educational technology* (pp. 37-42). 2nd ed. Oxford: Pergamon.
- Rossi, P.H., & Freeman, H.E. (1993). *Evaluation. A systematic approach*. Fifth edition. Thousand Oaks, CA: Sage Publications.
- Rossi, P.H., Freeman, H.E., & Lipsey, M.W. (1999). *Evaluation. A systematic approach*. Sixth edition. Thousand Oaks, CA: Sage Publications.
- Rozendal, R. (2002). *If it works for us, will it work for them? Een casestudie naar culturele en politieke processen binnen het Kinondoni ICT-project in Tanzania* [A case study into cultural and political processes in the Kinondoni ICT-project in Tanzania]. (Masters thesis). Amsterdam: Free University Amsterdam.
- Rumelhart, D.E., & McClelland, J.L. (Eds.). (1986). *Parallel distributed processing: Explorations in the microstructure of cognition, volume 1*. Cambridge, MA: MIT Press.
- Rumsey, D. (1997). *The changing workplace of the 21st Century: Implications for educators and trainers*. Paper presented at the Annual Conference of the Australian Association for Research in Education. Retrieved November 26, 2002 from <http://www.aare.edu.au/97pap/rumsd023.htm>
- Ryan, C. (1997). *NSW key competencies pilot project report*. Sydney: NSW Department of Training and Education Co-ordination.
- Rychen, D.S., & Salganik, L.H. (2000). *Definition and selection of key competencies. A contribution of the OECD program "Definition and selection of competencies: theoretical and conceptual foundations."* Paper presented at the International Network of Engineers and Scientists (INES) Congress, held in Stockholm, June 14-18.

- Rychen, D.S., & Salganik, L. (2002). *DeSeCo Symposium - Discussion paper*. Paper presented at the 2nd International DeSeCo Symposium, Geneva, February 11-13 2002.
- Sabelli, N., & Dede, C. (2001). *Integrating educational research and practice; reconceptualizing goals and policies: "How to make what works, work for us?"*. Retrieved October 1, 2002 from http://www.virtual.gmu.edu/ss_research/cdpapers/policy.pdf
- Salganik, L.H., Rychen, D.S., Moser, S., & Konstant, J.W. (1999). *Projects on competencies in the OECD context. Analysis of theoretical and conceptual foundations*. Neuchâtel: Swiss Federal Statistical Office. Retrieved September 25, 2002 from http://www.statistik.admin.ch/stat_ch/ber15/deseco/salganik_report.pdf
- Salomon, G. (1993). *Distributed cognitions: psychological and educational considerations*. Cambridge, UK: Cambridge University Press.
- Salomon, G. (1998). Novel constructivist learning environments and novel technologies: some issues to be concerned with. *Research Dialogue in Learning and Instruction*, 1, 3-12.
- Salomon, G., & Globerson, T. (1987). Skill may not be enough: the role of mindfulness in learning and transfer. *International Journal of Educational Research*, 11, 623-38.
- Salomon, G., & Perkins, D.N. (1988). Teaching for transfer. *Educational Leadership*, 46, 22-32.
- Salomon, G., & Perkins, D.N. (1989). Rocky roads to transfer: Rethinking mechanisms of a neglected phenomenon. *Educational Psychologist*, 24, 113-142.
- Sandberg, J. (1994). *Human competence at work - an interpretative approach*. Göteborg: BAS.
- Sandberg, J. (2000). Understanding human competence at work: an interpretative approach. *Academy of Management Journal* 43 (1), 9-17.
- Satchwell, R.E. (1996). Using functional flow diagrams to enhance technical systems understanding. *Journal of Industrial Teacher Education*, 34 (2), 50-81.
- SCANS (Secretary's Commission on Achieving Necessary Skills) (1991). *What work requires from schools*. Washington D.C.: Department of Labor.
- Scheeres, H., & Hager, P. (1994). *Competencies and the curriculum*. Paper presented at the annual conference of the Australian Association for Research in Education.
- Schlusmans, K., Slotman, R., Nagtegaal, C., & Kinkhorst, G. (2000). Competentiegerichtte leeromgevingen: een inleiding [Competence-based learning environments: an introduction]. In K. Schlusmans, R. Slotman, C. Nagtegaal, & G. Kinkhorst (Eds.), *Competentiegerichtte leeromgevingen [Competence-based learning environments]* (pp. 13-27). Utrecht: Lemma.
- Scholl R.W. (2000). *Social cognition and cognitive schema*. Retrieved October 24, 2001 from http://www.cba.uri.edu/Scholl/Notes/Cognitive_Schema.htm
- Schön, D.A. (1983). *The reflective practitioner*. New York: Basic Books.

- Schwab, J. (1970). *The practical: a language for curriculum*. Washington, DC: National Education Association
- Scollon, R., & Scollon, S.W. (1995). *Intercultural communication: A discourse approach*. Oxford, U.K.: Blackwell.
- Seagraves, L., Kemp, I., & Osborne, M. (1996). Are academic outcomes of higher education provision relevant to and deliverable in the workplace setting? *Higher Education*, 32 (2), 157-176.
- Searle, J.R. (1995). *The construction of social reality*. New York: Free Press.
- Seels, B.B., & Richey, R.C. (1994). *Instructional technology: The definition and domains of the field*. Washington, D.C.: Association for Educational Communications and Technology.
- Shahid, W.A.R. (1994). *Beeldvorming: de verborgen dimensie bij interculturele communicatie* [Stereotyping: the hidden dimension in intercultural communication]. Tilburg: Tilburg University Press.
- Shahid, W.A. (2003). *Grondslagen van de interculturele communicatie. Studieveld en werkterrein*. 5^e druk. [Foundations of intercultural communication. Field of study and area of work. 5th edition]. Alphen aan den Rijn: Kluwer.
- Shavelson, R.J., Phillips, D.C., Towne, L., & Feuer, M.J. (2003). On the scientific basis of design studies. *Educational Researcher* 32 (1), pp. 25-28.
- Shepherd, I.H.D. (2000). *Key skills: teaching and learning for transfer*. Cheltenham, UK: Geography Discipline Network.
- Sherer, M., & Eadie, R. (1987). Employability skills: Key to success. *Thrust 17* (2), 16-17.
- Shipman, M.D. (1974). *Inside a curriculum project*. London: Methuen.
- Short, E.C. (1984). Gleanings and possibilities. In E.C. Short (Ed.), *Competence: Inquiries into its meaning and acquisition in education settings* (pp.161-180). Lanham, MD: University press of America.
- Simons, P. (1990). *Transfer-ability*. Inaugural lecture. Nijmegen: Quickprint.
- Simons, P.R. (2000). Competentiegerichte leeromgevingen in organisaties en hoger beroepsonderwijs [Competence-based learning environments and tertiary vocational education]. In K. Schlusmans, R. Slotman, C. Nagtegaal, & G. Kinkhorst (Eds.), *Competentiegerichte leeromgevingen* [Competence-based learning environments] (pp. 31-45). Utrecht: Lemma.
- Skinner, B.F. (1938). *The behaviour of organisms: an experimental analysis*. New-York: Appleton-Century-Crofts.
- Smart, T. & Bomba, D Jr. (1999). *Evaluation of the BUSCEP III Project, Eduardo Mondlane University*. The Hague: Nuffic.
- Smith, B., Stanley, W., & Shores, J. (1957). *Fundamentals of curriculum development, revised edition*. New York: Harcourt, Brace & World, Inc.
- Snyder, J., Bolin, F., & Zumwalt, K. (1992). Curriculum implementation. In Ph. Jackson (Ed.), *Handbook of research on curriculum* (pp.402-435). New York: Macmillan.

- Soden, R. (1993). *Teaching thinking skills in vocational education*. Sheffield: Employment Department.
- South African Qualifications Authority (SAQA) (2000). *The national qualifications framework and standard setting*. Pretoria: SAQA.
- Spencer, L.M., & Spencer, S.M. (1993). *Competence at work: Models for superior performance*. New York: John Wiley.
- Spindler, G. (1999). Three categories of cultural knowledge useful in doing cultural therapy. *Anthropology and Education Quarterly*, 30 (4), 466-472.
- Spindler, G., & Spindler, L. (Eds.). (1994). *Pathways to cultural awareness: Cultural therapy with teachers and students*. Thousand Oaks, CA: Corwin.
- STADEP (n.d.). *The history of STADEP*. Retrieved January 6, 2003 from <http://www.uem.mz/stadep/histeng.html>
- Stake, R. (1995). *The art of case research*. Thousand Oaks, CA: Sage Publications.
- Stanton, G. (1989). Curriculum implications? In J.W. Burke (Ed.), *Competency based education and training*. London: The Falmer Press.
- Stasz, C. (1998). Generic skills at work - implications for occupationally-oriented education. In W.J. Nijhoff, & J.N. Streumer (Eds.), *Key Qualifications in work and education* (pp. 187-206). Dordrecht: Kluwer Academic Publishers.
- Stasz, C., McArthur, D., Lewis, M., & Ramsey, K. (1990). *Teaching and learning generic skills for the workplace* (MDS-066). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.
- Stasz, C., Ramsey, K., Eden, R., Melamid, E., & Kaganoff, T. (1996). *Workplace skills in practice*. Santa Monica, CA: Rand/National Centre for Research in Vocational Education.
- Stasz, C., Ramsey, K., Eden, R., DaVanzo, J., Farris, H., & Lewis, M. (1992). *Classrooms that work: teaching generic skills in academic and vocational settings*. Berkeley CA: National Center for Research in Vocational Education.
- Stern, D., & Wagner, D.A. (1999). Introduction: School-to-work policies in industrialized countries as responses to push and pull. In D. Stern, & D.A. Wagner (Eds.), *International perspectives on the school-to-work transition* (pp. 1-22). Cresskill (NJ): Hampton Press.
- Stiegelbauer, S. (1994). Change has changed: Implications for implementation of assessments from the organizational literature. *Systemic Reform: Perspectives on Personalizing Education*, September 1994. Retrieved June 6, 2003 from <http://www.ed.gov/pubs/EdReformStudies/SysReforms/stiegel1.html>
- Stolovitch, H.D., & Keeps, E.J. (1999). *Handbook of human performance technology: Improving individual and organizational performance worldwide*. San Francisco: Jossey-Bass/Pfeiffer.
- Stone, J.E. (1996). Developmentalism: an obscure but pervasive restriction on educational improvement. *Education Policy Analysis Archives* 4 (8). Retrieved January 26, 2001 from <http://olam.ed.asu.edu/epaa/v4n8.html>

- Stoof, A., Martens, R.L., Van Merriënboer, J.J.G., & Bastiaens, T.J. (2002). The boundary approach of competence: a constructivist aid for understanding and using the concept of competence. *Human Resource Development Review* 1 (3), 345-365.
- Storey, L. (2001). *The concept of competence*. Paper presented at the Assessment of Competence conference, held in Killiney, Republic of Ireland, September 13-14.
- Streumer, J., & Bjorkquist, D. (1998). Moving beyond traditional vocational education and training. In W.J. Nijhof, & J.N. Streumer (Eds.), *Key Qualifications in work and education* (pp. 249-264). Dordrecht: Kluwer Academic Publishers.
- Streumer, J., & Kämäräinen, P. (1998). Beroepsonderwijs in een proces van verandering [Vocational education in a process of change]. In N. Verloop (Ed.), *75 jaar onderwijs en opvoeding*, pp. 93-120 [75 years of education and upbringing, pp. 93-120]. Groningen: Wolters Noordhoff.
- Stuart, J., & Hamlyn, B. (1992). Competence-based qualifications: The case against change. *Journal of European Industrial training*, 16 (7), 21-32.
- Stufflebeam, D.L., McCormick, C.H., Brinkerhoff, R.O., & Nelson, C.O. (1985). *Conducting educational needs assessment*. Dordrecht, the Netherlands: Kluwer Nijhoff Publishing.
- Taba, H. (1962). *Curriculum development theory and practice*. New York: Harcourt Brace and World, Inc.
- Takala, T., & Marope, M. (2002). *Partnerships between ministries of education and international funding and technical assistance agencies – the case of Mozambique*. Paris: UNESCO, Working group on Education Sector Analysis.
- Te Lintelo, L. (2000). Kenmerken van competentiegerichte opleidingen [Characteristics of competence-based education programmes]. In K. Schlusmans, R. Slotman, C. Nagtegaal, & G. Kinkhorst (Eds.), *Competentiegerichte leeromgevingen* [Competence-based learning environments] (pp. 95-102). Utrecht: Lemma.
- Teichler, U. (1998). *Thematic debate: the requirements of the world of work*. Paper presented at the UNESCO World Conference on Higher Education in the 21st Century: Vision and Action, held in Paris, October 5-9.
- Tellis, W. (1997). Introduction to case study. *The Qualitative Report*, 3 (2). Retrieved July 1, 1999 from <http://www.nova.edu/ssss/QR/QR3-2/tellis1.html>
- Thijs, A. (1999). *Supporting science curriculum reform in Botswana: the potential of peer coaching*. (Doctoral dissertation). Enschede: University of Twente.
- Thijssen, J. (1998). Hindernissen voor competentie-management [Obstacles for competence management]. *Opleiding en Ontwikkeling*, 10, 17-23.
- Thomson, P. (1990). *Competency-based approaches to training in TAFE, assessment and standards in vocational education and training, 1990 conference/workshop report*. Leabrook: TAFE National Centre for Research and Development.
- Thornton, R. (1988). Culture: A contemporary definition. In J. Boonzaier, & J. Sharp (Eds.), *South African Keywords: The uses & abuses of political concepts* (pp. 17-28). Cape Town: David Philip.

- Timmers, C.F. (2001). *Generic competence learning at the Faculty of Education, Eduardo Mondlane University, Maputo, Mozambique*. (Masters thesis). Enschede, the Netherlands: Twente University.
- Tovey, L. (1993). A strategic approach to competency assessment. *Journal of European Industrial Training*, 7(10), ii-iii.
- Training Agency. (1988). *Development of assessable standards for national certification. Guidance note 1: A code of practice and development model*. Sheffield: Training Agency.
- Trier, U.P. (2002). *Key competencies in OECD countries - similarities and differences*. Paper presented at the DeSeCo Symposium, Geneva, 11 - 13 February, 2000.
- Trivett, D.A. (1975). *Competency programs in higher education*. Washington, D.C.: American Association for Higher Education, ERIC, ED 118023.
- Tuxworth, E. (1989). Competence based education and training: background and origins. In J.W.Burke (Ed.), *Competency based education and training*. London: The Falmer Press.
- Tyler, R.W. (1934). *Constructing achievement tests*. Columbus, OH: Ohio State University.
- UEM (1997). *Termos de referência da comissão BUSCEP/STADEP* [Terms of reference of the commission BUSCEP/STADEP]. Maputo: UEM, STADEP.
- UEM (1999a). *Novo quadro curricular da UEM* [New curriculum framework for the UEM]. Maputo: Eduardo Mondlane University, Comissão Central de Reforma Curricular.
- UEM (1999b). *Termos de referência da comissão instaladora da Faculdade de Educação, UEM, 1999 - 2000* [Terms of reference of the Installation Commission of the Faculty of Education, UEM, 1999 - 2000]. Maputo: UEM.
- UEM (2001). *Post-graduate programmes in science and mathematics education, curriculum and instruction development, adult education*. Maputo, Mozambique: Universidade Eduardo Mondlane, Faculdade de Educação.
- UNESCO Institute for Statistics (2002). *Statistical tables*. Retrieved November 25, 2002 from http://portal.unesco.org/uis/ev.php?URL_ID=3753&URL_DO=DO_TOPIC&URL_SECTION=-67&reload=1038306514
- UNESCO-BREDA (1994). *Future directions for higher education in Africa*. Dakar, Senegal: UNESCO Regional Office (BREDA).
- United Nations Development Programme (UNDP) (2002). *Human development indicators 2002: Mozambique*. Retrieved November 25, 2002, from http://hdr.undp.org/reports/global/2002/en/indicator/indicator.cfm?File=cty_f_MOZ.html
- University of Melbourne (2002). *A submission prepared by the University of Melbourne Postgraduate Association (Inc) to the 2002 Ministerial review of higher education*. Melbourne: University of Melbourne. Retrieved October 3, 2002 from www.dest.gov.au/crossroads/submissions/pdf/204.pdf

- Van Beirendonck, L. (1999). *Beoordelen en ontwikkelen van competenties* [Assessing and developing competencies]. Amersfoort, the Netherlands: ACCO.
- Van den Akker, J.J.H. (1993). Invoering van onderwijsleerpakketten [Adoption of educational materials]. In W. Nijhof, H. Franssen, Th. Hoeben, & R. Wolbert (Eds.), *Handboek curriculum* [Handbook curriculum] (pp. 349-370). Amsterdam/Lisse: Swets & Zeitlinger.
- Van den Akker, J. (1998a). The science curriculum: between ideals and outcomes. In B. Fraser, & K. Tobin (Eds.), *International handbook of science education* (pp. 421-447). Dordrecht: Kluwer Academic Publishers.
- Van den Akker, J. (1998b). *De uitbeelding van het curriculum* [The representation of the curriculum]. Inaugural lecture. Enschede: University of Twente.
- Van den Akker, J. (1999). Principles and Methods of development Research. In J. van den Akker, R.B. Branch, K. Gustafson, N. Nieveen, & T. Plomp, (Eds.), *Design approaches and tools in education and training* (pp. 1-14). Dordrecht: Kluwer Academic Publishers.
- Van den Akker, J. (2002). The potential of development research for improving the relation between curriculum research and curriculum development. In P. Lang (Ed.), *Comparing curriculum-making processes*. Bern: Editions Scientifiques Européennes.
- Van den Akker, J. (2003). Curriculum perspectives: An introduction. In J. van den Akker, U. Hameyer, & W. Kuiper (Eds.), *Curriculum landscapes and trends* (pp. 1-10). Dordrecht: Kluwer Academic Publishers.
- Van den Akker, J., Branch, R.B., Gustafson, K., Nieveen N., & Plomp, T. (1999). *Design approaches and tools in education and training*. Dordrecht: Kluwer Academic Publishers.
- Van den Akker, J., Van den Berg, E., Nieveen, N., & Visscher, I. (1998). *Developmental research in/on curricular and instructional development*. Handout for the AERA annual meeting, held in San Diego, April 13-17.
- Van den Akker, J., & Voogt, J. (1994). The use of innovation and practice profiles in the evaluation of curriculum implementation. *Studies in Educational Evaluation*, 20 (4), 503-512.
- Van den Berg, R., & Vandenberghe, R. (1999). *Succesvol leiding geven aan onderwijsinnovaties; investeren in mensen* [Successfully managing educational innovations; investing in people]. Alphen aan de Rijn: Samson.
- Van den Bosch, H. (2001). Van probleemgestuurd naar competentiegericht onderwijs [From problem-based to competence-based education]. *Onderzoek van Onderwijs*, 30 (2), 24-30.
- Van der Heijden, B.J.I.M.(1997). Het meten van expertise: een aanzet to een loopbaan instrument. [Measuring expertise: a start to a career-instrument]. *Tijdschrift voor Hoger Onderwijs* 15 (3), 250-264.

