SUPPORTING PARA-TEACHERS IN AN INDIAN NGO

The plan-enact-reflect cycle

Harini Raval

SUPPORTING PARA-EDUCATORS IN AN INDIAN NGO: THE PLAN-ENACT-REFLECT CYCLE

Harini Raval

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The research reported in this thesis was funded by the Netherlands organization for international cooperation in higher education (Nuffic).

Raval, H. U.
Supporting para-educators in an Indian NGO: the plan-enact-reflect cycle

Thesis University of Twente, Enschede.
ISBN 978-90-365-3104-7
DOI 10.3990/1.9789036531047

Cover: Pieter Frank de Jong
Layout: Sandra Schele
Press: Ipskamp Drukkers B.V. - Enschede

SUPPORTING PARA-EDUCATORS IN AN INDIAN NGO:

THE PLAN-ENACT-REFLECT CYCLE

DISSERTATION

to obtain
the degree of doctor at the University of Twente,
on the authority of the rector magnificus,
prof. dr. H. Brinksma,
on account of the decision of the graduation committee
to be publicly defended
on 10th of December 2010 at 16.45

by

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This dissertation has been approved by the promoter and assistant promoter.

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ACKNOWLEDGEMENTS

Along the course of writing this dissertation, I have often asked myself, "Who are the people I would like to think of when I write my acknowledgements?" And always, many names and faces came to my mind. With each name, I thought of the many times and ways in which every person has filled my life. I always felt moved. I still do. With every such reflection, the sense that I am rich, fortunate and blessed deepened. I am humbled to know that I have so much be grateful about.

Dear teachers and members of the CLC Project, and each of you at Maitri Gujarat. I took my first steps into the world of designing professional development while working with you. I have learnt much with you, from you. As you put your trust in me so unconditionally, you taught me to feel that trust towards you. Even when I sat there with you in the face of a problem, scratching my head, staring into space, with a look that said to you – I have no clue about how to solve this; you did not allow me to feel that my worth in your lives was diminished. Thank you for helping me understand that in order to do meaningful work and find meaningful relationships at work, I need not be an expert. All I need is to be myself, with affection for you, a genuine concern for the problem at hand and a willingness to learn what I don't know. I hope that our relationship will blossom in the years to come.

Dear Jules, you may blame this way of thinking on my Indian-ness, but I have always felt that to comment on your role might somehow diminish the place you have held in this study and in my journey, although for a short time. But I do want to say that, for me, your presence in itself has been 'guidance'. I will always cherish how in conversations and otherwise, you have let me access your wisdom and support without ever appearing to need to assert it. I always found questions from you meaningful, not just because they provided critical perspective, but also because you posed them with an unconditional regard that was nourishing. I will remain in gratitude, always!

Dear Susan, I have said this to you before. If I ever were to take up a Ph.D. again, it would only be if you agree to guide it. You have been extra SPECIAL and will always remain so. You gave this work many absolutely brilliant ideas. But more importantly, you gave it your affection and understanding. Although this study took place with people and in a place not very well known to you, you always understood all the small and big aspects, sometimes with little or no explanation, whether you were near or away!! It is extraordinary to work alongside someone who connects with her work the way you do. I was fortunate to experience the extraordinary. And beyond all this, you made place for me in your home and life so effortlessly. You were mentor, friend and family and filled my stay here with unmatched delight, compassion and affection. I extend my gratefulness to Kevin as well. Thank you, and I hope this is to stay!

NUFFIC, without whose support this may not have come about, I am deeply thankful.

Dear Sandra, you helped this book come together. But you did much more! Only an international member of the department will be able to explain how lost one could feel without you. I often joke, in a heartfelt way that if there is one place in this building where one will find all the answers one needs, it is that (your) room. Thank you for being there in such a willing way!

Dear colleagues, C&O is a special place, friendly and welcoming. Each of you helps make it so. I loved and learnt from my stay here. Am truly thankful to all of you!