- Van der Klink, M., Boon, M., & Schlusmans, K. (2002). *Competenties en hoger onderwijs: stand van zaken en toekomstperspectief* [Competencies and Higher Education: the state of affairs and a perspective of the future]. Paper presented at the conference: Competence-based vocational education, held at the Wageningen University, October 1.
- Van der Klink, M., Bos, E., & Boon, J. (1999). *Op zoek naar diversiteit: van competenties in de beroepspraktijk naar curricula* [Looking for diversity: from competencies in the professional practice to curricula]. Paper presented at the Education Research days, 20 May 1999, University of Nijmegen, the Netherlands.
- Van der Sanden, J.M.M., Streumer, J.N., Doornekamp, B.G., Teurlings, C.C.J. (2001). *Bouwstenen voor vernieuwend voorbereidend middelbaar beroepsonderwijs* [Building stones for innovative junior secondary vocational education]. Meppel: Giethoorn-Ten Brink.
- Van der Veen, R. (2002). *Afrika. Van de koude oorlog naar de 21e eeuw* [Africa. From the cold war to the 21st century]. Amsterdam: KIT Publishers.
- Van Diggele, J., & Straetmans, G. (2002). *Competentiegericht beoordelen* [competence-based assessment]. Retrieved August 21, 2002 from <http://toetswijzer.kennisnet.nl/html/competentie/beoordelen.htm>
- Van Maanen, J. (1988). *Tales of the field: On writing ethnography*. Chicago: The University of Chicago.
- Van Oers, B. (1998). The fallacy of decontextualisation. *Mind, Culture, and Activity*, 5 (2), 135-142.
- Van Puffelen, E., ter Wee, E., & Jager, A. (2001). *Ontwerp uitdagend leren. Competenties voor het leren ontwerpen van onderwijs volgens nieuwe concepten met ICT*. [Design provocative learning. Competencies for learning to design education according to new concepts with ICT]. Wageningen, the Netherlands: STOAS.
- Van Staden, C. (1998). Using culture in African contexts. In P.H. Coetzee, & A.P.J. Roux (Eds.), *Philosophy from Africa, a text with readings* (pp. 15-25). Cape Town: Oxford University Press Southern Africa.
- Van Zolingen, S.J. (1995). *Gevraagd sleutelkwalificaties. Een studie naar sleutelkwalificaties voor het middelbaar beroepsonderwijs* [Asked: key qualifications. A study into key qualifications in the upper vocational education]. (Doctoral dissertation). Nijmegen University, Nijmegen, The Netherlands.
- Van Zolingen, S., Blockhuis, F., Streumer, C., & Nijhof, W. (1997). *Towards broad initial vocational education and training: A method for the formulation of key qualifications and core problems*. Paper presented at the CEDEFOP conference on Core Skills, Amsterdam.
- Velde, C. (1999). Crossing borders: an alternative conception of competence and implications of professional practice in the workplace. *Journal of Vocational Education and Training*, 51 (3), 437-447.

- Verhagen, P.W. (2000). *De opleiding van onderwijskundig ontwerpers* [The training of educational designers. Enschede: University of Twente.
- Verloop, N. (1995). De leraar [The teacher]. In J. Lowyck, & N. Verloop (Eds.), *Onderwijskunde: Een kennisbasis voor professionals* [Educational science, a knowledge-base for professionals]. Groningen: Wolters-Noordhoff.
- Verspoor, A. (1989). *Pathways to change. Improving the quality of education in developing countries*. World Bank Discussion Papers 53. Washington DC: The World Bank.
- Verspoor, A., & Wu, K.B. (1990). *Textbooks and educational development*. PHREE background series No. PHREE/90/31. Washington DC: The World Bank.
- Victor, D.A. (1992). *International business communication*. New York: HarperCollins Publishers.
- Visscher-Voerman, I., Gustafson, K., & Plomp, T. (1999). Educational design and development: an overview of paradigms. In J. van den Akker, R.B. Branch, K. Gustafson, N. Nieveen, & T. Plomp, (Eds.), *Design approaches and tools in education and training* (pp. 15-28). Dordrecht: Kluwer Academic Publishers.
- Von Kotze, A., & Cooper, L. (2000). Exploring the transformative potential of project-based learning in university adult education. *Studies in the Education of Adults*, 32 (2), 212-228.
- Vygotsky, L.(1978). *Mind in society: The development of the higher psychological processes*. Cambridge, MA: Harvard University Press.
- Vygotsky, L.S. (1934/1987). Thinking and speech. In R.W. Rieber, & A.S. Carton (Eds.), *The collected works of L.S. Vygotsky, Volume 1: Problems of general psychology*. New York: Plenum.
- Walker, D.F. (1990). *Fundamentals of curriculum*. San Diego, CA: Harcourt, Brace Jovanovich.
- Walker, D.F. (1992). Methodological issues in curriculum research. In P. Jackson (Ed.), *Handbook of research on curriculum* (pp.98-118). New York: Macmillan.
- Walker, D.F. (1975). Curriculum development in an art project. In W.A. Reid, & D.F. Walker (Eds.), *Case studies in curriculum change* (pp. 91-135). London: Routledge & Kegan Paul.
- Walker, D. (1997). Why won't they listen? Reflections of a formative evaluator. *Advances in Program Evaluation* 3, 121-137.
- Walker, D., & Bresler, L. (1993). *Development research: definitions, methods and criteria*. Paper presented at the AERA annual conference, held in Atlanta, April 12-16.
- Wangsatorntankhun, J. (2001). Designing performance Assessments: Challenges for the Three-Story Intellect. Retrieved August 5, 2002 from <http://www.geocities.com/Athens/Parthenon/8658/>
- Watson, D.S. (2001). Pedagogy before technology: Re-thinking the relationship between ICT and teaching. *Education and Information Technologies* 6 (4), 251-266.

- Weggeman, M.C.D.P. (1997). De onzekerheid van de digitale leeromgeving [The uncertainty of the digital learning environment]. In: M. Mirande, J. Riemersma, & W. Veen, (Eds.), *De digitale leeromgeving* [The digital learning environment] (pp. 29-47). Groningen: Wolters-Noordhoff.
- Weimer, M. (1996). Active learning: Quantity, extent, depth count. *The Teaching Professor* 10 (10), 1.
- Weinert, F.E. (1999). *Definition and selection of competencies. Concepts of competence*. München: Max Planck Institute for Psychological Research. Retrieved September, 25, 2002 from http://www.statistik.admin.ch/stat_ch/ber15/deseco/deseco_weinert.htm
- Weinert, F.E. (2001). Concept of competence: a conceptual clarification. In D.S. Rychen, & L.H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 45-64). Seattle: Hogrefe & Huber Publishers.
- Westera, W., & Sloep, P.B. (1998). The virtual company: Towards a self-directed, competence-based learning environment. *Educational Technology*, 38 (1), 12-38.
- Wiggins, G., & McTighe, J. (1998). *Understanding by design*. Upper Saddle River, NJ: Prentice-Hall.
- Wijnen, W.H.F.W. (1999). *Op weg naar ontwerpgericht onderwijs* [Towards design centred education]. Eindhoven: Technische Universiteit Eindhoven, OSC.
- Willis, S., & Dubin, S. (1990). *Maintaining professional competence*. San Francisco: Jossey-Bass.
- Winning, A. (1993). Vocational education and training in Australia. *Education and Training*, 35 (3), 9-13.
- Wirth, A (1993). Education and work: the choices we face. *Phi Delta Kappan*, 74 (5), 361-366.
- Witkin, B.R. (1984). *Assessing needs in educational and social programs*. San Francisco: Jossey-Bass.
- Wittrock, M.C. (1979). The cognitive movement in instruction. *Educational Researcher*, February, 5-11.
- Wolf, A. (1989). Can competence and knowledge mix? In J.W.Burke (Ed.), *Competency based education and training*. London: The Falmer Press.
- Woodall, J., & Winstanley, D. (1998). *Management development*. Oxford: Blackwell Publishers Ltd.
- World Bank (2002). *Annual report 2002, appendix 2*. Retrieved November 22, 2002, from <http://www.worldbank.org/annualreport/2002/pdf/IBRDAppendixes.pdf>
- World Health Organisation (1988). *Learning to work together for health. Report of a WHO study group on multi-professional education for health personnel: a team approach*. Geneva, Switzerland: World Health Organisation.
- WRR (Wetenschappelijke Raad voor het Regeringsbeleid) (1995). Hoger onderwijs in fasen [Higher education in phases]. Den Haag: SDU.

- Yin, R.K. (1994). *Case study research: Design and methods*. Beverly Hills, CA: Sage Publications.
- Young, G.L. (1995). Needs assessment in program planning. *College Quarterly*. Retrieved May 20, 2000 from <http://www.senecac.on.ca/quarterly/CQ.html/HHH.031.CQ.W94.Young.html>

RESUMO

Conceber para competências: o desenvolvimento dum currículo baseado em competências para a Faculdade de Educação da Universidade Eduardo Mondlane

A maior instituição moçambicana de ensino superior, a Universidade Eduardo Mondlane (UEM) decidiu, em 1999, pela reabertura da Faculdade de Educação que tinha sido encerrada em 1985, depois da criação do Instituto Superior Pedagógico, uma nova instituição superior de formação de professores. Uma Comissão Instaladora recebeu a tarefa de coordenar a instalação da Faculdade, e a concepção e desenvolvimento do currículo de vários programas de Licenciatura e de pós-graduação. Quase desde o início das suas actividades, isto no ano de 1999, a Comissão Instaladora trabalhou de parceria com peritos de três Universidades holandesas, nomeadamente, a Universidade Livre de Amsterdão, a Universidade de Groningen, e a Universidade de Twente, numa altura em que o processo de reforma curricular na UEM tinha, ao mesmo tempo, se iniciado, enfatizando a necessidade de fazer o currículo mais relevante para a sociedade moçambicana, significando uma distância reduzida entre o ensino geral (académico) e profissional. Neste contexto, a Comissão Instaladora decidiu escolher um caminho direccionado para um currículo baseado em competências nos seus novos programas educacionais. Entretanto, o estudo presente começou no fim de 1999, quando a Comissão Instaladora confirmou a sua escolha de um currículo baseado em competências, e relata todo o processo histórico de desenvolvimento deste currículo na Faculdade de Educação da UEM.

O estudo focaliza-se na concepção e desenvolvimento de três programas curriculares de pós-graduação: Educação de Adultos; Desenvolvimento Curricular e Instrucional; e Educação em Ciências Naturais e Matemática, assim como a implementação da sua primeira parte, o tronco comum para os três programas. Como está elaborado nos capítulos 1 e 5, duas declarações dos problemas a

investigar representam o ponto de partida deste estudo. O primeiro problema ou pergunta principal é se *poderia ser esperado que a formação de profissionais de educação, baseado em competências, conduzisse, no fim, para uma melhoria da baixa qualidade e eficácia do sistema educacional em Moçambique*. O segundo problema é *quais são as características dum currículo baseado em competências no contexto da nova Faculdade de Educação na UEM em Moçambique, e como este currículo pode ser concebido, desenvolvido e implementado*.

O objectivo do estudo é a contribuição para melhoria do sistema de Educação em Moçambique documentando cuidadosamente (reconstruindo) a 'busca' dum currículo baseado em competências, seguida pela análise e reflexão deste como produto e os processos e procedimentos da sua concepção, desenvolvimento e implementação. A reconstrução e análise que constituem a parte principal deste estudo podem ser classificados no contexto de investigação de desenvolvimento (development research), resultando num exemplo claro e diligentemente documentado, do desenvolvimento dum currículo baseado em competências para o Ensino Superior em África, com diretrizes processuais e as devidas recomendações. O contexto do estudo é a Faculdade de Educação de uma Universidade Africana num país que ainda é um dos mais pobres no mundo. Os resultados do estudo poderiam ser de uso em contextos comparáveis (instituições de Ensino Superior nos países em via de desenvolvimento), mas também poderiam contribuir em geral no conhecimento sobre abordagens baseadas em competências no Ensino Superior. Além da reconstrução e análise, uma avaliação formativa foi feita durante a concepção, desenvolvimento e implementação do currículo com o objectivo de realizar programas educacionais com uma alta consistência interna e externa.

A revisão da literatura no estudo se dirige, entre outros, à pergunta quais são os argumentos da escolha de um ensino baseado em competências. A sociedade presente poderia ser caracterizada como ficando cada vez mais complexa, dinâmica e intensiva em termos de conhecimento. Neste contexto, precisa-se de profissionais que podem responder confiantemente e habilmente a novas situações e a novos problemas, e, além dum sólido conhecimento domínio-específico e habilidades apropriadas, possuem a habilidade de adquirir rapidamente o saber e saber-fazer necessários. O aprender em contextos profissionais tem ficado mais importante e o Ensino (superior) geral, académico é, por isso, ficando mais profissional ou orientado na profissão. Nesta situação o ensino baseado em competências pode ser uma escolha apropriada.

Baseado na literatura vasta e variada sobre o conceito de competência, um modelo de competência foi desenvolvido neste estudo que encapsula uma visão integrada e holística do conceito de competência e basea-se numa medida grande nas idéias de

Hager e Gonczi (1996). O resultado é uma definição de competência (*competency*) que se formula como:

Competência é a habilidade de escolher e usar (aplicar) um conjunto de conhecimentos, habilidades e atitudes com a intenção de realizar uma tarefa num certo contexto, enquanto características pessoais tais como motivação, autoconfiança, e energia pessoal fazem parte daquele contexto.

Outros conceitos fundamentais e importantes no ensino baseado em competências são:

- Competência (*competence*) como a capacidade de realizar 'no nível padrão' as tarefas chave que caracterizam uma profissão. Um profissional competente mostra um desempenho satisfatório (ou superior). A diferença com *competency* é que *competence* é orientada no resultado (output-oriented), enquanto *competency* é orientada na contribuição (input-oriented). Competência no sentido de *competency* é um atributo que faz alguém competente.
- *Tarefas chave profissionais* são as tarefas que caracterizam uma profissão. As competências que são necessárias para a realização de tarefas profissionais podem ser classificadas como competências domínio-específicas, incluindo competências disciplinares e inter-disciplinares, e como competências genéricas.
- *Competências genéricas* são definidas como competências que são precisadas em todas as áreas duma profissão e que são transferáveis, quer dizer, utilizadas em novas situações na profissão ou na vida.

A análise e síntese da literatura resultaram numa lista de indicadores de ensino baseada em competências que poderia ser usada para avaliar os resultados do processo de concepção, desenvolvimento e implementação na Faculdade de Educação da UEM. A instalação da Faculdade de Educação da UEM e a concepção, desenvolvimento e implementação do currículo pode ser visto como sendo uma intervenção respondendo a uma necessidade. Neste estudo um modelo é apresentado no qual são formulados os aspectos substantivos e processuais da intervenção em forma de hipóteses ou declarações heurísticas. A hipótese principal do modelo, ligando o processo de concepção e de desenvolvimento aos resultados imediatos da intervenção, combina os aspectos substantivos e processuais e assemelha-se às formulações heurísticas usadas na investigação de desenvolvimento. Esta declaração, chamada 'hipótese de desenvolvimento', é formulada da maneira seguinte:

Um processo de concepção e de desenvolvimento com características D_1, D_2, \dots, D_k produzirá um currículo com características C_1, C_2, \dots, C_m que, quando implementado ao longo das diretrizes processuais P_1, P_2, \dots, P_n , vai resultar em profissionais educacionais competentes.

Um dos objectivos operacionais desta investigação foi precisar as características (os D's e C's) e as diretrizes processuais (os P's).

Durante o processo de desenvolvimento curricular o investigador também teve papéis como desenhador e como docente (e membro da Comissão Instaladora). A importância destes papéis mudou, ao longo do processo de desenvolvimento curricular. Não obstante, o estudo descrito nesta tese, foi feito depois do investigador-desenhador ter se retirado fisicamente da Faculdade e do processo de desenvolvimento curricular e, por isso, o estudo pode ser nomeado um 'estudo reconstrutivo'. Este tipo de estudo tem como objectivo formular características dum currículo baseado em competências, articular e definir princípios de concepção, de desenvolvimento, e implica a reconstrução do processo de desenvolvimento do currículo, seguida por análise e reflexão. A análise foi feita baseada em três pontos de vista, representando três aspectos do processo de desenvolvimento curricular ou três tipos de perguntas curriculares. Os *aspectos substantivos* são analisados para cada fase do processo de desenvolvimento curricular com base na pergunta: "*Quais as características do currículo que foi concebido, desenvolvido e implementado?*" Além de perguntas relacionadas ao 'produto' há também perguntas de processo sobre aspectos processuais e contextuais do processo de desenvolvimento. A pergunta que endereça os *aspectos técnico-profissionais* do processo de desenvolvimento curricular foi formulada da seguinte maneira: "*Quais os procedimentos e princípios que foram aplicados durante o desenvolvimento (ou concepção ou implementação) de um currículo baseado em competências para a Faculdade de Educação na UEM?*" A pergunta sobre *aspectos socio-políticos* do processo de desenvolvimento curricular foi: "*Quais os eventos, convicções e acções dos vários interessados (os actores) que influenciaram o desenvolvimento (ou concepção ou implementação) de um currículo baseado em competências para a Faculdade de Educação na UEM?*"

Os dados para a reconstrução do processo de desenvolvimento curricular e para a análise e reflexão foram recolhidos com base em documentos produzidos durante as várias fases do processo, dos resultados de seminários, dos relatórios e actas de reuniões, dos resultados de um levantamento de necessidades, bem como os resultados de entrevistas, e questionários de docentes e estudantes moçambicanos e contrapartes holandesas. Durante a implementação do currículo o desenhador-investigador quase continuamente fez apontamentos de campo sobre procedimentos e princípios, decisões feitas, e sobre condições e actividades que influenciaram o desenvolvimento pela Faculdade dum currículo baseado em competências.

No presente estudo distinguem-se três fases do processo de desenvolvimento curricular. A primeira fase (de Maio de 1997 a Julho de 2000), inclui o prólogo da decisão pela reabertura da Faculdade de Educação seguida pela fase de concepção. As próximas duas fases (de Julho de 2000 a Agosto de 2001 e de Agosto de 2001 a Maio de 2002) incluem o desenvolvimento dum 'currículo formal'(capítulo 7 da

tese) e a implementação da primeira parte do currículo, o Tronco Comum (capítulo 8). Em cada uma destas fases os três pontos de vista mencionados a cima foram tomados em consideração. Posteriormente, seguem-se os resultados da análise.

Aspectos substantivos do processo de desenvolvimento curricular

Durante o prólogo (de Maio de 1997 a Novembro de 1999), período que precedeu a fase de concepção do currículo da Faculdade (de Novembro de 1999 a Julho de 2000), só alguns aspectos substantivos foram endereçados, porque o currículo foi mal discutido nesta fase. O prólogo começou com as deliberações sobre o futuro de dois projectos fundados pelo MHO (programa dum donor holandês) na área de apoio académico em Ciências Naturais e Matemática destinado para estudantes do primeiro ano, e na área de capacitação de docentes. As deliberações foram seguidas ainda pela nomeação através de um despacho Reitoral, em Janeiro de 1998, duma 'Comissão para a reabertura da Faculdade de Educação' na UEM. No relatório final desta comissão, apresentado em Julho de 1999, a (re-)abertura da Faculdade foi justificada, e as propostas foram feitas para os novos programas educacionais a serem oferecidos pela Faculdade. Foi nomeada, uma nova comissão, a 'Comissão Instaladora', constituída por docentes dos dois projectos mencionados acima, um presidente que tinha sido envolvido na Faculdade anterior de Educação, e um membro da Direcção de Planificação da UEM. Dentro da Comissão Instaladora as idéias iniciais sobre o currículo variavam entre uma abordagem profunda teórica com muita atenção para filosofia e sociologia de educação, e uma abordagem mais pragmática, orientada à profissão. O Vice-reitor Académico da UEM que esteve naquele momento a responsabilizar-se pela reforma curricular dentro da instituição defendeu um currículo mais orientado à profissão. As três universidades holandesas que colaboraram com a Comissão Instaladora desde o início das actividades, primeiro num pre-projecto seguido por um projecto, suportaram a visão do então Vice-Reitor. Uma das universidades holandesas introduziu o conceito de um currículo baseado em competências. A decisão pela implementação de um currículo baseado em competências como o ponto final do processo de desenvolvimento curricular foi tomada durante o primeiro seminário comum de planificação do currículo na Faculdade de Educação, em Novembro de 1999, marcando o arranque da fase de concepção. Ao mesmo tempo o autor deste estudo que também participou na Comissão Instaladora começou o seu projecto de investigação e anunciou as suas intenções de pesquisa junto à Comissão Instaladora e as contrapartes holandesas, funcionando a partir daquele momento como um 'desenhador-investigador'.

As actividades na área de concepção realizadas pelo desenhador-investigador e pelo perito holandês da Universidade de Twente (responsável pelo apoio no processo de desenvolvimento curricular), resultaram em debate sobre o currículo em Fevereiro de 2000, durante um primeiro seminário e conduziram à formulação de vários aspectos de currículo ou elementos da planificação do currículo baseado em competências. Embora ao término da fase de concepção um 'currículo intencional' ainda não pudesse ser apresentado aos interessados, as suas características principais teriam sido formuladas pelo desenhador-investigador em colaboração com os docentes novos da Faculdade, a Comissão Instaladora e os contrapartes holandeses.

O processo de desenvolvimento curricular resultou ao término da fase de desenvolvimento, em Maio de 2001, num 'currículo formal' representado num documento curricular (UEM, 2001) e alguns planos analíticos de cadeiras no Tronco Comum dos programas de pós-graduação. Os três programas de pós-graduação (Educação de Adultos, Desenvolvimento Curricular e Instrucional, e Ensino de Ciências Naturais e de Matemática), como descrito no documento de currículo, cobririam dois anos, um total de 80 'semanas de ensino'. Cada semana tinha no máximo 20 horas de contacto mais o tempo para estudo independente. Durante a primeira parte dos programas seria oferecido um tronco comum de 30 semanas com nove 'cadeiras comuns' e cadeiras 'acompanhantes' para desenvolver rapidamente as competências requisitas na Língua inglesa, ICT e Matemática básica. A segunda parte dos programas seria a fase de especialização dos três programas e cobriria 20 semanas de cadeiras de especialização. As outras 30 semanas seriam usados para o projecto de investigação final, conduzindo ao diploma de Mestrado (veja a tabela que segue).

| | 9 cadeiras | Horas de contacto | 10 Competências genéricas | Horas de contacto | Cursos auxiliares | Horas de contacto |
|--|--|-------------------------------------|---|---|---|-------------------|
| Tronco comum | Concepção de materiais instrucionais | 45 | Comunicação | 40 | Inglês | 40 |
| 30 semanas | Aspectos sociológicos e antropológicos de educação em Moçambique | 45 | Gestão de informação Metodologia de investigação e estatística | 30 10 | Informática básica | 10 |
| | 600 horas de contacto | Processo de aprendizagem de adultos | 45 | Gestão de projectos | | |
| | Teoria e desenvolvimento do currículo | 45 | Interacção social | 10 | | |
| | Administração e gestão da educação | 36 | Competências reflexivas | 30 | | |
| | (Multi)media e ICT na educação | 36 | Ética | 10 | | |
| | Metodologia de 'Design' | 36 | Metodologia de 'Design' | 10 | | |
| | Metodologia de investigação | 36 | Multi-media e ICT | 10 | | |
| | Estatística (incluindo Matemática básica) | 56 | Liderança | 10 | | |
| | Total | 380 | | 170 | | 50 |
| 3 Specializações 200 horas de contacto 10 semanas | Ensino de Ciências Naturais e de Matemática | 200 | Educação de Adultos | de 200 | Desenvolvimento Curricular e Instrucional | 200 |
| Mais 200 horas de contacto para cadeiras de especialização em, aproximadamente, 20 semanas | | | | Projecto de Investigação ou Design 1200 horas de trabalho, 30 semanas | | |

Com base em critérios para um currículo baseado em competências uma avaliação do currículo formal (representado no documento curricular) foi feita pelo investigador e validada por quatro peritos, três com perícia na área de desenvolvimento curricular e todos com perícia na investigação educacional. Dois peritos trabalh(ar)am na UEM e os outros em universidades holandesas. Foi concluído que tiveram sido formulados perfis de graduação para os três programas de pós-graduação, bem como competências domínio-específicas e genéricas, ligadas aos perfis profissionais descritos com base num levantamento de necessidades e na visão especialista em várias áreas profissionais. O documento proveu direcções gerais para a criação de ambientes de aprendizagem baseada em competências. Uma avaliação formativa de estudantes através dum portfolio foi recomendada. Porém, não sempre esteve claro como o conteúdo (disciplinar) teve sido derivado do perfil do graduado ou das competências domínio-específicas e genéricas.

Importa referir que, nem no Tronco Comum nem na fase de especialização foi observada uma integração entre o conteúdo dos cursos, por exemplo em temas comuns e trans-disciplinares. O documento curricular não teve nenhuma indicação específica do uso de ambientes 'autênticos' de aprendizagem (ou avaliação autêntica) numa variedade de contextos profissionais. Embora tenham sido identificadas as competências genéricas e a responsabilidade para o desenvolvimento destas tenha sido distribuída entre as várias cadeiras do tronco comum, a integração de competências genéricas nas cadeiras foi insuficientemente endereçada no documento curricular. Uma análise em vários aspectos curriculares de quatro planos analíticos de cadeiras do Tronco Comum mostrou que dois planos analíticos tiveram um carácter suficientemente baseado em competências. Uma formulação mais clara dos resultados intencionais dos programas educacionais em termos de 'prova de competência', incluindo a formulação de padrões de competência poderia ter ajudado alinhar o conteúdo de cursos ao perfil do graduado, especialmente nas cadeiras do Tronco Comum que relacionaram directamente aos três programas educacionais (tais como as cadeiras de Processo de aprendizagem de adultos, Concepção de materiais instrucionais, Teoria e desenvolvimento do currículo). Além disso o estudo conclui que mais reflexão é necessária sobretudo no que toca o papel de conhecimento disciplinar num programa de ensino baseado em competências. Simultaneamente, deveriam ser estabelecidos contactos institucionalizados com a prática profissional no contexto moçambicano.

Os três programas de pós-graduação começaram (depois de algumas retiradas iniciais), em Agosto de 2001, com 35 estudantes, quase igualmente divididos entre os três programas. Com base na reconstrução e análise da implementação do currículo do Tronco Comum (Agosto de 2001 a Abril de 2002) pode ser concluído

que os ambientes de aprendizagem iniciais na maioria das cadeiras significaram um começo promissor para o desenvolvimento de competências. Porém, na maioria dos cursos faltou uma estratégia para um aumento gradual da autonomia de estudantes, concedendo a estes a completa responsabilidade de acordo com os requisitos exigidos às competências dos profissionais educacionais. O estudo identifica como condições básicas para o desenvolvimento e implementação de estratégias uma liderança de currículo clara e encorajadora, uma reflexão regular pelos docentes na sua prática e um monitorização íntima da prática dos estudantes, e acompanhamento dos estudantes, promovendo auto-reflexão caminhando para uma autonomia completa (usando o portfolio como uma ajuda).

Porque a integração de competências genéricas não tinha sido endereçada suficientemente no currículo formal, não é surpreendente que a reconstrução e análise do 'currículo em acção' (como operacionalizado por docentes e experimentado por estudantes) tenha demonstrado que o desenvolvimento de competências genéricas foi a vítima da atenção para as competências domínio-específicas e o conhecimento disciplinar. Um outro ponto que segue da reconstrução e análise da implementação do Tronco Comum é que mais coordenação dentro e entre cadeiras seria requerida na seleção e uso de métodos de avaliação. O ensino baseado em competências necessita de clareza completa para os estudantes no que toca aos critérios de avaliação e, idealmente, de estudantes que são responsáveis pela prova da sua competência.

Porque o estudo se limita à primeira parte dos programas educacionais a pergunta acerca da qualidade dos graduados ('currículo avaliado') e o impacto destes no sistema de ensino ('currículo atingido') não pode ser respondida só com base nos resultados do tronco comum. Os resultados das entrevistas com estudantes e as respectivas avaliações de cadeiras sugerem que os programas educacionais provavelmente eram efectivos e poderiam ter o impacto desejado. Na auto-avaliação de competências genéricas os estudantes reconheceram um desenvolvimento de todas as competências, com maior relevância em competências na área do ICT. Os estudantes também mostraram um bom domínio dos conceitos de competência e do ensino baseado em competências.

Aspectos técnico-profissionais do processo de desenvolvimento curricular

Ao longo do processo de desenvolvimento curricular, o desenhador-investigador, o perito holandês na 'área de currículo e, numa medida um pouco menor a Comissão Instaladora operaram dentro do 'paradigma comunicativo'. Desta forma, o desenvolvimento do currículo foi realizado com base no consenso entre todos os interessados (stakeholders) nos problemas e no tipo de currículo que deveria ser

desenvolvido como reposta aos problemas. Os participantes dos primeiros workshops e seminários realizados enfatizaram o papel dos interessados no processo de desenvolvimento do currículo, e a importância de fazer passos graduais na implementação de inovações. Deste modo eles mostraram a sua preferência para uma abordagem comunicativa na concepção e desenvolvimento do currículo. A consistência interna foi promovida por um alinhamento de todos os passos do processo de desenvolvimento curricular, entre outros, com a formulação de perfis profissionais e perfis do graduado baseados nos resultados dum levantamento de necessidades. Porém, como foi demonstrado numa avaliação do currículo formal pelo investigador e quatro peritos, a escolha do conteúdo disciplinar, e o desenho de ambientes de aprendizagem foram, às vezes, menos alinhados com um currículo (intencional) baseado em competências. A consistência externa foi mantida começando cada seminário sobre o currículo com a reconfirmação de decisões já tomadas no que toca aos aspectos do currículo. Durante as fases de concepção e desenvolvimento, passos novos foram discutidos extensivamente com todo o pessoal académico da Faculdade. Os docentes moçambicanos caracterizaram-se em termos do modelo de De Feiter e outros (De Feiter, Vonk & Van den Akker, 1995), como movendo da 'fase mecânica' para a 'fase rotineira' de desenvolvimento. Isto significa que os docentes se encontraram na transição de incerteza sobre o uso duma inovação diluindo a inovação numa adaptação, nas palavras do modelo, à capacidade e motivação pessoal e profissional, para uma vontade e habilidade de fazer um esforço honesto e tentativas para adaptar a inovação à 'aplicação padronizada', embora permanecendo céptico sobre os efeitos imediatos. Esta transição, bem como a rota para o próximo nível (profissional) de desenvolvimento implicou a formação e desenvolvimento contínuo de docentes e o fortalecimento da confiança destes. Isto foi feito em vários workshops e em actividades pelos docentes no 'Grupo de Estudo' que, entre outros, prepararam o levantamento de necessidades. Igualmente, o princípio de 'pressão e suporte' foi aplicado, a pressão vinda principalmente das contrapartes holandesas e do desenhador-investigador. Isto às vezes criou conflitos na abordagem comunicativa, constructivista, sobretudo quando os holandeses (e o desenhador-investigador), muito cedo, tomaram a iniciativa, não tendo dado tempo suficiente aos Moçambicanos para o desenvolvimento das suas próprias soluções aos problemas que encontrados. A abordagem comunicativa prevaiente foi continuada pelo lado holandês durante a implementação do Tronco Comum. Porém menos proeminentemente pelo lado de docentes moçambicanos, porque cada vez mais foram envolvidos nas suas próprias cadeiras e não compartilharam as suas experiências com outros interessados.

Várias iniciativas para monitorar e apoiar a implementação do currículo (tais como um sistema de conselheiros de estudo para os estudantes, a exigência que cada docente elaboraria um relatório evaluativo da sua cadeira e a intenção em encontrar-se semanalmente junto com os coordenadores dos programas educacionais e os docentes ensinando, naquele momento, numa cadeira) foram anunciadas pela liderança da Faculdade mas não se materializaram. Este facto poderia ser atribuído numa falta de capacidade de recursos humanos, implicando muitas tarefas para uma liderança com muito pouca gente. Uma avaliação formativa durante a implementação do Tronco Comum foi feita, principalmente através de actividades e relatórios do desenhador-investigador. Propostas para uma revisão do Tronco Comum não foram discutidas com todos os docentes, e o processo de revisão aparentemente não foi reconhecido pela liderança da Faculdade como uma oportunidade de reflexão e desenvolvimento para os docentes.

Aspectos socio-políticos do processo de desenvolvimento curricular

Os aspectos socio-políticos do processo de desenvolvimento do currículo são descritos pelas condições e actividades seguintes e pelos seguintes papéis dos vários actores:

- *Finanças.* O financiamento regular pela administração da UEM provou-se insignificante para as actividades iniciais e para o processo de desenvolvimento curricular. Como alternativa, a Faculdade teve que recorrer, numa medida grande, nos fundos da NUFFIC. Porque a Comissão Instaladora não conseguiu estabelecer um sistema adequado de transferência de fundos para as várias actividades iniciais, a planificação previamente estabelecida ficou seriamente afectada.
- Em termos de *recrutamento de docentes*, o estudo conclui que o corpo docente ainda teve uma 'massa sub-crítica' durante as fases iniciais do processo de desenvolvimento curricular. O número de docentes aumentou na primeira metade de 2001, mas provou-se insuficiente para responder cabalmente ao número de cadeiras dos seus programas. A posição oficial dos docentes permaneceu obscura durante o período descrito no estudo. Os únicos marcos oficiais foram a (re)abertura da Faculdade (depois que a decisão de fazer assim foi retido durante algum tempo) e a nomeação do Director da Faculdade. Isto resultou numa situação onde todo o poder e responsabilidades estavam concentradas no único líder oficialmente nomeado (o Director), um facto que vários actores acharam um fardo muito pesado para só uma pessoa devido ao processo complicado da instalação duma Faculdade nova.

- No início do processo de desenvolvimento curricular a *formação e desenvolvimento de docentes* foram providos pelos peritos holandeses (e o desenhador-investigador). Porém, a liderança da Faculdade não continuou com o princípio de pressão e suporte, nem desenvolveu uma visão clara sobre a formação e desenvolvimento de docentes em relação à implementação de mudanças.
- A *comunicação*, até mesmo ao nível da troca de 'informação crua', foi julgada como problemática pelas contrapartes holandeses, bem como pelos docentes moçambicanos da Faculdade. Embora uma estrutura de comunicação fosse prometida várias vezes, nada foi tornada em prática. Isto poderia ter sido causado pela diferença em concepções e convicções no papel de comunicação entre os Moçambicanos e os seus contrapartes holandeses.

Vários actores tiveram um papel no processo de desenvolvimento curricular.

- A *liderança da Universidade Eduardo Mondlane (UEM)*, representada na pessoa do Reitor, favoreceu positivamente na reabertura da Faculdade. Embora as primeiras comissões tivessem a tarefa de investigar a possibilidade e viabilidade desta reabertura, a liderança de UEM tornou claro qual deveria ser a escolha. O Vice-reitor Académico suportou indirectamente a escolha para um currículo baseado em competências defendendo uma visão de graduados como agentes de mudança na sociedade moçambicana e empurando para um currículo mais orientado na profissão nas faculdades da UEM. Depois que o Vice-reitor Académico cessou funções nenhum outro ocupou aquelas funções e conseqüentemente, a liderança da UEM não interveio mais nas actividades de desenvolvimento curricular da Faculdade. O Conselho Académico aplaudiu as propostas para o novo currículo e o Conselho Universitário aprovou os planos da Faculdade, embora com algumas notas críticas, entre outros sobre o facto que os coordenadores dos programas educacionais não foram doctorados e sobre a falta de clareza na estrutura organizacional da Faculdade. Não houve oportunidade para apresentar os planos dum currículo inovador como um exemplo para reforma curricular em outras faculdades, embora o Conselho Académico fizesse algumas recomendações nesta direção.
- O aparecimento das *Universidades holandesas* como parceiros foi um factor importante no processo de desenvolvimento curricular. Na ausência de outros doadores e parceiros, e com escassez de pessoal e de peritos em desenvolvimento curricular, a Comissão Instaladora teve que se apoiar apenas dos peritos holandeses. Nas fases iniciais do processo de desenvolvimento curricular a Comissão Instaladora sentiu-se 'descontrolada' e subjugada pela contribuição holandesa. Do outro lado, a Comissão Instaladora concordou conscientemente com a direção levada: o caminho para um currículo baseado em competências.

- O facto que parte pequena da *Comissão Instaladora* foi activa e que só um membro (o Director) teve um estatuto oficial, não contribuiu à capacidade da comissão para administrar os muitos assuntos de desenvolvimento. Problemas sobre a liderança curricular e o papel do desenhador-investigador no processo de desenvolvimento curricular foram resolvidos pela criação do Grupo de Trabalho para o Desenvolvimento Curricular (GTDC), mas na prática não houve mudanças porque a maior iniciativa no processo de desenvolvimento curricular foi deixada num só elemento do GTDC, o desenhador-investigador. A frequência das reuniões da Comissão Instaladora reduziu gradualmente durante a fase de desenvolvimento e a comissão teve a sua reunião final durante a implementação do Tronco Comum, logo após o início dos programas educacionais. Num sentido formal a implementação do currículo foi feita sob a liderança de uma pessoa, o Director que, talvez por causa do seu estatuto (formal), não pôde delegar a outros docentes. O coordenador geral dos programas de pós-graduação não teve um tal estatuto formal, o que possa ter contribuído que várias iniciativas na área de avaliação formativa da implementação do currículo não tiveram um seguimento depois do seu anúncio inicial.
- *Os docentes* trabalharam, já a partir do início do processo de desenvolvimento curricular, com entusiasmo e motivação, embora adoptando com alguma precaução e hesitação o currículo inovador baseado em competências. Os docentes recentemente recrutados faltaram frequentemente a experiência de ensinar no nível superior e tiveram inicialmente competências insuficientes na área de desenvolvimento curricular. A competência dos docentes foi desenvolvida pela participação deles no Grupo de Estudo. Este grupo deixou de funcionar durante a implementação do currículo. Naquele momento a integração de competências genéricas nas cadeiras do tronco Comum foi promovida por um novo grupo de docentes, o Grupo de Trabalho para as Competências Genéricas (GTCG). Este grupo teve também um papel catalizador na avaliação formativa da implementação do currículo. Nenhuma sessão especial foi organizada para introduzir os docentes contratados numa fase posterior na visão educacional da Faculdade e os pormenores dum currículo baseado em competências. Não obstante, o Director da Faculdade reconheceu o perigo de uma 'diluição' da abordagem baseada em competências quando pessoal novo entraria na Faculdade sem uma própria introdução no currículo.
- A avaliação das cadeiras pelos *estudantes*, as entrevistas e a auto-avaliação de competências genéricas constituem a evidência duma população estudantil que se pensou bem capaz para aprendizagem activa e cooperativa e que reconheceu as suas fraquezas e forças. Os estudantes sentiram desde o começo do programa restringido no desenvolvimento das suas competências por causa de sobrecarga

de actividades de aprendizagem bem como a falta de clareza nalgumas cadeiras sobre critérios de 'um bom desempenho'. Provavelmente porque os docentes estiveram muito ocupados com 'sobreviver' no ensino das suas cadeiras pela primeira vez, os sinais dos estudantes não sempre foram recebidos. Embora os estudantes tivessem escolhido os seus representantes, implicando alguma influência, eles realmente não foram envolvidos na criação dos seus próprios ambientes de aprendizagem, e aparentemente aceitaram este facto (o que não é tão surpreendente numa cultura com uma alta 'distância de poder').

- Depois do início dos programas de pós-graduação um fluxo fixo de *peritos holandeses* colaborou com os docentes moçambicanos para co-ensinar as várias cadeiras do Tronco Comum. Isto significou, também, contacto habitual e linhas de comunicação mais curtas durante a presença dos peritos holandeses em Maputo.
- Foram deixadas as actividades principais do desenvolvimento curricular ao *desenhador-investigador* que foi responsável por três seminários sobre desenvolvimento curricular para docentes da faculdade, a co-organização de uma visita de trabalho aos Países Baixos (em Março de 2001 com o objectivo de avançar o desenvolvimento das cadeiras do Tronco Comum e a elaboração de planos analíticos), e ajuda de docentes durante a continuação da elaboração de planos analíticos. Depois da visita de trabalho diminuiu o envolvimento directo do *desenhador-investigador* porque a planificação das cadeiras nos três programas educacionais foi continuada em três grupos separados em vez no Grupo de Estudo. Quando o Grupo de Trabalho para o Desenvolvimento Curricular foi abolido, e a Comissão Instaladora dissolvida, a posição do *desenhador-investigador* mudou. Ele tinha movido gradualmente do centro do processo de desenvolvimento curricular a uma posição onde ele não mais teve acesso à informação sobre desenvolvimentos dentro da Faculdade, nem teve um papel directivo na implementação do currículo.