Dear Pieter, many thanks for giving this book a face, that so attractively expresses the story inside. I deeply appreciate that you offered to participate in making the book.

My dearest parents, Pradip uncle, Chittaranjanji and my dear brother, you all form that part of my life for which there is a silent prayer of gratitude running inside me each moment, unceasingly. That you are there, at whatever distance, gives me a sense that all is well with my world. What would I do without you!

Dear Reena and Deepak, both during tough and easy times, I could always hear your voices somewhere out there cheering for me. Now it is my turn to cheer for both of you, and here I am, all ready for it. (FYI : size does not matter and small is beautiful)

Dear Gargi, congratulations to you too at this completion! This study has as much of you in it as me. I immensely value that you were by my side in this journey. We have many more to take on together! I can't wait!

My dear lovely friends! Each of you, in the Netherlands, and in India, please know that I am thinking of each of you as I write this. Those in the Netherlands, I want you to know that when I leave, it will feel like I am leaving home. Thank you for making this place home for me. I look forward to receiving you all back in India sooner or later.

Dear Skyler, Logan, Noa, Mitchel and Tamar, every now and then, when we met, you made my worries melt and brought a smile to my heart. Much love to each of you!

Dear Aditya, you always wished that this be done well. They say, when one wishes keenly, things happen. Thank you for wishing with all your heart.

CHAPTER 1
Introduction: Understanding the role of educational NGOs in India

Non-government organizations (NGOs) in India and elsewhere regularly employ untrained para-educators for grassroots teaching activities. Para-educators are well-reputed for their commitment and ability to function effectively even in severely constrained environments. However, because they lack of formal training in teaching, NGOs must ensure that professional development is provided to these teachers. Few empirical studies have been conducted on feasible and effective ways to support the professional development of para-educators. This chapter describes the context and rationale of the design-based research presented in this book, which was established to explore feasible and effective ways to support the professional learning of para-educators within an Indian educational NGO. It presents a brief portrayal of the educational NGOs, the current status of education in India. This is followed by a description of Maitri and the NGO in which the study is located. After describing how the design and implementation of support for para-educators was guided by a design-based research approach, the chapter concludes with a preview of the rest of the book.

1.1 BACKGROUND

1.1.1 NGOs and educational development

Universal Primary Education is the second of eight Millennium Development Goals which originate from the United Nations Millennium Declaration. These goals represent an international commitment towards improving quality of human development indicators through a time bound and targeted manner. India, like many other developing countries has also incorporated these goals into its national development agenda. As governmental actions in India affirm

the commitment towards changing the situation of education, the effort is being bolstered by the collaboration of several educational NGOs. A recent United Nations task force report on Education and Gender Equality[1] elaborately describes the numerous and versatile modes through which NGOs across different countries contribute to education and nation building efforts.

Historically, the role of civil society and NGOs in social construction efforts, including education, has been uncontested and meritorious. However, over time there has been a radical shift in educational NGO roles and identities as well as the nature of the work they conduct. This shift has primarily been navigated by the change in the international discourse and understanding of 'development' (cf. (Ebrahim, 2001). Charitable educational service delivery projects by NGOs for marginalized communities, though previously applauded for their welfare orientation, are now considered out-dated. Instead, development is now characterized in terms of empowerment, sustainability, participation, and systemic reform. Educational NGOs that participate in educational service delivery and embrace this new vision are increasingly seen in new and often complex roles. In their new role, they design innovative locally relevant curricula and teacher education methods, provide replicable models to strengthen mainstream education, and participate in advocacy and policy reform (Archer, 1994; Blum, 2009; Rose, 2009).

1.1.2 Para-educators as grassroots agents

Para-educators usually comprise a major part of the workforce within educational NGOs, and are often classroom teachers at the grassroots level. Para-educators, usually women, are recruited from the same community, in which they work, and they usually do so for a small honorarium (cf. Banerjee, 2007). Para-educators usually have a bachelor's degree or less and no professional pre-service teacher education. The employing NGO usually provides limited in-house training to para-educators. The underlying philosophy behind the appointment of para-educators in various countries has been that a local person is particularly able to establish rapport with the local community and with the children (Desai, 2003; Pandey, 2006). This quality is very important in working with deprived communities where alienation from

[1] (http://www.unmillenniumproject.org/reports/tf_education.htm)

and lack of motivation for education is rampant. Not only are such para-educators employed by NGOs for the implementation of their own educational activities in communities, but their appointment has also been formally recognized within government run schools of India, as an economical solution to teacher shortage (cf. Kingdon, 2007).

Whether in NGOs or in mainstream schools, the role of para-educators has received mixed responses. On one hand, the benefits they bring have been acknowledged in studies internationally. According to the report of the International Commission on Education for the Twenty First Century, the presence of para-educators has proven to be very successful in various countries like Guinea and Zimbabwe (Pandey, 2006). Similarly, in their study, Monzo and Reuda (2001) concluded that para-educators were able to establish meaningful relationships with the Latino students because of their exclusive familiarity with the culture and language of the students. Indian studies show that such para-educators greatly affected student enrolment and retention because of their motivation to make a difference in the lives of the students (Jagannathan, 2000). Abbate-Vaughn (2008) conducted a study in a neighborhood school populated by large numbers of low income new immigrants in a metropolitan area, and concluded that in urban areas where teacher shortages were due to poor retention and undesirable work conditions, para-educators are one of the most reliable and consistent presences.

However, the employment of para-educators comes with its own difficulties and is also viewed with some skepticism. One reason is that, unlike regular teachers, para-educators are un(der)-qualified and are not strong in subject matter knowledge (Jagannathan, 2000). Some understandingly opine that, while they have basic education qualifications, para-educators are still ill-prepared to handle teaching because of the lack of professional pre-service teacher education (Govinda & Josephine, 2004). Studies have found that classroom transactions of these teachers who often do not have a formal orientation to teaching methods, have been dull, textbook-based, and lacking in understanding of content and pedagogy (Pandey, 2006). A study with Latino para-educators also concluded that while the socio-cultural support that the teachers provided to students was valuable, it was provided without the goal of effecting instruction or student learning, partly because of their lack of knowledge regarding instructional practices (Reuda, Monzo, & Higareda, 2004).

Concerned with the low capacities of para-educators, Indian educational NGOs have been advised to pay focused attention to the professional development of their teaching staff (cf. Jagannathan, 2000).

1.1.3 The need for capacity building

Growth and sustenance of work which focuses on aspects like educational innovation or advocacy is infinitely dependent on the credibility of the NGOs. Among other factors, an NGO's credibility is a function of how effective it is in achieving desired outcomes, and being able to regularly and reliably measure and provide evidence for their work. Effectiveness and accountability are thus becoming essential for NGOs to thrive, in order to maintain credibility as resource agencies to the government; and also due to increasing pressure from donors. Achieving this is possible, if NGO staffs are well-trained. While it is becoming increasingly common for NGOs to recruit professionally trained people from diverse disciplines in managerial or leadership positions (Ebrahim, 2001), these staff are usually placed in middle-management, and not field-work positions. Thus, the challenge to upgrade the teaching capacities of the para-educators remains a daunting problem. This challenge is further complicated due to two main reasons. First, in settings where traditional learning approaches (for teacher and student learning) are more common, very few examples of best practices are available to illustrate how to develop a rigorous and effective staff development program for para-educators. Second, professional development as an object of scientific study is essentially a phenomenon of the developed world. There is a dearth of research-based literature available to inform the development of tailor-made interventions that can enhance professional learning of para-educators in the developing countries. To achieve greater institutional capacity through effective professional development studies have recommended that NGOs must make use of research and documentation, especially action research as an inherent component of ongoing activities (Archer, 1994); Jagannathan, 2000).

The study discussed in this book was conducted in an Indian NGO. Against the backdrop of the increasing need to upgrade the teaching capacities of para-educators, this study was established to address to the current limited understanding about how to support para-educators' professional development. The next section provides some contextual information about

Indian education and the particular NGO in which this study was undertaken, before describing what the research approach.