Alguns problemas na cooperação entre a Faculdade e os seus parceiros holandeses poderiam ser explicadas com base em diferenças de cultura. O processo de desenvolvimento curricular aconteceu dentro o contexto (moçambicano) de uma cultura burocrática, enquanto os holandeses, inclusive o *desenhador-investigador* funcionaram muito mais numa cultura orientada em tarefas na qual a perícia é mais importante do que poder pessoal ou a posição dentro da hierarquia burocrática. Uma comunicação intercultural consciente poderia ter ajudado a clarificar as diferenças no comportamento cultural dos actores do projecto de implementação do currículo e identificar o que era a influência da cultura ou da personalidade e competência destes.

Resultados e recomendações

A reconstrução, análise e reflexão em relação ao concepção, desenvolvimento e implementação de um currículo baseado em competências no contexto da Faculdade de Educação na Universidade Eduardo Mondlane tem resultado em características dum currículo baseado em competências e directrizes processuais para o desenvolvimento deste. Estas características e diretrizes formulados com base neste estudo, podem ser consideradas como os princípios de concepção os mais importantes, e de uso (possivelmente) para designers em contextos semelhantes. Os critérios de concepção e diretrizes processuais são a seguir mencionados (veja capítulo 9):

1. Um currículo baseado em competências deve ter as características seguintes:
 - Um currículo baseado em competências (CBC) está baseado na prática profissional futura do graduado.
 - O desenvolvimento do currículo está baseado na elaboração de perfis profissionais e perfis do graduado e na identificação de competências.
 - O conteúdo do currículo, o ambiente de aprendizagem e a avaliação dependem das competências identificadas (princípio de conceber para trás, 'backwards designing').
 - Os ambientes de aprendizagem e avaliação são focados nas competências e alinhados.
 - Um CBC é centrado no estudante e o processo de aprendizagem é central.
 - O docente tem um papel de um 'guia cognitivo' no CBC.
 - Um CBC tem uma abordagem constructivista.
 - Um CBC inclui o desenvolvimento de competências genéricas.
2. É importante ter um grupo de interessados/participantes com um tamanho e diversidade suficiente para criar uma 'plataforma de ideias' que possa resultar na concepção de um 'currículo funcional'.
3. É importante envolver todo o pessoal no processo de desenvolvimento curricular e criar durante este processo oportunidades de formação e de desenvolvimento profissional.
4. É importante montar uma rede funcional de comunicação, unindo todos os actores envolvidos no processo de desenvolvimento curricular.
5. O currículo formal, como representado, por exemplo, num documento curricular e planos analíticos, deveria ser revisado regularmente através de implementação e avaliação de 'protótipos subsequentes'.
6. Quando os docentes, no processo de desenvolvimento curricular, são co-designadores, a liderança (curricular) deveria gerir este processo promovendo direcções claras e apoio em simultâneo.

7. Durante a fase de implementação do processo de desenvolvimento curricular avaliação formativa deveria ser feita envolvendo docentes e estudantes.
8. Assuntos especiais ou problemas de implementação poderiam ser tratados melhor formando grupos de trabalho. Estes grupos deveriam ter um estatuto oficial e as suas actividades deveriam aparecer regularmente na agenda das reuniões da liderança.
9. Implementação dum currículo inovador deveria ser feita por um plano de implementação que deveria ter as características seguintes:
 - O plano tem um 'script' flexível de passos de implementação.
 - O plano inclui instrumentos para avaliação formativa e monitorização.
 - O plano contém um programa de formação e desenvolvimento profissional dos docentes.
 - O plano tem uma descrição dum estrutura clara e acessível de apoio aos docentes.
10. Para a realização de um currículo baseado em competências é essencial uma forma institucionalizada de contacto com o campo profissional.
11. O processo de desenvolvimento curricular será mais efectivo quando todos os actores no processo estiverem atentos a influência dos antecedentes culturais, no comportamento deles e de outros, e competentes na comunicação intercultural.

SAMENVATTING

Ontwerpen voor competentie in Mozambique: de ontwikkeling van een competentiegericht curriculum voor de onderwijsfaculteit aan de Eduardo Mondlane Universiteit

Achtergrond

De Eduardo Mondlane Universiteit (UEM) in Maputo, Mozambique, besloot in 1999 om de Faculteit Onderwijskunde te heropenen, nadat deze gesloten was in 1985 toen de opleiding van leraren was verplaatst naar een apart instituut voor hoger onderwijs. Een installatiecommissie werd opgedragen het opzetten van de faculteit te coördineren alsmede het ontwerpen en ontwikkelen van het curriculum voor een aantal 'graduate' (Licenciatura) en 'post-graduate' (Masters) programma's. De installatiecommissie werkte vrijwel vanaf het begin van haar activiteiten samen met experts van drie Nederlandse universiteiten, de Vrije Universiteit Amsterdam, de Rijksuniversiteit Groningen en de Universiteit van Twente. Omstreeks dezelfde tijd startte een curriculumvernieuwingsproces dat de hele UEM omvatte en dat de behoefte benadrukte om de curricula relevanter te maken voor de Mozambikaanse samenleving, een teken van de afnemende distantie tussen algemeen- (academisch) en beroepsonderwijs. In deze context nam de installatiecommissie eind 1999 het besluit om de route te nemen naar een competentiegericht curriculum voor de onderwijsprogramma's van de faculteit. De reis langs deze weg is het onderwerp van de studie die beschreven wordt in deze dissertatie.

De voorliggende studie richt zich op het ontwerp en de ontwikkeling van drie postgraduate programma's (Volwassenenonderwijs, Curriculum- en Instructieontwikkeling, en Onderwijs in de Wiskunde en Natuurwetenschappen) en op de implementatie van het eerste gedeelte van de programma's, een gemeenschappelijk 'basisprogramma', en beslaat de periode van november 1999 tot mei 2002. Zoals in de hoofdstukken 1 en 5 uiteengezet wordt, vormen twee probleemstellingen het vertrekpunt van de studie. Het eerste probleem (of

hoofdvraag) is of het te verwachten zou zijn dat het competentiegericht opleiden van onderwijsprofessionals uiteindelijk leidt tot een verbetering van de lage kwaliteit en doeltreffendheid van het Mozambikaanse onderwijssysteem. Het tweede probleem is hoe een competentiegericht curriculum eruit zou zien in de context van de onderwijsfaculteit aan de UEM in Mozambique en hoe zo'n curriculum zou kunnen worden ontworpen, ontwikkeld en geïmplementeerd.

Het doel van deze studie is een bijdrage te leveren aan onderwijs in Mozambique door zorgvuldig de 'queeste' naar een competentiegericht curriculum te documenteren (reconstrueren), gevolgd door analyse en reflectie met betrekking tot het curriculum als 'product' en de bijbehorende ontwerp-, ontwikkelings- en implementatieprocedures. De reconstructie en analyse die het grootste gedeelte van deze studie beslaan kunnen worden aangeduid als 'ontwikkelingsonderzoek', resulterend in een zorgvuldig gedocumenteerd voorbeeld van de ontwikkeling van een competentiegericht curriculum voor hoger onderwijs in Afrika, alsmede in procedurele richtlijnen en aanbevelingen. De context van de studie is de onderwijsfaculteit van een Afrikaanse universiteit in een land dat nog steeds een van de armste ter wereld is. De resultaten van deze studie kunnen van nut zijn in vergelijkbare contexten (instituten voor hoger onderwijs in ontwikkelingslanden), maar ook bijdragen, in het algemeen, tot de kennis over competentiegerichte benaderingen in hoger onderwijs.

Behalve reconstructie en analyse vond ook formatieve evaluatie plaats gedurende het ontwerpen, ontwikkelen en implementeren van het curriculum, gericht op het realiseren van onderwijsprogramma's met een hoge interne en externe consistentie. Het literatuuroverzicht in hoofdstuk 3 van de studie behandelt, onder andere, de vraag op welke gronden een keus gemaakt zou kunnen worden voor competentiegericht onderwijs. De huidige samenleving wordt gekenmerkt door zijn groeiende complexiteit, dynamiek en kennisintensiteit. Dit vereist professionals die in staat zijn om met vertrouwen en expertise nieuwe situaties en problemen tegemoet te treden, en die, naast het bezit van solide domeinspecifieke kennis en vaardigheden, in staat zijn om snel kennis en knowhow te verwerven wanneer en waar dat nodig is. Leren in professionele context is belangrijker geworden en algemeen, academisch onderwijs wordt dus meer professioneel of georiënteerd op de professie. Competentiegericht onderwijs kan, in dit perspectief, een geschikte keuze zijn.

Gebaseerd op de omvangrijke en gevarieerde literatuur over het competentiebegrrip is een competentiemodel ontwikkeld in deze studie, dat een geïntegreerde, holistische visie op het competentiebegrrip belichaamt en dat in grote mate de ideeën volgt van Hager en Gonczi (1996). Dit heeft geleid tot een definitie van competentie (*competency*) die luidt:

Competentie is de bekwaamheid om een combinatie van kennis, vaardigheden en attitudes te kiezen en toe te passen met de intentie om een taak te realiseren in een zekere context, waarbij persoonlijke kenmerken zoals motivatie, zelfvertrouwen en wilskracht deel uitmaken van die context.

Andere belangrijke sleutelconcepten in competentiegericht onderwijs zijn:

- Competentie (*competence*) als het vermogen om, in het kader van een beroep, op 'standaardniveau' sleuteltaken te realiseren die dat beroep kenmerken. Een competent beroepsbeoefenaar (professional) toont een voldoende dan wel superieure uitvoering van beroepstaken. Het verschil met 'competency' is dat 'competence' outputgeoriënteerd is terwijl 'competency' inputgeoriënteerd is. 'Competency' is wat iemand competent maakt.
- *Sleuteltaken uit het beroep* zijn de taken die kenmerkend zijn voor een professie. De competenties die nodig zijn voor het realiseren van beroepstaken kunnen worden geclassificeerd als *domeinspecifieke competenties*, inhoudende vakcompetenties en vakoverstijgende competenties, alsmede *generieke competenties*.
- *Generieke competenties* worden gedefinieerd als competenties die nodig zijn in alle gebieden van een beroep en die overgedragen kunnen worden, dat wil zeggen toegepast in nieuwe situaties in beroep of leven.

Een verdere analyse en synthese van de literatuur resulteerde in een lijst met indicatoren voor competentiegericht onderwijs die gebruikt zouden kunnen worden om de uitkomsten van het ontwerp, ontwikkel en implementatieproces in de onderwijsfaculteit aan de UEM te toetsen op 'gehalte aan competentiegerichtheid'. Het opzetten van een onderwijsfaculteit aan de UEM en het curriculumontwikkelingsproces kunnen gezien worden als interventies die beantwoorden aan een bepaalde behoefte. In hoofdstuk 5 van de studie wordt een model gepresenteerd waarin de substantieve en procedurele aspecten van de interventie geformuleerd worden in de vorm van hypothesen of heuristische uitspraken. De meest omvattende hypothese in dit model, die het ontwerp en ontwikkelproces verbindt met de 'onmiddellijke uitkomsten' van de interventie, combineert substantieve en procedurele aspecten en lijkt op de heuristische formuleringen die gebruikt worden in ontwikkelingsonderzoek. Deze zogenaamde 'ontwikkelingshypothese' is als volgt geformuleerd:

Een ontwerp- en ontwikkelproces met kenmerken D_1, D_2, \dots, D_k produceert een curriculum met kenmerken C_1, C_2, \dots, C_m dat, wanneer het geïmplementeerd wordt volgens de procedurele richtlijnen P_1, P_2, \dots, P_n , zal resulteren in competente onderwijsprofessionals.

Daarbij was een van operationele doelstellingen van het onderzoek het preciseren van de kenmerken (D 's en C 's) en procedurele richtlijnen (P 's).

Gedurende het curriculumontwikkelingsproces had de onderzoeker ook rollen als ontwerper en staflid (bovendien lid van de installatiecommissie), die meer of

minder van belang waren naarmate het proces voortschreed. De analyse en reflectie op het curriculumontwikkelingsproces zoals beschreven in de dissertatie, werden voornamelijk gedaan nadat de onderzoeker zich fysiek had teruggetrokken uit de faculteit en het curriculumontwikkelingsproces, waardoor de studie terecht een 'reconstructieve studie' genoemd kan worden. Zo'n studie heeft doelkenmerken van een competentiegericht curriculum te formuleren en ontwerpprincipes te articuleren en definiëren, en impliceert de reconstructie van het curriculumontwikkelingsproces, gevolgd door analyse en reflectie. De analyse is verricht vanuit drie gezichtspunten of 'lenzen', die drie aspecten van het curriculumontwikkelingsproces representeren of drie typen curriculumvragen: substantieve aspecten, technisch-professionele aspecten en socio-politieke aspecten (Van den Akker, 2003). De *substantieve aspecten* zijn geanalyseerd voor elke fase van het curriculumontwikkelingsproces aan de hand van de onderzoeksvraag: "*Wat zijn de kenmerken van het curriculum dat ontworpen, ontwikkeld en geïmplementeerd is?*" Naast 'productvragen' zijn er ook 'procesvragen' over de procedurele en contextuele aspecten van het ontwikkelingsproces. De onderzoeksvraag die de *technisch-professionele aspecten* van het curriculumontwikkelingsproces belicht is: "*Welke procedures en principes zijn gehanteerd gedurende de ontwikkeling (of ontwerp of implementatie) van een competentiegericht curriculum voor de onderwijsfaculteit aan de UEM?*" De onderzoeksvraag gerelateerd aan *socio-politieke aspecten* van het curriculumontwikkelingsproces is: "*Welke omstandigheden en gebeurtenissen en welke overtuigingen en handelingen van de verschillende belanghebbenden hebben de ontwikkeling (of ontwerp of implementatie) van een competentiegericht curriculum voor de onderwijsfaculteit aan de UEM beïnvloed?*"

De gegevens voor de reconstructie van het curriculumontwikkelingsproces en voor de analyse en reflectie kwamen van documenten, geproduceerd gedurende de verschillende fases van het ontwikkelingsproces, van de uitkomsten van workshops, van rapporten en verslagen van vergaderingen, van de resultaten van een behoeftepeiling, alsmede de uitkomsten van interviews en enquêtes onder Mozambikaanse staf en studenten en onder Nederlandse partners. Gedurende de implementatie van het curriculum maakte de onderzoeker-ontwerper vrijwel continu veldnotities over gevolgde procedures en principes, over gemaakte beslissingen, en over condities en activiteiten die de ontwikkeling van een competentiegericht curriculum voor de faculteit beïnvloedden.

De studie kent drie onderscheiden periodes. De eerste periode (mei 1997 tot juli 2000), beschreven in hoofdstuk 6, omvat de 'proloog' tot de beslissing om de faculteit te heropenen, en de ontwerpfase. De volgende twee periodes (juli 2000 tot augustus 2001, en augustus 2001 tot mei 2002) behelzen de ontwikkeling van een 'formeel' curriculum (hoofdstuk 7 van de studie) en de implementatie van het

gemeenschappelijke basisprogramma van de post-graduate programma's (hoofdstuk 8). Voor de analyse van elke periode werden de drie lenzen gebruikt die hierboven vermeld zijn. Hieronder worden de resultaten van de analyse gegeven.

Substantieve aspecten van het curriculumontwikkelingsproces

Gedurende de proloog (mei 1997 tot november 1999), die voorafging aan de ontwerpfase (november 1999 tot juli 2000) kwamen slechts enkele substantieve aspecten van het curriculum ter sprake, omdat het curriculum nauwelijks bediscussieerd werd in die fase. De proloog startte met beraadslagingen over de toekomst van twee MHO-projecten (MHO: Medefinanciering Hoger Onderwijs), één op het gebied van academische ondersteuning in wiskunde en 'Science' voor eerstejaars studenten, het andere op het gebied van stafontwikkeling. Dit werd gevolgd door de benoeming van een 'Commissie voor de heropening van de onderwijsfaculteit' door de Rector van de UEM, in januari 1998. In het eindrapport van deze commissie, gepresenteerd in juli 1999, werd de heropening van de faculteit verantwoord en werden voorstellen gedaan voor de onderwijsprogramma's die de faculteit zou moeten ontwikkelen. Een nieuwe commissie werd benoemd, de 'Installatiecommissie', bestaande uit staf van de twee hierboven genoemde projecten, een voorzitter die betrokken was geweest bij de voormalige onderwijsfaculteit en een lid van de 'directie planning' van de UEM. Binnen de installatiecommissie varieerden de aanvankelijke ideeën over het curriculum tussen een diep theoretische curriculumbenadering met veel aandacht voor filosofie en onderwijssociologie en een meer pragmatische, beroepsgeoriënteerde benadering. De Vice-rector academische zaken die op dat moment verantwoordelijk was voor de curriculumvernieuwing aan de universiteit, stond een meer beroepsgeoriënteerde benadering voor. De drie Nederlandse partneruniversiteiten die samenwerkten met de installatiecommissie vanaf het moment dat deze benoemd was, eerst in een pre-project (juli 1999 tot januari 2001) en later in een volledig project (vanaf maart 2001), stonden de visie van de Vice-rector voor en één van de Nederlandse universiteiten introduceerde de notie van een competentiegericht curriculum. De beslissing dat een competentiegericht curriculum het eindpunt zou zijn van het curriculumontwikkelingsproces, werd genomen tijdens de eerste gezamenlijke planningsworkshop in de faculteit, in november 1999, en markeerde de start van de ontwerpfase. Op dat moment startte de auteur van deze dissertatie zijn onderzoeksproject en maakte zijn onderzoeksintenties kenbaar aan de installatiecommissie (waarvan hij ook deel uitmaakte) en de Nederlandse partners. Hij functioneerde dus vanaf dat moment als ontwerper-onderzoeker. Zijn ontwerpactiviteiten, tezamen met die van de

Nederlandse curriculumexpert van de Universiteit van Twente, die verantwoordelijk was voor de Nederlandse inbreng in het curriculumontwikkelingsproces, alsmede de uitkomsten van een eerste curriculum workshop in februari 2000, leidden tot de formulering van een aantal curriculumaspecten of elementen van een beoogd, ideaal, competentiegericht curriculum. Aan het eind van de ontwerpfase (juli 2000) kon een beoogd curriculum nog niet gepresenteerd worden aan de belanghebbenden in het curriculumontwikkelingsproces, maar hoofdkenmerken waren wel geformuleerd door de ontwerper-onderzoeker, in samenwerking met de op dat moment aanwezige staf, de installatiecommissie en de Nederlandse partners.

De ontwikkelfase van het curriculumontwikkelingsproces (juli 2000 tot augustus 2001) resulteerde in mei 2001 in een 'formeel curriculum' gerepresenteerd door een curriculum document en enige cursusbeschrijvingen van cursussen uit het gemeenschappelijke basisprogramma. De drie post-graduate programma's zouden twee jaar beslaan, in totaal 80 onderwijsweken, met een wekelijkse studielast van 20 contacturen plus de nodige tijd voor zelfstudie. Het gemeenschappelijk gedeelte, van 30 weken, zou bestaan uit negen cursussen en flankerende cursussen, bedoeld om snel de vereiste competenties te ontwikkelen in Engels, ICT en wiskunde. Het tweede gedeelte van de programma's zou de specialisatiefase zijn en 20 weken in beslag nemen. De resterende 30 weken zouden dan gebruikt worden voor het researchproject, leidend tot de Masterstitel (zie het tabel op de volgende pagina).

Een toetsing van het formele curriculum (gerepresenteerd in het curriculum document), op een aantal kenmerken van competentiegericht onderwijs, is verricht door de onderzoeker en gevalideerd door een viertal deskundigen, deels met expertise op het gebied van curriculumontwikkeling, allen met expertise op het gebied van onderwijskundig onderzoek, waarbij twee deskundigen werk(t)en aan de Universidade Eduardo Mondlane en de andere twee in Nederlandse universiteiten. Geconstateerd werd dat afstudeerprofielen waren geformuleerd voor de drie post-graduate programma's alsmede domeinspecifieke en generieke competenties, gebaseerd op de beroepsprofielen die opgesteld waren op basis van een behoeftepeiling in de beroepsvelden in Mozambique en de input van externe deskundigen. Tevens werd vastgesteld dat het curriculumdocument algemene richtlijnen bevatte voor het creëren van competentiegerichte leeromgevingen en dat formatieve toetsing van de competentieontwikkeling van studenten door middel van een portfolio werd aanbevolen. Het was, echter, niet altijd duidelijk hoe de (vak)inhoud afgeleid was van de afstudeerprofielen of de beschrijving van domeinspecifieke en generieke competenties. Ook was er, voor het gemeenschappelijke deel alsmede de specialisatiefase, geen integratie van de

inhoud/leerstof van cursussen, bijvoorbeeld in vakoverstijgende thema's. Het curriculumdocument bevatte geen specifieke aanwijzingen voor het gebruik van authentieke leeromgevingen (of authentieke toetsing) in een verscheidenheid aan beroepscontexten. Hoewel generieke competenties geïdentificeerd waren en de verantwoordelijkheid voor de ontwikkeling ervan was gespreid over de verschillende cursussen in het gemeenschappelijk deel, was de integratie van generieke competenties in deze cursussen onvoldoende toegelicht in het curriculumdocument.

Het curriculum van de post-graduate programma's

| | 9 Cursussen | Con- tact uren | 10 generieke competenties | Contac t uren | Flan- kerend | Con- tact uren |
|--|--|----------------------|--|------------------|--|----------------------|
| Gemeen- schap- pelijk 30 weken 600 contact uren | Leren en Instructie | 45 | Communicatie | 40 | Engels | 40 |
| | Sociologische en antro- pologische aspecten van onderwijs in Mozambique | 45 | Informatie- beheer | 30 | Computer introductie | 10 |
| | | | Onderzoeks- methodologie en statistiek | 10 | | |
| | Het leren van volwassenen | 45 | Project management | 10 | | |
| | Curriculum theorie and ontwikkeling | 45 | Sociale interactie | 10 | | |
| | Onderwijsadministra- tie en management | 36 | Reflectie competenties | 30 | | |
| | (Multi)media en ICT in onderwijs | 36 | Ethiek | 10 | | |
| | Ontwerpmethodo- logie | 36 | Ontwerp methodologie | 10 | | |
| | Onderzoeksmethodo- logie | 36 | Multi-media en ICT | 10 | | |
| Statistiek (inclusief basis-wiskunde) | 56 | Leiderschap | 10 | | | |
| | TOTAAL | 380 | | 170 | | 50 |
| 3 Specia- lisaties 200 con- tact uren 10 weken | Onderwijs in wiskunde en natuurweten- schappen | 200 | Volwassenen onderwijs | 200 | Ontwik- keling van curriculum en instructie | 200 |
| Nog eens 200 contact uren voor de specialisaties in ongeveer 20 weken | | | | | | |
| Onderzoek- of ontwerpproject 1200 werkuren, 30 weken | | | | | | |

Een analyse van vier beschrijvingen van cursussen uit het gemeenschappelijk deel toonde aan dat twee van deze cursussen voldoende competentiegericht waren. Een duidelijker formulering van de beoogde uitkomsten van de onderwijsprogramma's in termen van 'proeve van bekwaamheid', inclusief de formulering van competentiestandaarden had kunnen helpen in het in één lijn brengen van de inhoud van cursussen en afstudeerprofielen, in het bijzonder voor de cursussen die direct gerelateerd waren aan de onderwijsprogramma's (b.v. Leren van volwassenen).

De studie concludeert ook dat meer reflectie nodig is op de rol van disciplinaire (vak-) kennis in een competentiegericht programma voor universitair onderwijs alsmede op het belang van geïnstitutionaliseerde contacten met de beroepspraktijk in de Mozambikaanse context.

De drie post-graduate programma's startten in augustus 2001 met, na enige vroege afhakers, 35 studenten, vrijwel gelijk verdeeld over de drie programma's. De reconstructie en analyse van de implementatie van het gemeenschappelijke basisprogramma (augustus 2001-april 2002) leidt tot de conclusie dat de initiële leeromgevingen in de meeste cursussen een veelbelovende start inhielden voor de ontwikkeling van competenties. Echter, de meeste cursussen misten ook een doelbewuste strategie om geleidelijk de autonomie van studenten te vergroten, en zo de studenten uiteindelijk volledig verantwoordelijk te maken voor hun leren en voor het leveren van 'proeves van bekwaamheid' voor het functioneren als academische onderwijsprofessionals. De studie geeft aan dat noodzakelijke voorwaarden voor de ontwikkeling en implementatie van zulke strategieën inhouden dat er een duidelijk 'curriculum leiderschap' is, staf regelmatig reflecteert op zijn onderwijspraktijk, en studenten zorgvuldig worden gevolgd in hun ontwikkeling, worden gecoacht en aangezet tot zelfreflectie op de weg naar volledige autonomie. De portfolio kan daarbij een waardevol instrument zijn.

Omdat de integratie van generieke competenties niet voldoende ter sprake was gekomen in het formele curriculum, wekt het geen verbazing dat de reconstructie en analyse van het 'curriculum in actie'(geoperationaliseerd door de staf en ervaren door studenten) tot de observatie leidde dat de ontwikkeling van generieke competenties slachtoffer was geworden van de aandacht voor domeinspecifieke competenties en vakspecifieke kennis. Ook werd vastgesteld dat meer coördinatie nodig was in de selectie en gebruik van toetsingsmethodes binnen- en tussen cursussen, alsmede een discussie over de vraag wat geschikte toetsingsmethodes zouden kunnen zijn. In ieder geval vraagt competentiegericht onderwijs om volledige duidelijkheid over toetsingscriteria en, ideaal gesproken, om volledige verantwoordelijkheid van studenten voor hun 'proeve van bekwaamheid'.

Omdat de studie zich beperkt tot het eerste deel van de onderwijsprogramma's kon de onderzoeksvraag over de kwaliteit van de afgestudeerden (gemeten curriculum) en hun impact op het onderwijssysteem (bereikt curriculum) niet beantwoord worden. De resultaten van interviews met studenten en de cursusevaluaties door studenten suggereren dat de onderwijsprogramma's effectief waren en mogelijk de vereiste impact zouden kunnen hebben. In hun zelfbeoordeling van generieke competentie namen studenten een ontwikkeling van alle generieke competenties waar, in het bijzonder van competenties op het gebied van ICT. Studenten toonden ook een goed begrip van concepten als competentie en competentiegericht onderwijs.

Technisch-professionele aspecten van het curriculumontwikkelingsproces

Tijdens het gehele curriculumontwikkelingsproces werkt gewerkt door de ontwerper-onderzoeker, de Nederlandse curriculumexpert en, in geringere mate, door de installatiecommissie binnen het 'communicatieve paradigma'. Dat wil zeggen dat de curriculumontwikkeling ter hand genomen werd op basis van een consensus tussen belanghebbenden over wat de problemen waren en wat voor soort curriculum ontwikkeld zou moeten worden om deze problemen aan te pakken. De deelnemers aan de eerste workshops en seminars benadrukten de rol van belanghebbenden in het curriculumontwikkelingsproces en het belang van kleine stappen in de implementatie van innovaties, en toonden aldus een voorkeur voor een communicatieve benadering van het curriculumontwikkelingsproces.

Interne consistentie werd bevorderd door alle stappen van het curriculumontwikkelingsproces op elkaar te laten aansluiten, onder andere de formulering van beroeps- en afstudeerprofielen gebaseerd op de resultaten van de behoeftepeiling. Echter, een evaluatie van het formele/uitgeschreven curriculum door de onderzoeker en vier experts toonde aan dat de keuze van de vakinhouden en het ontwerp van leeromgevingen soms minder aansloten bij een (bedoeld) competentiegericht curriculum. Externe consistentie werd onder andere bewaakt door iedere curriculumworkshop te beginnen met een reconfirmatie van eerder genomen beslissingen over curriculumaspecten. Nieuwe stappen werden uitvoerig bediscussieerd met alle stafleden gedurende de ontwerp- en ontwikkelfases.

De Mozambikaanse academische staf kenmerkte zich in termen van het model van De Feiter en anderen (De Feiter, Vonk & Van den Akker, 1995), als onder weg zijnde van een mechanisch naar een routine niveau van ontwikkeling. In de woorden van dit model komt dit erop neer dat staf zich bevond in de overgang van onzekerheid over gebruik en daarbij de innovatie 'verdunde' in een aanpassing aan persoonlijke en beroepsmatige capaciteit en motivatie, naar bereidheid en

vermogen om een 'eerlijke poging' te doen, gepaard met pogingen om de innovatie aan te passen voor 'gestandaardiseerd gebruik'. Daarbij bleef de staf nog sceptisch over de onmiddellijke effecten. Deze overgang alsmede de weg naar het volgende (professionele) niveau van ontwikkeling impliceerde een voortdurende training en ontwikkeling van de stafleden en bevorderen van hun zelfvertrouwen. Dit werd gedaan in verschillende workshops en door middel van activiteiten in de 'Studiegroep', een groep van stafleden uit de drie post-graduate programma's, die zich, onder andere, bezig hield met de voorbereiding van de behoeftepeiling. Een principe van 'druk en steun' werd ook aangewend, waarbij de druk vooral kwam van de Nederlandse counterparts en de ontwerper-onderzoeker. Dit botste soms met de communicatieve, constructivistische benadering, wanneer de Nederlanders (en de ontwerper-onderzoeker) te snel het initiatief namen en de Mozambikanen geen tijd gaven eigen oplossingen te ontwikkelen voor de problemen die ze tegenkwamen. De communicatieve benadering werd gehandhaafd van Nederlandse kant gedurende het curriculumontwikkelingsproces, in mindere mate door de Mozambikaanse staf, waarschijnlijk omdat die steeds meer betrokken raakte bij het ontwikkelen van hun eigen cursussen en niet toekwam aan het delen van ervaringen met andere staf.

Een aantal initiatieven om de curriculumimplementatie te volgen en te ondersteunen (zoals een systeem van studieadviseurs, de eis dat iedere docent een rapport over zijn gegeven cursus zou schrijven, en de intentie om wekelijks te vergaderen met de programmacoördinatoren en docenten die op dat moment een cursus aan het geven waren) werd aangekondigd door de leiding van de faculteit maar werd niet verwezenlijkt. Dit zou toegeschreven kunnen worden aan het gebrek aan menskracht met teveel taken voor een leiding bestaande uit te weinig mensen.

Formatieve evaluatie gedurende de implementatie van het gemeenschappelijke basisprogramma werd voornamelijk gedaan door activiteiten en rapporten van de ontwerper-onderzoeker. Voorstellen voor een herziene, tweede, versie van het gemeenschappelijke deel werden niet bediscussieerd met alle staf, en werden klaarblijkelijk niet gezien door de faculteitsleiding als een mogelijkheid voor docenten voor reflectie en ontwikkeling.

Sociaal-politieke aspecten van het curriculumontwikkelingsproces

De sociaal-politieke aspecten van het curriculumontwikkelingsproces kunnen beschreven worden aan de hand van de volgende omstandigheden en gebeurtenissen die het ontwikkelingsproces beïnvloed hebben, en de volgende rollen van de verschillende 'actoren':

- *Financiën*. De gereguleerde financiering door de universiteit was veel te weinig voor de aanloopactiviteiten en voor het curriculumontwikkelingsproces. De faculteit was daardoor zeer afhankelijk van de financiering door NUFFIC, de Nederlandse donorinstelling. Omdat de installatiecommissie er niet in slaagde een goed lopend systeem van de grond te krijgen voor de transfer van fondsen voor de verschillende aanloopactiviteiten, werd een adequate planning ernstig belemmerd.
- Wat betreft *rekrutering van staf* concludeert de studie dat het docentencorps nog een 'sub-kritische massa' had gedurende de beginfasen van het curriculumontwikkelingsproces. Het aantal docenten was gegroeid in de eerste helft van 2001 maar niet genoeg om alle cursussen te geven toen de faculteit het gemeenschappelijk basisprogramma startte. De officiële positie van staf in coördinerende rollen bleef onduidelijk gedurende de periode die beschreven wordt in de studie. De enige officiële gebeurtenissen waren de (her)opening van de faculteit (nadat de beslissing enige tijd opgehouden was) en de benoeming van de decaan. Dit leidde tot een situatie waarin alle macht en verantwoordelijkheden waren geconcentreerd in de enige officieel benoemde leider (de decaan), iets wat door verscheidene actoren gezien werd als een te zware last voor één persoon, gezien de gecompliceerdheid van het opzetten van een nieuwe faculteit.
- In het begin van het curriculumontwikkelingsproces werd de *stafontwikkeling* verzorgd door de Nederlandse experts (en de ontwerper-onderzoeker). De leiding van de faculteit zette echter het principe van 'druk en steun' niet voort en liet na een visie te ontwikkelen met betrekking tot de implementatie van veranderingen.
- *Communicatie*, zelfs op het niveau van het uitwisselen van 'ruwe informatie', werd door de Nederlandse counterparts alsmede de Mozambikaanse staf als problematisch ervaren. Hoewel verscheidene malen een communicatiestructuur beloofd werd, gebeurde er niets in de praktijk. Dit zou veroorzaakt kunnen zijn door het verschil in opvattingen en overtuigingen met betrekking tot communicatie tussen Mozambikanen en hun Nederlandse counterparts.

Verscheidene actoren hebben een rol gespeeld in het curriculumontwikkelingsproces:

- De *leiding van de Eduardo Mondlane Universiteit*, in de persoon van de Rector, was voorstander van een heropening van de onderwijsfaculteit. Hoewel de eerste commissies de taak hadden om mogelijkheden en haalbaarheid van zo'n heropening te onderzoeken, maakte de leiding van de universiteit van het begin af aan duidelijk wat de keus zou moeten worden. De Vice-rector academische zaken steunde indirect de keuze voor een competentiegericht curriculum door

een visie te bepleiten waarin afgestudeerden 'veranderingsactoren' zouden zijn en door meer beroepsgeoriënteerde curricula in de faculteiten te bevorderen. Nadat zij was vertrokken en geen nieuwe Vice-rector werd benoemd, intervenueerde de leiding van de UEM niet meer in de curriculumontwikkelactiviteiten van de onderwijsfaculteit. De Academische Raad (Senaat) prees de curriculumvoorstellen en nam ze over, de Universiteitsraad keurde de voorstellen goed, zij het met een aantal kritische opmerkingen, onder andere over het feit dat de staf die de drie onderwijsprogramma's zou coördineren slechts een Masterstitel had, en dat de organisatiestructuur van de faculteit (nog) niet duidelijk was. Er werd geen gebruik gemaakt van de gelegenheid om de innovatieve curriculumplannen en het ontwikkelproces te presenteren als een voorbeeld voor curriculumvernieuwing in andere faculteiten, hoewel de Academische Raad aanbevelingen in deze richting gedaan had.

- De vroege verschijning op het toneel van de *Nederlandse partneruniversiteiten* was een belangrijke factor in het curriculumontwikkelingsproces. In afwezigheid van andere donoren en partners en een schaarste aan staf en expertise in curriculumontwikkeling, moest de installatiecommissie zwaar 'leunen' op de Nederlandse expertise. In de beginfase van het curriculumontwikkelingsproces voelde de installatiecommissie zich soms niet meer 'aan het roer' en overweldigd door de Nederlandse input. Anderzijds ging de installatiecommissie bewust akkoord met het besluit de weg op te gaan naar een competentiegericht curriculum.
- Het feit dat slechts een deel van de *installatiecommissie* actief was met slechts één lid (de decaan) met een officiële status als leider, droeg niet bij tot het managementvermogen van de commissie in een situatie waarbij telkens vele ontwikkelingszaken aan de orde waren. Problemen rond het curriculum-leiderschap en de rol van de ontwerper-onderzoeker in het curriculumontwikkelingsproces werden opgelost door het creëren van de Werkgroep voor curriculumontwikkeling (GTDC). In praktijk veranderde er echter niet veel omdat het initiatief in het curriculumontwikkelingsproces werd gelaten aan één lid van de GTDC, de ontwerper-onderzoeker.

De frequentie van de vergaderingen van de installatiecommissie nam geleidelijk af gedurende de ontwikkelfase van het curriculumontwikkelingsproces en de commissie had haar laatste vergadering gedurende de implementatie van het gemeenschappelijke deel van de onderwijsprogramma's, kort na de start ervan. In formele zin werd de implementatie van het curriculum voortgezet onder leiding van één persoon, de decaan, die, wellicht vanwege zijn unieke (formele) leiderschapstatus, niet veel kon delegeren naar de andere staf. De overall coördinator van de post-graduate programma's had geen formele leiderschap-

status, hetgeen bijgedragen kan hebben aan het feit dat een aantal initiatieven op het gebied van de formatieve evaluatie van de curriculumimplementatie geen vervolg kregen nadat ze aangekondigd waren.

- De *onderwijsstaf* werkte vanaf de eerste stadia in het curriculumontwikkelingsproces met enthousiasme en motivatie, hoewel met enige voorzichtigheid en terughoudendheid als het ging om de adoptie van een innovatief, competentiegericht curriculum. De pas gerekruteerde staf miste vaak ervaring in het lesgeven in een hoger onderwijscontext en bezat aanvankelijk onvoldoende competentie op het gebied van curriculumontwikkeling. Stafcompetenties werden verder ontwikkeld door deelname in de Studiegroep. Deze groep hield op te functioneren gedurende de implementatiefase van het curriculumontwikkelingsproces. Inmiddels was een nieuwe groep gevormd, de Werkgroep voor generieke competenties (GTCCG) die, onder andere, de integratie van generieke competenties in de verschillende cursussen bevorderde. De GTCCG vervulde ook een katalytische rol in de formatieve evaluatie van de curriculumimplementatie.

Er werden geen speciale sessies georganiseerd om staf die later bij de faculteit was gekomen te introduceren in de onderwijsvisie van de faculteit en de bijzonderheden van een competentiegericht curriculum. Niettemin erkende de decaan van de faculteit het gevaar van verwatering van een competentiegerichte benadering zonder een adequate introductie van staf in het curriculum.

- De evaluatie van cursussen door *studenten*, de interviews met studenten en hun zelfbeoordeling van generieke competenties gaven het beeld te zien van een studentenpopulatie die zichzelf goed in staat achtte tot actief en samenwerkend leren en die inzicht had in eigen sterkte en zwakte. De studenten voelden zich al vanaf het begin van de onderwijsprogramma's beperkt in de ontwikkeling van hun competenties door het overladen programma van onderwijsactiviteiten en, anderzijds, het gebrek aan helderheid in sommige cursussen over criteria voor een 'goede prestatie'. Waarschijnlijk omdat de staf erg druk was met 'overleven' in het voor de eerste keer geven van hun cursussen, werden de signalen van de studenten niet altijd ontvangen. Hoewel de studenten vertegenwoordigers hadden gekozen, wat enige invloed suggereerde, werden ze niet echt betrokken bij het scheppen van hun eigen leeromgevingen en accepteerden dat klaarblijkelijk (wellicht niet zo verbazingwekkend in een cultuur met een grote machtsdistantie).
- Na de start van de post-graduate programma's werkte een gestage stroom van *Nederlandse experts* samen met de Mozambikaanse staf om gezamenlijk de verschillende cursussen te geven. Dit betekende ook regelmatig contact en kortere communicatielijnen gedurende de aanwezigheid van de Nederlandse experts in Maputo.