1.2 CONTEXT

1.2.1 Primary education in India

India, a southern-Asian country, with a population of 1.5 billion comprises approximately 20 percent of the world population. A multi-lingual country, it consists of 325 local languages, with dialects that often change every 10 kilometers.

Figure 1.1 Gujarat in India

India attained independence from colonial British rule in 1947. The first post-independence census of India presented a bleak scenario fraught with large scale illiteracy and inadequate access to any educational facilities. Since independence, free provision of education to all children between 6 to 14 years has been a constitutional duty of the government which it has fulfilled with mixed success. Over the years, the main focus in strengthening public school education has been providing the basic infrastructure and resources across the

vast country and through better access and improving school enrolment. Big leaps have been made in these two areas. For instance, the number of primary schools has increased from 223,267 in the 1950s to 1,042,251 in 2004-05 (Government of India, 2007). Government schools comprise approximately 90 percent of the total number of primary schools. More than three million teachers serve in public schools, although a teacher shortage still persists. Government figures (Government of India, 2007) indicate that enrollment in the basic primary stage (ages 6 to 10 years) has increased from 19.2 million in 1950-51 to 130.8 million in 2004-05, and for children between 11 to 14 years it has increased from 3.1 million in 1950-51 to 51.2 million in 2004-05. In 2007, about 93.4 percent of all elementary school aged children were enrolled in school (Kingdon, 2007). However, key challenges now exist in terms of achieving good standards of learning and retaining children in school, which is still a point of weakness. For instance, quoting a nationwide independent survey on learning quality, Kingdon reports that about 40 percent of children drop out by Grade 5 (10-11 years) and 60 percent by Grade 8 (12-13 years). Moreover, only 58 percent of children going to Grade 5 can read texts at the level of Grade 2 (6-7 years) and only 42 percent can do division (usually taught in Grade 3).

Gujarat, a western state in India (figure 1.1) where this study was situated, has a population of over 50 million, spread across more than 18,000 villages and 240 cities and towns. More than 80 percent of children between the ages of 6 to 14 are enrolled in government schools. Only 36 percent of the school going children (Grades 1-8) can read a simple text from Grade 2 and about 22 percent could perform division sums (ASER, 2009). As far as the teaching-learning processes are concerned, public school education in India is still characterized predominantly by rote-based teaching aimed at acquisition of pre-defined information rather than knowledge construction.

The government's response to the challenges described above of a lack of basic literacy, numeracy and updated teaching pedagogies, has been to allocate greater investment through a recently-billed fundamental right to free and compulsory education program. A flagship initiative called Sarva Shiksha Abhiyan (SSA, Campaign for Universal Education) has been launched, to provide useful and relevant elementary education for all children in the 6 to 14 age group by 2010. Additionally, a National Curriculum Framework has been established to recommend guidelines for moving towards a system-wide

learner-centered approach. In implementing these goals, India faces the challenges of large-scale education reform that has to simultaneously address system-wide administrative and organizational changes from centralization to decentralization, in curricular content, and in teaching practices. Innovation, as well as efficient and effective standards of schooling practice in a system that is highly centralized and ranks as the second largest education system in the world, is a steep climb. In this context, Jagannathan (2000) in her study of six leading Indian NGOs shows the potential benefits of a government-NGO alliance to achieve universal primary education. She emphasizes several areas in which collaboration can be particularly fruitful, spanning innovation in teaching and learning for students, designing teacher development, and working with school administration and management, as well as with communities.

1.2.2 Maitri-an educational NGO in India

This study was undertaken in Maitri, India's largest educational NGO. This NGO's commitment to "every child in school and learning well" has a presence in over 21 states of India. It reaches out to about 300,000 children from disadvantaged backgrounds annually, through a task force of about 10,000 para-educators. The range of strategies that are employed by Maitri include service delivery projects that have become Maitri's natural laboratories for refining its learning methods (for basic reading and basic math) to massive advocacy campaigns through large scale citizen participation and dialogue with state and national governments. While a comprehensive overview of all Mairti strategies would extend beyond the scope of this discussion, it is important to note that all Maitri programs are large-scale and low-cost, and designed to supplement rather than supplant the existing government educational investment.