- De voornaamste curriculumontwikkelingsactiviteiten werden overgelaten aan de *ontwerper-onderzoeker* die verantwoordelijk was voor drie curriculumontwikkelingsworkshops voor staf van de faculteit, de co-organisatie van een werkbezoek aan Nederland (in maart 2001 met het doel om de cursussen van het gemeenschappelijke deel verder te ontwikkelen en cursussyllabi uit te werken), en voor stafondersteuning gedurende het uitwerken van de syllabi. Na het werkbezoek verminderde de directe invloed van de ontwerper-onderzoeker omdat de cursusplanning voor de drie onderwijsprogramma's gedaan werd in drie aparte groepen en niet meer in de Studiegroep. Toen de Werkgroep voor curriculumontwikkeling was opgeheven (na het voltooiën van het curriculumdocument in April 2001) en de installatiecommissie de facto ontbonden, veranderde de positie van de ontwerper-onderzoeker. Hij was geleidelijk verschoven van het centrum van het curriculumontwikkelingsproces naar een positie waar hij geen directe toegang meer had tot informatie over ontwikkelingen binnen de faculteit, en had geen directieve rol meer in de verdere curriculumimplementatie.

Sommige problemen in de samenwerking tussen de faculteit en de Nederlandse partneruniversiteiten zouden deels een verklaring kunnen vinden in cultuurverschillen. Het curriculumontwikkelingsproces had plaats in de (Mozambikaanse) context van een bureaucratische cultuur, terwijl de Nederlanders, waaronder de ontwerper-onderzoeker, meer functioneerden in een taakgerichte cultuur, waar expertise belangrijker is dan persoonlijk aanzien (persoonlijke macht) of iemands positie in de bureaucratische hiërarchie. Bewuste interculturele communicatie zou wellicht hebben kunnen helpen om de verschillende culturele gedragingen van de actoren in het curriculumontwikkelingsproces te verhelderen en te identificeren wat de invloed was van cultuur en wat van persoonlijkheid en competentie van de actoren.

Resultaten en aanbevelingen

De reconstructie, analyse en reflectie met betrekking tot het ontwerp, de ontwikkeling en de implementatie van een competentiegericht curriculum in de context van de onderwijsfaculteit van de Eduardo Mondlane Universiteit heeft geresulteerd in een aantal kenmerken van een competentiegericht curriculum alsmede een aantal procedurele richtlijnen voor de ontwikkeling van zulk een curriculum. Daarbij moet bedacht worden dat het curriculumontwikkelingsproces goede en minder goede kanten kende en dat wellicht juist de reflectie op de negatieve aspecten en de analyse van een onvolkomen competentiegericht curriculum in de faculteit hebben geleid tot de kenmerken en richtlijnen voor een

'betere' implementatie. Deze kenmerken en richtlijnen kunnen derhalve gezien worden als ontwerpprincipes die gebruikt kunnen worden door ontwerpers in vergelijkbare contexten. De volgende ontwerpcriteria en procedurele richtlijnen zijn geformuleerd in hoofdstuk 9 van de studie:

1. Een competentiegericht curriculum (CGC) zou de volgende kenmerken moeten hebben:
 - Een CGC is gebaseerd op de toekomstige beroepspraktijk van de student.
 - De ontwikkeling van het curriculum is gebaseerd op het uitwerken van beroeps en afstudeerprofielen en de identificatie van competenties.
 - Curriculuminhoud, leeromgeving en toetsing hangen af van de geïdentificeerde competenties (principe van 'terugontwerpen'), waarbij de eigen(deskundige) visie op het vakgebied ook een rol speelt..
 - Leeromgevingen en toetsing zijn gericht op de ontwikkeling van competenties en op elkaar afgestemd.
 - Een CGC is leerling-gericht en het leerproces staat centraal.
 - In een CGC vervult de leraar de rol van een 'cognitieve gids'.
 - Een CGC heeft een constructivistische benadering.
 - Een CGC omvat de ontwikkeling van generieke competenties.
2. Het is van belang dat de groep van betrokkenen/deelnemers groot genoeg en divers genoeg is om een 'platform van ideeën' te creëren dat kan leiden tot het ontwerp van een functioneel curriculum.
3. Het is van belang om alle staf te betrekken bij het ontwerp en ontwikkelingsproces en om gedurende het proces mogelijkheden te scheppen voor leren en voor ontwikkeling van de staf.
4. Het is van belang om een functioneel communicatienetwerk op te zetten dat alle actoren verbindt die betrokken zijn bij het curriculumontwikkelingsproces.
5. Het formele curriculum, zoals dat, b.v., gerepresenteerd wordt in een curriculum document en syllabi van cursussen, zou regelmatig herzien moten worden door implementatie en evaluatie van opeenvolgende 'prototypes'.
6. In een curriculumontwikkelingsproces waar stafleden medeontwerpers en ontwikkelaars zijn, moeten de (curriculum)leiders het proces beheersen en sturen door duidelijk de richting aan te geven en de staf tezelfdertijd te ondersteunen.
7. Gedurende de implementatiefase van het curriculumontwikkelingsproces zou formatieve evaluatie moeten plaatsvinden waarbij de staf en de studenten betrokken zijn.
8. Speciale implementatiezaken (problemen) kunnen het best behandeld worden door werkgroepen van docenten te vormen. Deze groepen zouden een officiële status moeten hebben en hun activiteiten zouden regelmatig moeten voorkomen op de agenda van vergaderingen van de leidinggevenden.

9. De implementatie van een innovatief curriculum kan het best gedaan worden aan de hand van een implementatieplan met de volgende kenmerken:
 - Het plan heeft een flexibel draaiboek met implementatiestappen.
 - Het plan bevat instrumenten voor formatieve evaluatie en 'monitoring'.
 - Het plan bevat een stafontwikkelingsplan.
 - Het plan bevat de omschrijving van een heldere en toegankelijke ondersteuningsstructuur.
10. Voor het realiseren van een competentiegericht curriculum is een geïnstitutionaliseerde vorm van contact met de beroepspraktijk noodzakelijk.
11. Het curriculumontwikkelingsproces zal effectiever zijn wanneer alle actoren in het proces zich bewust zijn van de invloed van de culturele achtergrond op hun gedrag en dat van anderen en wanneer zij competent zijn in interculturele communicatie.

APPENDIX 1

Document database

| Year | Month | Date | Type | Code | Description |
|------|-------|------|------------------|------|---|
| 1997 | 5 | | First Commission | FC2 | Terms of reference first commission |
| 1997 | 5 | | First Commission | FC23 | First documents BUSCEP-STADEP meetings |
| 1997 | 6 | 3 | First Commission | FC22 | Meetings with Director Secondary Education and others |
| 1997 | 6 | 3 | First Commission | FC3 | Reports of consultative meetings |
| 1997 | 11 | 12 | First Commission | FC12 | Notes on meeting BUSCEP-STADEP |
| 1997 | 11 | 18 | First Commission | FC11 | Notes on meeting with rector |
| 1997 | 12 | 31 | First Commission | FC19 | Memo of rector appointing MM as member of commission |
| 1998 | 1 | 13 | First Commission | FC13 | Meeting with vice-rector academic affairs |
| 1998 | 1 | 20 | First Commission | FC17 | Request for funding to foreign donors |
| 1998 | 1 | 27 | First Commission | FC18 | Memo of MM with data on future FacEd |
| 1998 | 1 | | First Commission | FC16 | Terms of reference for the re-opening of FacEd |
| 1998 | 2 | 10 | First Commission | FC20 | Decree by rector nominating the commission |
| 1998 | 2 | | First Commission | FC21 | Scheme of work by MM |
| 1998 | 3 | 2 | First Commission | FC14 | Meeting with representatives of Open University UK |
| 1998 | 3 | 6 | First Commission | FC15 | Notes on meeting |
| 1998 | 4 | 23 | E-mail | E43 | Mails by WK and Rien re working visits |
| 1998 | 4 | | First Commission | FC1 | Timetable with proposed activities |
| 1998 | 4 | | First Commission | FC4 | Elaboration and specification of plan of activities |
| 1998 | 5 | 9 | First Commission | FC6 | Terms of Reference Ohio State University visit |
| 1998 | 6 | 3 | First Commission | FC9 | Report on study visit to Netherlands and UK |
| 1998 | 7 | | First Commission | FC10 | Report on study visit to University of the North |
| 1999 | 1 | 6 | Dutch input | DI0 | Report on meeting in the Netherlands (in Portuguese) |
| 1999 | 1 | 12 | Dutch input | DI0A | Minutes of Mozambican Steering Committee |
| 1999 | 2 | 22 | First Commission | FC7 | Report on visit to the USA |
| 1999 | 2 | 22 | First Commission | FC8 | Conclusions of visit to USA (in Portuguese) |
| 1999 | 5 | | Official | O4 | Project document pre-project |
| 1999 | 6 | 8 | E-mail | E41 | Mail Hans Schoenmakers re Dutch meeting on pre -project |

| Year | Month | Date | Type | Code | Description |
|------|-------|------|-------------------|-------|--|
| 1999 | 6 | 30 | Dutch input | DI15 | Letter about approval Pre-project by NUFFIC |
| 1999 | 7 | 23 | Official | O5 | Official nomination Installation Commission |
| 1999 | 7 | | First Commission | FC5 | Transparencies of final report |
| 1999 | 8 | 18 | Installation com. | IC20 | Report on meeting with Rector |
| 1999 | 8 | 25 | Installation com. | IC19 | Extracts from some meetings in August and September |
| 1999 | 9 | 24 | Installation com. | IC18 | Decision to end contract social centre (to become secretariat) |
| 1999 | 10 | 1 | Dutch input | DI11A | Report of visit to Capetown (in Portuguese) |
| 1999 | 10 | 7 | Installation com. | IC15 | Terms of Reference Installation Commission |
| 1999 | 10 | 11 | Dutch input | DI11 | Report of working visit to the Netherlands |
| 1999 | 10 | 18 | Installation com. | IC17 | Programme of visit EM and WK to RUG |
| 1999 | 11 | 15 | Workshop | WS10 | Report of first workshop (in pre-project) |
| 1999 | 11 | 23 | Workshop | WS5 | Planning tool for development of educational programmes |
| 1999 | 11 | 26 | Dutch input | DI14 | Job description for Coordinator CDI (made by Tjeerd Plomp) |
| 1999 | 12 | 1 | Installation com. | IC21 | Minutes meeting (by Alice) |
| 1999 | 12 | 10 | Official | O14 | General principles of post-graduate programmes at UEM |
| 1999 | 12 | 31 | Dutch input | DI13 | Progress report pre-project second half 1999 |
| 2000 | 1 | | Installation com. | IC31 | Data on applications and interviews for staff |
| 2000 | 2 | 2 | Installation com. | IC29 | Minutes meeting (by Alice) |
| 2000 | 2 | 16 | Workshop | WS2c | Results of exercise on education vision |
| 2000 | 2 | 18 | Installation com. | IC16 | E-mail to NUFFIC re lack of funds |
| 2000 | 2 | 18 | Workshop | WS2a | Internal evaluation of workshop February 2000 |
| 2000 | 2 | 28 | Installation com. | IC28 | Minutes meeting (by Alice) |
| 2000 | 2 | 29 | E-mail | E38 | mail TP (in Dutch) |
| 2000 | 2 | 29 | E-mail | E4 | mail Hans S. |
| 2000 | 2 | | Workshop | WS2 | Material workshop February 2000 |
| 2000 | 3 | 2 | E-mail | E5 | mail Rien Kool (in Dutch) |
| 2000 | 3 | 2 | E-mail | E6 | mail Tjeerd |
| 2000 | 3 | 9 | Installation com. | IC30 | Message about possibility to acquire books |
| 2000 | 3 | 10 | E-mail | E37 | mail Hans S. (in Dutch) |
| 2000 | 3 | 14 | E-mail | E40 | Mail Hans Schoenmakers, re report 1999 |
| 2000 | 3 | 15 | Installation com. | IC27 | Minutes meeting (by Alice) |
| 2000 | 3 | 20 | E-mail | E39 | E-mail Rien Kool, about Brazilian Editors |
| 2000 | 3 | 22 | Working Group CD | GTDC1 | Document on Working group on Curriculum Development |
| 2000 | 3 | 22 | Installation com. | IC26 | Minutes meeting (by Alice) |
| 2000 | 3 | 28 | E-mail | E42 | Mail Rien Kool re Inset seminar |
| 2000 | 3 | 28 | Installation com. | IC25 | Meeting on transfer of BUSCEP space and materials |
| 2000 | 3 | 28 | Study group | SG16 | Notes on meeting |
| 2000 | 4 | 4 | Study group | SG17 | Notes on meeting |

| Year | Month | Date | Type | Code | Description |
|------|-------|------|----------------------|-------|--|
| 2000 | 4 | 5 | Installation com. | IC24 | Minutes meeting (by Alice) |
| 2000 | 4 | 5 | Installation com. | IC7 | Notes meeting |
| 2000 | 4 | 5 | Study Group | SG12 | Scheme of activities for Needs Assessment |
| 2000 | 4 | 6 | E-mail | E34 | Mail TP with comments on meeting study group of 4 April |
| 2000 | 4 | 10 | E-mail | E35 | mail TP to MM with porposal workshop ICT |
| 2000 | 4 | 12 | Installation com. | IC23 | Minutes meeting (by Alice) |
| 2000 | 4 | 12 | Installation com. | IC8 | Notes meeting |
| 2000 | 4 | 12 | Study group | SG18 | Notes on meeting |
| 2000 | 4 | 19 | Installation com. | IC40 | Notes on meeting |
| 2000 | 4 | 19 | Study group | SG19 | Notes on meeting |
| 2000 | 4 | 25 | Curr. Development | C10 | Report on Curr. Dev. Activities |
| 2000 | 4 | 25 | Dutch input | DI6 | Report Zwolle meeting of 22 March |
| 2000 | 4 | 26 | Study Group | SG8 | Report of meeting |
| 2000 | 5 | 3 | Installation com. | IC22 | Minutes meeting (by Alice) |
| 2000 | 5 | 8 | E-mail | E32 | mail TP on needs assessment |
| 2000 | 5 | 8 | E-mail | E33 | mail TP with memo on needs assessment |
| 2000 | 5 | 9 | E-mail | E44 | Mail TP re needs assessment |
| 2000 | 5 | 15 | Study Group | SG14 | Answer TP re Needs Assessment |
| 2000 | 5 | 16 | Study Group | SG13 | Answer RK re Needs Assessment |
| 2000 | 5 | 17 | Dutch input | DI12 | Report of mission RK (writing project proposal) |
| 2000 | 5 | 27 | E-mail | E2 | e-mail on list occupational tasks DCI |
| 2000 | 5 | | Working Group CD | GTDC3 | Brief report on activities with appendices |
| 2000 | 5 | | Installation com. | IC4 | Projection of staff |
| 2000 | 5 | | Installation com. | IC7 | List of equipment and furniture required during project period |
| 2000 | 5 | | Study Group | SG15 | Translation in Portuguese of UT Needs Assessment |
| 2000 | 6 | 6 | E-mail | E1 | Jan Pieter van Oudenhoven |
| 2000 | 6 | 14 | E-mail | E31 | mail TP, in Dutch |
| 2000 | 6 | 16 | Installation com. | IC38 | Minutes of meeting by Alice |
| 2000 | 6 | 20 | E-mail | E29 | mail TP on visit Mozambicans |
| 2000 | 6 | 21 | E-mail | E30 | mail TP on July workshop |
| 2000 | 6 | 26 | Review/NUFFIC | R11 | E-mail Rien Kool about project proposals |
| 2000 | 6 | 28 | Review/NUFFIC | R5 | report of meeting Mozambicans and NUFFIC |
| 2000 | 6 | 30 | Curr. Development | C16 | Proposal for rescheduling generic competencies |
| 2000 | 6 | 30 | E-mail | E28 | mail Hans on visit Mozambicans and policy studies |
| 2000 | 7 | 5 | Installation com. | IC39 | Minutes of meeting by Alice |
| 2000 | 7 | 6 | E-mail | E27 | mail HS. on visit Mozambicans on project proposal |
| 2000 | 7 | 12 | E-mail | E26 | mail HS on agenda Zwolle meeting |

| Year | Month | Date | Type | Code | Description |
|------|-------|------|----------------------|------|--|
| 2000 | 7 | 20 | Study group | SG7 | Report of meeting |
| 2000 | 7 | 27 | Workshop | WS6 | material for workshop on curriculum development |
| 2000 | 7 | 27 | Workshop | WS7 | Second folder with workshop material; includes report |
| 2000 | 7 | | Dutch input | DI1 | Report on visit Tjeerd, July 2000 |
| 2000 | 8 | 2 | Installation com. | IC9 | Notes meeting |
| 2000 | 8 | 4 | E-mail | E25 | mail Tjeerd on Viriato and Tiago |
| 2000 | 8 | 7 | E-mail | E19 | mail Wim to Tjeerd |
| 2000 | 8 | 8 | Official | O12 | Government document on the establishment of MESCT |
| 2000 | 8 | 9 | Installation com. | IC10 | Notes meeting |
| 2000 | 8 | 9 | Installation com. | IC2 | Planning of activities second semester 2000 |
| 2000 | 8 | 15 | Installation com. | IC37 | Minutes of meeting by Alice |
| 2000 | 8 | 15 | Installation com. | IC6 | Conclusions and recommendations of July workshop |
| 2000 | 8 | 17 | Installation com. | IC3 | Proposal for participation in conferences |
| 2000 | 8 | 22 | E-mail | E24 | mail Tjeerd to MM and Ernesto, reaction from Ernesto |
| 2000 | 9 | 12 | Curr. Development | C18 | E-mail Rien Kool on preparation of curriculum in Maths & Sc. Ed. |
| 2000 | 9 | 20 | Installation com. | IC11 | Notes meeting |
| 2000 | 9 | 25 | E-mail | E23 | mail Tjeerd on recruitment of staff from RSA |
| 2000 | 9 | 26 | Official | O13 | Despacho of rector on re-opening of the FacEd |
| 2000 | 9 | 26 | Study Group | SG9 | Report of meeting |
| 2000 | 9 | 27 | Installation com. | IC12 | Notes meeting |
| 2000 | 10 | 2 | Curr. Development | C19 | Brief note on staff and curriculum development |
| 2000 | 10 | 2 | Curr. Development | C22 | The state of affairs in curriculum development of the FacEd. |
| 2000 | 10 | 11 | Dutch input | DI10 | Report of discussions UEM and Dutch Universities re project |
| 2000 | 10 | 11 | Review/NUFFIC | R7 | Report of meeting 3 Mozambicans and Dutch, re. Project proposal |
| 2000 | 10 | 16 | E-mail | E22 | mail Tjeerd on results of Zwolle meeting |
| 2000 | 10 | 20 | Dutch input | DI27 | Memo Tjeerd on comments of MM re Models proposal |
| 2000 | 10 | 20 | Review/NUFFIC | R9 | Comments Tjeerd on comments by MM on MODELS proposal |
| 2000 | 10 | 20 | Study Group | SG10 | Report of meeting |
| 2000 | 10 | 24 | Installation com. | IC5 | Booklist by Ernesto Mandlate |
| 2000 | 10 | 25 | Curr. Development | C15 | plan of activities for development of curriculum |
| 2000 | 10 | 26 | E-mail | E21 | mail HS on capacity Staderp , Luciana, etc. |
| 2000 | 11 | 1 | Dutch input | DI7 | Proposal for umbrella document Project |

| Year | Month | Date | Type | Code | Description |
|------|-------|------|----------------------|-------|---|
| 2000 | 11 | 1 | Dutch input | DI9 | MODELS draft document |
| 2000 | 11 | 2 | Dutch input | DI8 | Moztep draft document |
| 2000 | 11 | 3 | Review/NUFFIC | R10 | E-mail rien Kool with comments on mission report October 2000 |
| 2000 | 11 | 8 | Curr. Development | C14 | Plan of activities for needs assessment |
| 2000 | 11 | 8 | Installation com. | IC13 | Notes meeting |
| 2000 | 11 | 8 | Installation com. | IC14 | Request Bhangy for funding of PhD |
| 2000 | 11 | 9 | Review/NUFFIC | R8 | E-mail with letter on extension pre-project |
| 2000 | 11 | 13 | E-mail | E17 | mail Hans S. |
| 2000 | 11 | 13 | Workshop | WS4 | Invitation for workshop 17 November on CBE |
| 2000 | 11 | 15 | E-mail | E18 | mail Tjeerd on slow progress |
| 2000 | 11 | 17 | Workshop | WS13 | Material of workshop on curriculum development |
| 2000 | 12 | 12 | Workshop | WS1 | Material workshop December 2000 |
| 2000 | 12 | 12 | Workshop | WS11 | Caroline, formative evaluation results |
| 2000 | 12 | | Dutch input | DI19 | MOZADEP draft project document |
| 2001 | 1 | 8 | Dutch input | DI22 | Report of Zwolle meeting |
| 2001 | 1 | 17 | Review/NUFFIC | R4 | On reallocating general items to one project (MODELS) |
| 2001 | 1 | 21 | Installation com. | IC36 | Report on visit to Brasil |
| 2001 | 1 | 22 | Dutch input | DI26 | Memo Tjeerd with curriculum development tasks |
| 2001 | 1 | 31 | Curr. Development | C22 | meeting CID project team on results Needs Assessment |
| 2001 | 1 | | Dutch input | DI24 | Nuffic assessment of project proposals |
| 2001 | 1 | | Dutch input | DI25 | Report on RUG mission to UEM in November 2000 |
| 2001 | 2 | 6 | E-mail | E16 | mail Tjeerd to MM and GTDC |
| 2001 | 2 | 7 | Dutch input | DI23 | Mail Koen Oostrom re request for reallocating funds |
| 2001 | 2 | 13 | Workshop | WS9 | Report of workshop February 2001 |
| 2001 | 2 | 20 | Working Group CD | GTDC2 | Report meeting of working group |
| 2001 | 2 | 22 | Official | O6 | Official nomination of MM as Dean of faculty |
| 2001 | 2 | 27 | Dutch input | DI20 | E-mail Hans about books for Psychology programme |
| 2001 | 3 | 12 | Curr. Development | C23 | Questionnaire staff working visit |
| 2001 | 3 | 12 | Curr. Development | C24 | Notes on working visit UT |
| 2001 | 3 | 12 | Curr. Development | C25 | Questionnaire material and interviews |
| 2001 | 3 | 21 | Dutch input | DI18 | Documentation for request ICCO support |
| 2001 | 3 | 28 | Study group | SG3 | Report of meeting |

| Year | Month | Date | Type | Code | Description |
|------|-------|------|------------------------|------|---|
| 2001 | 3 | 29 | Curr. Development | C26 | Report of presentation final products working visit |
| 2001 | 3 | 29 | Dutch input | DI27 | Meeting Dutch Steering Committee |
| 2001 | 3 | | Curr. Development | C13 | Photo of working visit to UT |
| 2001 | 4 | 4 | Installation com. | IC35 | Summary of meetings |
| 2001 | 4 | 4 | Study group | SG4 | Report of meeting |
| 2001 | 4 | 6 | Installation com. | IC33 | List of tasks put together by MM |
| 2001 | 4 | 7 | E-mail | E14 | mail Tjeerd to MM |
| 2001 | 4 | 11 | Workshop | WS14 | Material of March workshop in the Netherlands |
| 2001 | 4 | 19 | Dutch input | DI17 | Report of Mozambican meeting of steering committee |
| 2001 | 4 | 26 | Installation com. | IC34 | Memo WK to MM about various points |
| 2001 | 4 | 27 | E-mail | E15 | mail Tjeerd on reaction re. His mail to MM |
| 2001 | 4 | | Dutch input | DI21 | NUFFIC assessment of project proposals |
| 2001 | 4 | | Material Psychology | PS | |
| 2001 | 5 | 9 | Installation com. | IC32 | Results of memo on various points, with personal notes |
| 2001 | 5 | 11 | Official | O10 | Resolution of Academic Council (Senate) on curr. proposal |
| 2001 | 5 | 11 | Official | O9 | Powerpoint presentation of Faculty curriculum document |
| 2001 | 5 | 14 | E-mail | E13 | mail MM on approval of proposal FacEd by Senate |
| 2001 | 5 | 14 | Other Activities | OA1 | Proposal of ad-hoc group on consultancy incomes |
| 2001 | 5 | 23 | Curr. Development | C20 | E-mail Viriato on integration of generic competencies |
| 2001 | 5 | 24 | Dutch input | DI5 | Powerpoint presentation on CBE for Dutch staff |
| 2001 | 5 | 24 | Study Group | SG11 | Invitation for meeting on generic competencies |
| 2001 | 5 | 24 | Study group | SG20 | Summary of meeting |
| 2001 | 5 | 31 | Curr. Development | C6 | On the design and development of course plans (planos analíticos) |
| 2001 | 5 | 31 | Curr. Development | C7 | On learning outcomes, competency statements and objectives |
| 2001 | 5 | 31 | Curr. Development | C8 | On the development of generic competencies |
| 2001 | 5 | | Curr. Development | C27 | Interviews with staff about working visit |
| 2001 | 5 | | Curr. Development | C28 | Results questionnaire Dutch counterparts |
| 2001 | 5 | | Installation com. | IC1 | Various advertisements and job descriptions for staff |
| 2001 | 5 | | Official | O7 | Models project document |

| Year | Month | Date | Type | Code | Description |
|------|-------|------|----------------------|------|--|
| 2001 | 6 | 11 | Study group | SG1 | Summary meeting June 2001 |
| 2001 | 6 | 18 | Workshop | WS12 | Material workshop on preparing cases and projects |
| 2001 | 6 | 29 | Dutch input | DI2 | Part of UEM site on Dutch co-operation |
| 2001 | 6 | | Curr. Development | C9 | Proposal for rewriting thematic plans in curriculum document |
| 2001 | 7 | 3 | Study group | SG2 | Summary of meetings |
| 2001 | 7 | 6 | Official | O1 | Envio de resoluções do conselho académico |
| 2001 | 7 | 8 | Curr. Development | C5 | Proposal for structure course outline |
| 2001 | 7 | 8 | Study group | SG21 | Meeting with Débora Nandja on course plans |
| 2001 | 7 | 11 | Official | O2 | Decisions of university council on curriculum document |
| 2001 | 7 | 24 | Workshop | WS15 | Internal workshop on ICT |
| 2001 | 8 | 10 | Dutch input | DI16 | Memo by Tjeerd, summarising meeting with MM |
| 2001 | 8 | 10 | GTCG | G0 | Report of meeting |
| 2001 | 8 | 16 | Installation com. | IC33 | Report of meeting |
| 2001 | 8 | 20 | Staff support | SS1 | Info on generic competencies |
| 2001 | 8 | 23 | Curr. Development | C3 | Report of CID on specialization phase |
| 2001 | 8 | 27 | GTCG | G1 | Report of meeting |
| 2001 | 8 | 31 | Curr. Development | C31 | Report of meeting on portfolio |
| 2001 | 8 | | Curr. Development | C29 | Course outlines of four core courses |
| 2001 | 8 | | Official | O11 | Document on course fees for post-graduate programmes |
| 2001 | 9 | 4 | Info students | IS1 | Information sheet on portfolios |
| 2001 | 9 | 4 | Info students | IS2 | Guide for a report on a course (part of portfolio) |
| 2001 | 9 | 6 | Info students | IS3 | PPT on generic competencies |
| 2001 | 9 | 11 | GTCG | G1a | Report of meeting |
| 2001 | 9 | 17 | GTCG | G1b | Report of meeting |
| 2001 | 9 | 28 | GTCG | G1c | Report of meeting |
| 2001 | 9 | | Curr. Development | C4 | Timetable block 2 |
| 2001 | 10 | 1 | Dutch input | DI3 | Report of visit in August 2001(Plomp and de Feiter) |
| 2001 | 10 | 2 | Curriculum in action | CA2 | Student work on peer assessment of generic competencies |
| 2001 | 10 | 29 | GTCG | G2 | Report of meeting |
| 2001 | 11 | 9 | E-mail | E10 | mail MM on situation computerlab |
| 2001 | 11 | 15 | E-mail | E11 | mail MM on situation computerlab |
| 2001 | 11 | 22 | Curriculum in action | CA1 | Material workshop project management |

| Year | Month | Date | Type | Code | Description |
|------|-------|------|----------------------|------|---|
| 2001 | 11 | 22 | Curriculum in action | CA3 | Report on workshop project management |
| 2001 | 12 | 5 | Curr. Development | C11 | Report on meeting of staff involved in first three courses |
| 2001 | 12 | 7 | E-mail | E12 | mail tjeerd , reaktie op mijn mail |
| 2001 | 12 | 10 | Curr. Development | C10 | Invitation and material for meeting on first part Common Core |
| 2001 | 12 | 13 | Curr. Development | C12 | Report of reflection session on first part of Common Core |
| 2001 | 12 | 13 | Curriculum in action | CA5 | Report of reflection session on Common Core |
| 2002 | 2 | 2 | Review/NUFFIC | R11 | Draft document on further development of FacED (Leo & Tjeerd) |
| 2002 | 2 | 14 | Curr. Development | C21 | Proposal Tjeerd on staff development in the area of Dev. Research |
| 2002 | 2 | 14 | Dutch input | DI4 | Proposal for staff development course on Development Research |
| 2002 | 2 | 20 | Curr. Development | C30 | Report of staff meeting on the masters programme |
| 2002 | 3 | 11 | E-mail | E8 | mail Leo on Teletop |
| 2002 | 3 | 12 | GTCG | G3 | Report of meeting |
| 2002 | 3 | 18 | GTCG | G9 | Proposal of outline of booklet on research competencies |
| 2002 | 3 | 26 | GTCG | G4 | Report of meeting |
| 2002 | 4 | 4 | GTCG | G5 | Report meeting of working group |
| 2002 | 4 | 23 | GTCG | G10 | Report of meeting |
| 2002 | 4 | 24 | Curriculum in action | CA4 | Request for support in ICT, from Débora |
| 2002 | 4 | 27 | E-mail | E9 | mail Leo, reaction on mail Tjeerd |
| 2002 | 5 | 6 | Curr. Development | C1 | Documents on revision of Common Core |
| 2002 | 5 | 23 | GTCG | G6 | Report meeting of working group |
| 2002 | 5 | 26 | E-mail | E3 | mail Tjeerd |
| 2002 | 5 | 27 | GTCG | G8 | Plan of action for activities of working group |
| 2002 | 5 | | Curr. Development | C2 | Teaching option in English |
| 2002 | 6 | 6 | Official | O8 | Decision of Senate to approve research proposal |
| 2002 | 6 | 17 | GTCG | G7 | Proposal for workshop on research competencies |
| 2002 | 6 | 18 | Official | O3 | Regulations for the FacEd masters programmes |
| 2002 | 6 | 19 | Workshop | WS3 | Programme of workshop |
| 2002 | 6 | 19 | Workshop | WS8 | Material final workshop June 2002 |

APPENDIX 2

Elements of the plan of activities, responsibilities and decisions in the process of curriculum development at the Faculty of Education

1. General

- Mission (already formulated)
- Professional profile
- Graduate profile
- Entry profile
- Curriculum model
- Description of the parts/phases in the educational programmes
- Learning trajectories for the development of competencies

2. Study plans

- Structure of an educational programme
- Modules and credits
- Contact time student-teacher
- Structure of the timetable
- Tutors and mentors
- Exams and other forms of finalising the study
- Learning trajectories

3. Thematic plans

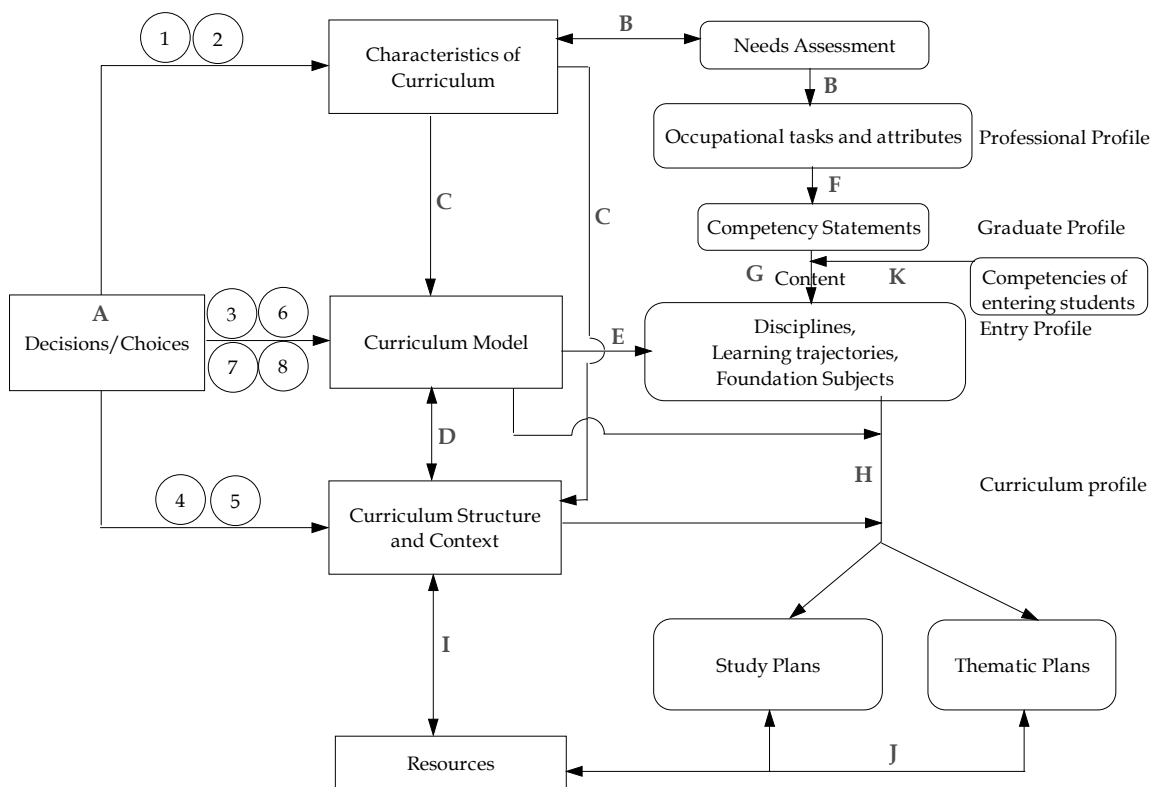
- Objectives and content
- Teaching methods
- Assessment
- Group size

4. Organisation

- Grouping the staff in departments
- Student-staff ratio
- Recruitment of staff
- Professional development of staff
- Resources

APPENDIX 3

Scheme of steps and decisions in the development of a curriculum



- A. In the introduction of the 'base document' eight decisions are given that have already been taken with respect to the curriculum in the new Faculty of Education.
As can be seen from the scheme some decisions (1 and 2) concern the curriculum characteristics, others (3, 6, 7 and 8) deal with the curriculum model while decisions 4 and 5 say more about structural aspects of the curriculum.
- B. Because the curriculum has a competence-based character, the needs assessment is meant (partly) to obtain information about key occupational tasks and attributes related to professionals educated in the various educational programmes. The information, together with expert input, literature and the validation during a seminar with stakeholders, should lead to the formulation of professional profiles (being an important input for the specialisation phases).
- C. The curriculum characteristics (philosophy of education/curriculum vision) determine also the curriculum model and the structural aspects.
- D. The context, curriculum structure and curriculum model all have a mutual influence. For example, central UEM rules and regulation may limit the freedom in designing modules, timetable and allocating credit points.
- E. The curriculum model determines the ways in which the curriculum content (in terms of knowledge, skills and attitudes) is acquired by the students. The content can be 'placed' in
- disciplinary knowledge and skills (and attitudes),
 - learning trajectories for the more generic aspects, and
 - foundation (basic) knowledge, skills and attitudes (second language, mathematics/statistics, etc.).
- F. Once the professional profiles have been defined, competence statements may be derived from the lists of key occupational tasks and attributes. In this way graduate profiles can be defined.
- G. Competence statements refer to knowledge, skills and attitudes that have to be applied to perform key occupational tasks. The content of each competence statement can be 'placed' in one of the three streams, mentioned under E.
- H. Together with the 'guidelines' obtained from decisions taken on curriculum model and structure, the curriculum content can be included in the formulation of study plans and thematic plans.
- I. The structural aspects of the curriculum and the context determine to a great extent the availability of resources (physical and human).
- J. The need for resources flows from the content of study plans and thematic plans. On the other hand, the lack of resources may influence the proper execution of study plans and thematic plans.
- K. The content in terms of knowledge, skills and attitudes is determined by the difference between competence statements and the initial competencies as described by the Entry Profile of the students.

APPENDIX 4

Results of the ratings of occupational tasks and competencies (attributes) for Science and Mathematics Education and Curriculum and Instruction Development

Rating of 28 key occupational tasks in Science and Mathematics Education

| Key occupational task | Mean | SD | N |
|---|-------------|-----------|----------|
| Develop in-service courses and learning materials | 3.64 | 0.50 | 14 |
| Develop experiments and laboratory guides which make use of day-to-day materials | 3.64 | 0.63 | 14 |
| Train students for work in resource-poor environments | 3.57 | 0.87 | 14 |
| Develop support teaching practice materials: teaching practice handbook, training for mentor teachers | 3.50 | 0.65 | 14 |
| Develop and produce a variety of educational resource materials, other than textbooks | 3.47 | 0.64 | 15 |
| Lecture content and educational courses in pre-service programmes | 3.43 | 0.85 | 14 |
| Analyse school results (exams, output, drop-out) and prepare feedback for the system | 3.40 | 0.74 | 15 |
| Translate educational problems into concrete proposals for improvement | 3.36 | 0.75 | 14 |
| Professional support to teachers and school (content, educational) | 3.36 | 0.75 | 14 |
| Train students to develop learning materials for schools | 3.33 | 0.82 | 15 |
| Develop practical examinations or problems based on real-life situations | 3.29 | 0.73 | 14 |
| Write teaching guides and textbooks for teachers | 3.29 | 0.73 | 14 |
| Write textbooks for pupils | 3.29 | 0.93 | 14 |
| Outline educational policies for the mid- and long term | 3.21 | 0.58 | 14 |
| Plan and budget development plans for science and mathematics education | 3.21 | 0.98 | 14 |
| Organise, plan, prepare, implement and evaluate teaching practice with attention for student teachers, mentor teachers and school heads | 3.20 | 0.77 | 15 |
| Teach science education learning theories, constructivism, teacher-led demonstrations | 3.20 | 0.77 | 15 |
| Organize and implement programmes for novice teachers | 3.20 | 0.94 | 15 |

Rating of 28 key occupational tasks in Science and Mathematics Education (continued)

| Key occupational task | Mean | SD | N |
|---|-------------|-----------|----------|
| Planning, guiding and evaluating the process of school-based exams | 3.20 | 0.94 | 15 |
| Develop curricula for teacher education courses: content and methodology courses | 3.14 | 0.77 | 14 |
| Assessment and evaluation of students and courses | 3.14 | 0.86 | 14 |
| Lecture content and educational courses in in-service programmes | 3.14 | 0.86 | 14 |
| Analyse curricula of other educational systems for use and applicability in new situations | 3.00 | 0.65 | 15 |
| Assessment and evaluation of teachers in programmes | 2.93 | 0.62 | 14 |
| Plan, prepare, conduct and evaluate short and longer workshops | 2.93 | 0.62 | 14 |
| Management support to teachers, heads of department and schools | 2.80 | 0.77 | 15 |
| Collect and translate literature on teachers education and learning difficulties into specific learning materials | 2.73 | 0.88 | 15 |
| Translate science policy guidelines into implementable activities | 2.71 | 0.46 | 14 |