Urban Community Learning Centers

The specific Maitri program within which this study was situated is called the Urban Community Learning Center Project. In this project, Urban Learning Centers (ULCs) are established to implement focused interventions for providing out-of-school remedial educational support to children. The Maitri team directly plans, conducts and monitors the programs. The ULCs are established within residential communities, usually slums (figure 1.2). The centers usually run in one or two rooms, rented within the community, generally in community-member homes. Para-educators who teach in these

centers are women who live nearby, usually educated up to grade XII or sometimes up to a bachelor level, interested in teaching, and generally have no prior teaching experience. They are trained in instructional strategies at Maitri through a one-time workshop. Children, who come to these centers are between the ages of 3 to 14 years old, and may or may not be going to (pre-) school. The centers provide support in pre-school learning, literacy, and basic math through learner-centered teaching strategies that include use of innovative materials, group work, activities, and puzzles.

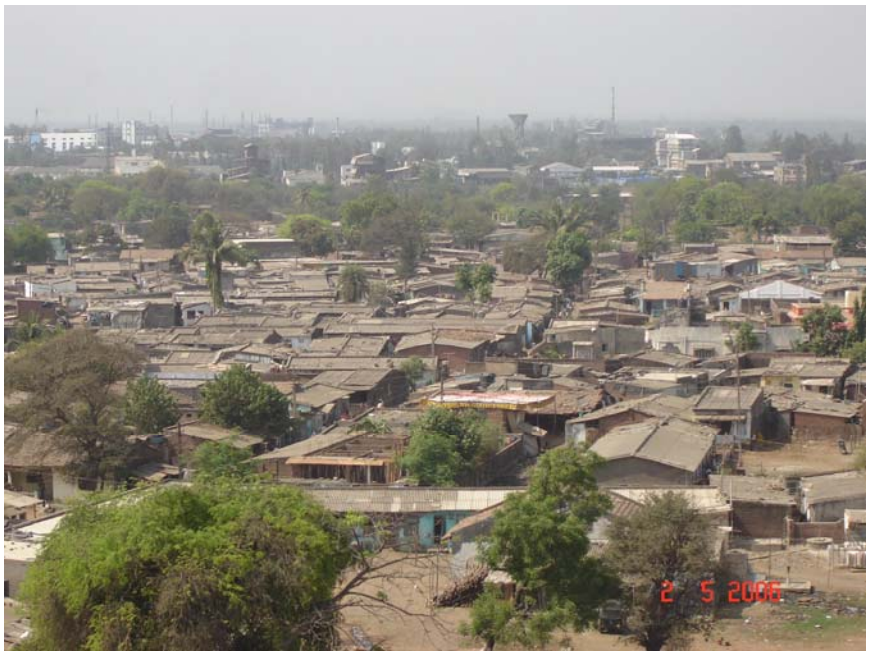

Figure 1.2 A typical slum

The organizational reports (at the time of this study) have shown that the reading and attainment levels of children improved through these activities. However, the extent to which these activities are learner-centered is constrained by the under-resourced environment and the low preparation of the teachers. Maitri's centers pride themselves on offering large-scale, low-cost, accelerated, and child-centered (compared to the rote-based methods in government schools) ways for teaching literacy and basic math which are often replicated in government schools.

ULCs in Gujarat offering remedial support

The study presented in this book took place within Maitri's ULCs located in the city of Ahmedabad, in Gujarat state, where 30 to 40 centers have been established to cater to approximately 2000 students. For eight years, these

centers have mainly operated as remedial education providers for public school children who attend school but lag severely behind in their grade-specific attainment of reading and basic math. The centers are evenly distributed over three clusters, each run by a senior educator called the cluster-head. All the three cluster-heads report to a Project Leader who coordinates the ULC activities. Another management member is her Project Assistant (see figure 1.3 for a picture of a ULC class).

Figure 1.3 Outside a ULC class

Until 2005, no fees were charged for ULC services. In 2005, with the objective of supporting these clusters towards becoming self-sustaining ULCs, four transitions were simultaneously introduced:

- Each cluster was legally registered as an individual NGO, thus each cluster-head became an NGO head and the para-educators in the centers, members of the respective NGOs.
- Parents were required to pay monthly fees of 50 Indian Rupees (about $1.00 US) per child to ensure financial sustainability, accountability and community ownership of the centers. (NB. The per-household monthly income in these communities averages about 4000 Indian Rupees, approximately $80.00 US).

- The instructional scope of the ULC activities was extended beyond teaching reading and basic math, to address additional subjects including Gujarati (first language), English, Math, Science, History, Geography, and Civics, up to age 14.
- Adoption of learner-centered material was mandated for teaching advanced subject matter. A central curriculum design team created materials for all centers.

Para-educators were now responsible for ensuring revenues for their centers through individual home visits to collect fees, teaching new subject matter for children up to age 14, and adopting learner-centered strategies in their instruction. Amidst these complex organizational and functional changes, a severe lack of teaching capacity on the ground and organizational capacity to support the process was experienced. The importance of investing in the professional capacities of the para-educators so that the centers could deliver durable and strong impact thus emerged.

While considering approaches towards this, Maitri's own lack of experience in staff development for advanced curriculum and instructional tasks acted as a major constraint in being able to support teaching practices and pedagogical change. The knowledge and skills required to implement these processes was also not readily available outside. In addition, and as mentioned previously, neither practical nor scientific literature could be found to offer relevant insights or guidance. Under such constraints of resources, partnerships and networks with other agencies were viewed as one way to gradually build the internal capacities of the Maitri staff and thereby the interventions on the ground. One such partnership was that with the Department of Curriculum Design and Educational Innovation in the Faculty of Behavioral Sciences at the University of Twente in the Netherlands. This partnership began through a two-year tailor-made training program designed to support mid-level management, and eventually led to the conceptualization of this doctoral study. The next section describes the approach used to conduct the research.

1.3 RESEARCH APPROACH

The main aim of this study was to explore how to support Maitri's para-educators in adopting a learner-centered approach in their remedial teaching practices. Based on this aim, the central question for the study was determined as following,

'What kind of professional support can help para-educators adopt and develop teaching strategies with a learner-centered orientation?' This question was pursued through a design-based research approach, involving iterative cycles of design, implementation, evaluation and refinement of a professional development program for para-educators. The iterations were informed by both literature and empirical findings.

1.3.1 About design-based research

Design-based research has been defined as, "*a series of approaches intent on producing new theories, artifacts, and practices that account for and potentially impact teaching and learning in naturalistic settings.*" (Barab & Squire, 2004). This approach pursues simultaneous goals of developing effective learning environments and using such environments as natural laboratories to study teaching and learning (Sandoval & Bell, 2004). Edelson (2002) provides a lucid description of how these two goals are held together in the design research endeavor.

> **"***Design researchers begin with a set of hypotheses and principles that they use to guide a design process. Importantly, these hypotheses and principles are not detailed enough to determine every design decision. In addition, these guiding principles are not followed slavishly if accumulated evidence, specific circumstances or informed intuition lead the designers to believe that they do not apply. In this way the design researcher proceeds through iterative cycles of design and implementation, using each implementation as an opportunity to collect data to inform subsequent design. Through parallel and retrospective processes of reflection upon the design and its outcomes, the design researchers elaborate upon the initial hypotheses and principles, refining, adding and discarding - gradually knitting together a coherent theory that reflects their understanding of the design experience.*" (p. 106)