Rating of 22 key occupational tasks in Curriculum and Instruction Development

| Key occupational task | Mean | SD | N |
|--|-------------|-----------|----------|
| Develop of a training programme, including seminars and workshops | 3.71 | 0.47 | 14 |
| Evaluate a curriculum/programme/course/module/materials | 3.64 | 0.50 | 14 |
| Develop a curriculum | 3.64 | 0.63 | 14 |
| Conduct training programmes, seminars, workshops | 3.57 | 0.51 | 14 |
| Communicate orally and visually (including written communication) | 3.43 | 0.76 | 14 |
| Conduct a needs assessment | 3.43 | 0.76 | 14 |
| Develop systems for pedagogical management that serve to diagnose and guide/accompany students | 3.43 | 0.65 | 14 |
| Ensure efficient implementation of curriculum innovations | 3.38 | 0.65 | 13 |
| Develop educational materials | 3.38 | 0.77 | 13 |
| Plan and manage educational projects | 3.36 | 0.75 | 14 |
| Elaborate project proposals | 3.36 | 0.93 | 14 |
| Design, manage and analyse student assessment | 3.36 | 0.93 | 14 |
| Develop a virtual learning environment | 3.36 | 0.93 | 14 |
| Produce interactive programmes via radio, TV, Web, specific software or hardware | 3.15 | 0.77 | 14 |
| Design and monitor projects and budgets | 3.15 | 0.86 | 14 |
| Conduct applied research for curriculum | 3.07 | 0.62 | 14 |
| Select and adapt learning materials | 3.07 | 0.83 | 14 |
| Plan educational activities, like lessons or other didactical units | 3.07 | 1.08 | 14 |
| Plan human resources | 2.93 | 1.00 | 14 |
| Work as an advisor in a curriculum development project | 2.93 | 1.00 | 14 |
| Design strategies for human resource development | 2.69 | 1.18 | 13 |
| Elaborate documents on the educational policy of a certain sector | 2.64 | 0.93 | 14 |
| Design market strategies | 2.62 | 0.96 | 13 |

Average ratings for 24 attributes in the area of Science and Mathematics Education (N=14)

| Attributes | Mean | SD |
|--|------|------|
| The graduate should have the ability to: | | |
| Master the subject content at an appropriate level | 3.86 | 0.36 |
| Master mathematics at an acceptable level | 3.79 | 0.43 |
| Write clear, attractive and accessible texts | 3.71 | 0.47 |
| Use the Portuguese language | 3.64 | 0.63 |
| Plan realistically teaching and learning processes | 3.64 | 0.63 |
| Develop exams, questions and problems at different cognitive levels | 3.64 | 0.63 |
| Communicate | 3.57 | 0.51 |
| Teach and lecture classes using a wide variety of delivering modes and instructional and educational strategies, including practical work in science | 3.50 | 0.52 |
| Analyse relationships with other subjects | 3.43 | 0.52 |
| Resolve problems | 3.43 | 0.52 |
| Prepare lesson outlines for a course/semester | 3.43 | 0.65 |
| Adapt and translate electronic (Internet) into appropriate learning materials | 3.43 | 0.65 |
| Utilise resources effectively | 3.36 | 0.50 |
| Interact with others | 3.29 | 0.61 |
| Analyse critically the curriculum for a particular subject at a particular level | 3.29 | 0.61 |
| Take decisions | 3.21 | 0.97 |
| Manage information | 3.14 | 0.66 |
| Make judgements about different assessment techniques without referring to prescribed routines or general teaching rules | 3.14 | 0.66 |
| Translate a school curriculum into a curriculum for teacher education | 3.07 | 0.62 |
| Lead | 3.07 | 0.73 |
| Use the English language | 3.07 | 0.82 |
| Organise and manage group work | 3.00 | 0.88 |
| Use assessment and evaluation, when required (judge) | 3.00 | 0.96 |
| Manage projects | 2.93 | 0.73 |

Average ratings of 23 attributes in the area of Curriculum and Instruction Development

| Attributes | N | Mean | SD |
|--|----------|-------------|-----------|
| The graduate should have the ability to: | | | |
| Use the Portuguese language | 14 | 3.86 | 0.36 |
| Make a situational analysis (understand the context of a curriculum or instruction) | 14 | 3.79 | 0.43 |
| Have an ethical professional approach | 14 | 3.79 | 0.58 |
| Use assessment and evaluation, when required (judge) | 13 | 3.77 | 0.44 |
| Take decisions | 13 | 3.69 | 0.48 |
| Use the English language | 14 | 3.64 | 0.50 |
| Know and use research methods | 14 | 3.64 | 0.50 |
| Lead | 14 | 3.64 | 0.74 |
| Promote the collaboration, partnership and good relations between the participants in a curriculum development project | 14 | 3.57 | 0.65 |
| Select and use a variety of techniques to define the sequence of content and methodology in curriculum or instruction | 14 | 3.57 | 0.65 |
| Analyse the characteristics of an emerging technology and its application in an instruction environment | 14 | 3.50 | 0.65 |
| Communicate | 14 | 3.50 | 0.76 |
| Resolve problems | 13 | 3.46 | 0.66 |
| Design methodological techniques | 14 | 3.43 | 0.51 |
| Interact with others | 14 | 3.43 | 0.51 |
| Select, modify and create a conceptual framework (model) appropriate for a certain project | 14 | 3.43 | 0.76 |
| Utilise basic techniques in ICT (e-mail discussion lists, virtual conferencing, etc.) | 14 | 3.21 | 0.80 |
| Master mathematics at an acceptable level | 14 | 3.14 | 0.66 |
| Make a cost-benefit analysis for certain options (how to modify, buy or develop materials) | 14 | 3.14 | 0.66 |
| Manage projects | 14 | 3.07 | 0.73 |
| Utilise ICT in professional tasks | 14 | 3.00 | 0.78 |
| Design web-based instruction | 14 | 2.57 | 0.76 |

APPENDIX 5

Distribution of generic competencies over the course of the common core

| | Communication | Information management | Leadership | Project management | Social interaction | Reflective competencies | Ethics | Design methodology | Multi-media and ICT | Research methodology & Statistics | TOTAL |
|--|---------------|------------------------|------------|---------------------|--------------------|-------------------------|-----------------------------|--------------------|---------------------|-----------------------------------|------------|
| Learning and Instruction | 6 | 5 | | | | 6 | | 5 | | | 22 |
| Sociological, etc. perspectives of education in Mozambique | 4 | 5 | | | 4 | 3 | | | | | 16 |
| Adult learning | 4 | | 5 | | 4 | 3 | | 3 | | | 19 |
| Curriculum theory and development | 6 | 5 | | | | 3 | | | 2 | 2 | 18 |
| Educational administration and management | 6 | 5 | 5 | | | 3 | | | | 3 | 22 |
| Multi-media and ICT | 4 | 5 | | | 2 | 3 | | 2 | | | 16 |
| Educational design | 5 | | | 5 | | 3 | | | | | 13 |
| Research methodology | 5 | 5 | | | | 3 | | | | | 13 |
| Statistics | | | | | | 3 | | | 2 | 5 | 10 |
| Total | 40 | 30 | 10 | 10 | 10 | 30 | 10 | 10 | 10 | 10 | 170 |
| Workshop | | | | Workshop 5 hours | | | Workshop 2 x 3, 1 x 4 | | Workshop 3 x 2 | | |

APPENDIX 6

Structure of the Post Graduate programmes

| | 9 Core Courses | Contact hours | 10 generic competencies | Contact hours | Auxiliary courses | Contact hours |
|--|---|---------------|-------------------------------------|--|--|---------------|
| CORE 30 weeks 600 contact hours | Learning and Instruction | 45 | Communication | 40 | English | 40 |
| | Sociological and anthropological aspects of education in Mozambique | 45 | Information management | 30 | Computer introduction | 10 |
| | Adult learning | 45 | Research methodology and statistics | 10 | | |
| | Curriculum theory and development | 45 | Project management | 10 | | |
| | Educational administration and management | 36 | Social interaction | 10 | | |
| | (Multi)media and ICT in education | 36 | Reflective competencies | 30 | | |
| | Design methodology | 36 | Ethics | 10 | | |
| | Research methodology | 36 | Design methodology | 10 | | |
| | Statistics (including basic Mathematics) | 56 | Multi-media, ICT | 10 | | |
| | | TOTAL | 380 | | 170 | |
| 3 Specialisations 200 contact hours 10 weeks | Mathematics & Science education | 200 | Adult Education | 200 | Curriculum and Instruction Development | 200 |
| <i>Another 200 contact hours for the specialisations in about 20 weeks</i> | | | | Research Design Project 1200 working hours, 30 weeks | | |

APPENDIX 7

A questionnaire on the competence-based curriculum development process

Dear Colleague,

After a year of designing, brainstorming, discussing, learning and developing we have come to an important stage on the way to the start of our (competence-based) curriculum in August of this year. Because it is extremely important to, once again, hear your voice and get to know your ideas, understandings and dispositions, I would like to ask you to complete the following questionnaire. The results of this questionnaire will not only be a valuable input to the staff that will assist us during this three weeks, but also signify a formative evaluation of our design and development process that we started a year ago. Although it would help if you could respond to the questions in English, you may prefer to write your answers in Portuguese, after which I will translate them.

Thank you for your assistance!

Wim

On competencies

1. What would be your definition or description of 'competency'.
Please use your own wording.
2. What would be your choice of the following possible characteristics of competencies?
Select all that apply.
 - a. *Competencies are personal attributes (mental or physical characteristics of a person)*
 - b. *Competencies are 'pieces of behaviour' : actions*
 - c. *Competencies are outcomes of behaviour*
3. What would be your description of 'generic competencies' and what of 'domain-specific competencies'?
 - a. *generic competencies:*
 - b. *domain-specific competencies:*

4. Do you think that it is possible to 'translate' the key occupational tasks of a profession into a set of domain-specific and generic competencies, related to that task? If no, could you explain your answer? If yes, could you give an example?
5. What would be your description of a competency standard?
6. Which of the following are for you important aspects of a competency standard?
Select all that apply.
 - a. *A statement of the (core) competency involved*
 - b. *Performance indicators (levels of performance)*
 - c. *Knowledge*
 - d. *Skills*
 - e. *Attitudes*
 - f. *The context of the performance*
 - g. *Other aspects (please add):*
7. Is there, in your opinion a difference between a competence standard and an educational (behavioural) objective? Please, explain your answer.
8. Do you think that the teaching (as specified in a number of contact hours and learning trajectories) of generic competencies should be continued during the specialisation phase? Please, explain your answer.

On the design and development process of the curriculum for the Faculty of Education

Please give your opinion on the following statements by putting a cross in the appropriate box.

| | Fully agree | Agree | Don't agree | Don't agree at all |
|---|-------------|-------|-------------|--------------------|
| 9. A lot of progress has been made in the design and development of the curriculum since February 2000. | | | | |
| 10. Up till now, I felt being left 'at the side line' during the design and development of the curriculum. | | | | |
| 11. There was a lot of pressure from outside to have a competence-based curriculum. | | | | |
| 12. So far, I participated sufficiently in the design and development process to get a feeling of 'ownership'. | | | | |
| 13. I don't see the use of elaborating professional profiles. | | | | |
| 14. I will be able to define performance levels for most competence standards. | | | | |
| 15. I will need assistance with the integration of generic competencies in the CORE course that I am responsible for. | | | | |
| 16. I know enough of the characteristics, model and structure of the curriculum in the Faculty of Education to start the development of my CORE course. | | | | |
| 17. A danger of competence-based education is that graduates have less domain-specific knowledge than with 'traditional' education. | | | | |
| 18. Competence-based education will lead to the education of graduates that are better prepared for their profession. | | | | |
| 19. Our students will first need to learn the basics of domain-specific knowledge and skills before they will be able to develop competencies. | | | | |
| 20. As far as I am thinking now, the main part of my CORE course will consist of lectures | | | | |
| 21. I intend to include in my CORE course 'learning tasks' such as projects, cases, etc. to encourage active learning by the students. | | | | |

Especially for the statements that you reacted to with 'Don't agree (at all)' an explanation would be of interest. So please be so kind and give an explanation in such cases (don't forget to mention the number of the statements).

Do you have any other remarks to make at the beginning of this working period?

Thank you very much for your cooperation and: Bom trabalho!

APPENDIX 8

Summary of course evaluations of six courses

| | L&I | AE | EMA | Stats | ICT | Design |
|--|-----|-----|-----|-------|-----|--------|
| <i>Number of respondents</i> | 22 | 18 | 12 | 29 | 28 | 14 |
| 1. What did you like most in this course? | | | | | | |
| Content | 22 | 11 | 11 | 26 | 21 | 4 |
| Competence development | 8 | | | 7 | 8 | |
| Teaching methods/organisation of the course | 13 | 13 | 12 | 10 | 17 | 14 |
| Behaviour and attitudes of staff | | | | 5 | 8 | 3 |
| Meeting foreign teaching staff | | 6 | | | | |
| Use of computer and software | | | | 16 | | |
| 2. What did you not like in this course? | | | | | | |
| Nothing | 10 | 7 | 8 | 7 | | 7 |
| Use of English | 6 | 1 | 1 | | | |
| Lack of books and other literature | 4 | | | | | |
| Lack of time/too much content | | 11 | 3 | 14 | 4 | 3 |
| Lack of equipment | | | | | 9 | |
| Aspects of methodology | | | | | 6 | |
| The assessment | | | 2 | 11 | | 2 |
| The diversity of the group | | | | 5 | | |
| Lack of commitment of colleagues in group work | | | | | | 2 |
| 3. Was the content relevant? If yes, why? | | | | | | |
| Increased my knowledge | 9 | 7 | 1 | 8 | | 4 |
| Important in my professional life | 7 | 2 | 3 | 14 | 9 | 3 |
| Increased my knowledge and thus my competencies | 3 | | 4 | | 14 | 6 |
| 4. I liked to attend the course | | | | | | |
| | 4.8 | 4.4 | 4.9 | 4.5 | 5.0 | 5.0 |
| 5. The course was easy | | | | | | |
| | 3.0 | 2.8 | 2.8 | 2.3 | 2.6 | 3.0 |
| 6. The tasks/exercices were easy | | | | | | |
| | 2.9 | 2.5 | 2.7 | 2.3 | 3.2 | 2.6 |
| 7. There were sufficient exercices | | | | | | |
| | 4.3 | 4.8 | 4.5 | 4.3 | 4.7 | 4.4 |

| | L&I | AE | EMA | Stats | ICT | Design |
|---|-----|-----|-----|-------|-----|--------|
| <i>Number of respondents</i> | 22 | 18 | 12 | 29 | 28 | 14 |
| 8. Was what you learned according to your expectations? If yes, why? | | | | | | |
| It improved my professional practice | 6 | 6 | | 5 | | 6 |
| I learned a lot (of new things) | 4 | 5 | | 6 | 10 | |
| I could apply what I learned in my professional life | 5 | | 5 | | 12 | 4 |
| It is important for educationalists | | | 3 | 2 | | |
| Less positive | 2 | 3 | 1 | 6 | 2 | 2 |
| Assessment of performance of the teachings staff (on a four-point scale) | 3.4 | 3.7 | 3.7 | 3.4 | 3.8 | 3.6 |
| Additional points mentioned | | | | | | |
| More materials in portuguese | 4 | | 1 | | | |
| Thanks to lecturer(s) | 2 | | 1 | | 3 | |
| Logistics should improve | 7 | | | | 4 | |
| Assessment too overloaded | | | | 3 | | |
| Course too difficult for non-mathematicians | | | | 3 | | |
| There was no feedback on the peer-assessment exercise | | | | | | 4 |
| This course has a considerable overlap with the course "Learning & Instruction" | | | | | | 1 |

Explanation of the table

- The acronyms of the courses, as column headers are meaning:
 - L& I: Learning and Instruction;
 - AE Adult Education;
 - EMA Education Management and Administration;
 - Stats: Statistics;
 - ICT Information and Communication Technology.
- The numbers in italic font indicate the number of times a statement was made in a particular category. Because students could make more than one statement as answer on a question, the total number of statements per questions may exceed the number of respondents.
- In case of questions 4 to 7, students had to indicate their choice on a five-point Likert-scale, 1 meaning 'totally disagree' and 5 'totally agree'.
- In case of the assessment of the performance of the teaching staff, a four point Likert-scale was used, with 4 as the most positive rating of the performance.

APPENDIX 9

Entry questionnaire for students in the post-graduate programmes in the Faculty of Education

Introduction

You have already been informed about the curriculum in the Faculty of Education that is based on the development of domain-specific and generic competencies. One important aspect of generic competencies is the capability to assess your own competencies and to reflect on the development of desired competencies during your study. In order to give you some 'base-line' against which you can measure your progress the following instrument has been developed. The results of this questionnaire not only serve your personal development but provide as well valuable data for the evaluation of the effectiveness of the post-graduate programmes.

The use of the questionnaire and the reporting will be anonymous. However, in order to be able to measure progress you are asked to mention your name on the questionnaire. You will receive two copies to complete. One you make keep for yourself and the other will be collected and used for the evaluation of the programme.

A separate instrument will be used for your competencies in ICT.

The questionnaire

1. What is your name?
2. In which programme are you enrolled?

| | |
|--|--|
| Adult Education | |
| Curriculum and Instruction Development | |
| Science and Mathematics Education | |

3. Indicate how competent you feel in the following aspects of your performance as an educational professional

| | Not very competent | A little bit competent | Somewhat competent | Very competent |
|-------------------------------|--------------------|------------------------|--------------------|----------------|
| Communication | | | | |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| Information management | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| Leadership | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| Project management | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | | | | |
| 18 | | | | |
| 19 | | | | |

| | Not very competent | A little bit competent | Somewhat competent | Very competent |
|-----------------------------|---|------------------------|--------------------|----------------|
| Social interaction | | | | |
| 20 | Identify and describe own interaction behaviours utilised in a group that has to solve a problem | | | |
| 21 | Teamwork: having good working relations with others, knowing and carrying out one's responsibilities within a group and encouraging the others to do so as well | | | |
| 22 | Assertiveness: know what one wants and negotiate for it without being aggressive, manipulative or passive. | | | |
| 23 | Negotiation: reach agreement on a matter, which is satisfactory to all parties. | | | |
| 24 | Empathising: become attuned to the way another person is feeling and to convey that understanding to the person in a non-judgemental way. | | | |
| 25 | Networking: Make effective contact with relevant people in order to share information, resources and experiences | | | |
| Self-regulation | | | | |
| 26 | Assess the quality of your own performance with reference to specified standards and/or criteria and learn from that experience | | | |
| 27 | Identify and describe aspects of your own performance, attitudes and behaviour that should change to enhance future outcomes | | | |
| 28 | Make appropriate use of time in managing and achieving tasks | | | |
| 29 | Learn both independently and co-operatively | | | |
| 30 | Take account of the varying contexts in which tasks have to be realised and apply the necessary competencies in new contexts (transfer) | | | |
| Design methodology | | | | |
| 31 | Recognise critical incidents/problematic situations in the professional practice as problems that can be solved using a 'design' approach | | | |
| 32 | Design & develop 'doable' solutions, applying methodological approaches | | | |
| Research methodology | | | | |
| 33 | <i>Analyse the structure and organisation of objects, processes, phenomena, etc., based on observations</i> | | | |
| 34 | <i>Articulate own problem solving process, making explicit the steps taken to approach the problem</i> | | | |
| 35 | <i>Examine, select, use, and evaluate the appropriate approach for a research problem</i> | | | |
| 36 | Use current knowledge, theories and resources to create new ideas and ways of doing things | | | |

| | Not very competent | A little bit competent | Somewhat competent | Very competent |
|-------------------------|---|------------------------|--------------------|----------------|
| Statistics | | | | |
| 37 | Apply basic mathematical concepts such as: ratios, proportions and percentages; graphic representations | | | |
| 38 | Apply in a creative and independent way the statistical methods of major interest for the education research (mostly descriptive statistics and inferential statistics/hypothesis testing) utilising various techniques of collecting and treating numeric data | | | |
| 39 | Gather and summarise numeric data in a way that quickly turns them comprehensible | | | |
| 40 | Draw logical conclusions starting from numeric data | | | |
| English language | | | | |
| 41 | Understand written English | | | |
| 42 | Understand spoken English | | | |
| 43 | Speak English in a conversation with colleagues | | | |
| 44 | Present a paper in English at a conference | | | |
| 45 | Write English in professional activities | | | |

4. What other competencies, apart from competencies in ICT, would you like to develop during your work in the two-year post-graduate programme in this Faculty?

Thank you for completing this questionnaire!