Through such a process, as described in the above excerpt, research activities guided the evolution of a professional development program for para-educators in Maitri. Early in the study, preliminary considerations for how to implement feasible and effective professional development were formed. These guiding principles were based on critical attributes of professional development as gleaned from international (though predominantly Western) literature. Informed by a needs and context analysis, which provided empirically-based understanding about the local context, the guiding principles were synthesized into a conceptual model that embodied hypotheses for what the professional

development should entail. Based on the contextual insights and the conceptual model, a professional development program was implemented in three iterations. Data collection alongside each iteration yielded information on how to refine the program and whether the professional development program yielded desired impact. As a result of these reflections, guidelines about effective professional development were refined during the course of the iterations. After acquiring sufficient empirical evidence that the professional development program was effective in improving para-educator capacities, additional guidelines and a revised model, based on the entire experience, were finalized.

Through its design focus and the assessment of critical design elements (Collins, Joseph, & Bielaczyc, 2004), design-based research yields outputs with a practical as well as scientific relevance. Its practical relevance is in its potential to improve educational practice. Its scientific yield is in the form of design guidelines that provide substantive and procedural knowledge for specific design and development tasks in different settings. (Mckenney, Nieveen, & Van den Akker, 2006). The practical benefits of the design-based approach in Maitri were seen in terms of lasting improvements in the capacities of the Maitri staff and in student learning. The present study makes valuable scientific contributions to the field of para-educator professional development. It recommends insights about a) desirable and feasible characteristics and components of professional development, and b) desirable strategies to support the implementation of para-educator professional development.

1.3.2 Phases in the study

Such an approach that afforded both the opportunity to improve practice (in this situation, the professional development of para-educators) and generate new theoretical knowledge through rigorous examination of the designs and its outcomes, was considered ideal for the situation in which Maitri found itself. Based on the recommendations offered by McKenney, Nieveen and van den Akker, (2006) the study took place through iterative phases of analysis, design and evaluation. In total, six sub-studies were conducted, two in each of the three phases; they are briefly described below.

Analysis

According to van den Akker, McKenney and Nieveen (2006), analysis is aimed at understanding how to target a design. The two main activities in the analysis phase in this study were, a needs and context analysis and a literature review. The needs and context analysis provided information about the learning requirements of the para-educators and the contextual factors (for example, organizational practices and policies) that were likely to influence the professional development process. The needs analysis sub-study led to the formulation of more specifically targeted objectives for the professional development activities. Steered, in part by the findings from the needs and context analysis, the literature study helped gain an understanding of the state-of–the-art knowledge about characteristics and strategies to achieve effective professional development. The data from the needs and context analysis together with the literature review led to the development of a conceptual model to shape the professional development program at the heart of this study, based on theory and adjusted to the characteristics of the context in which the para-educators operated.

Design

Design involves constructing and implementing educational solutions. It also involves prototyping of the design product (or process) through formative evaluation and systematic revision of the design. This study involved multiple (re)design cycles, in which professional development activities were designed or modified, and implemented. Formative evaluation was undertaken with the first and second prototypes. The first design and formative evaluation pertained to the initial pilot of Maitri's para-educator professional development program. Based on insights from this first iteration, the second cycle entailed modifying and implementing the professional development program; this was followed by a second formative evaluation. The third cycle comprised another round of revision and implementations. This third and final design underwent summative evaluation, described in the next section.

Evaluation

The third and final design was evaluated through two studies. First, a summative study was conducted to assess the immediate impact of the professional development program. Second, two years after all external support

for the professional development program had been withdrawn, another investigation was undertaken to test the long term impact on para-educator professional development in Maitri.

1.4 THE FOLLOWING CHAPTERS

The analysis, design, and evaluation activities described above are presented in the next chapters, with two sub-studies belonging to each main phase. Chapter 2 describes the needs and context analysis sub-study, which explored the learning requirements of Maitri's para-educators, as well as influential aspects of their context. Chapter 3 describes the literature review sub-study, conducted in the analysis phase. It shares key insights from state-of–the-art literature about professional development of teachers. The chapter describes salient features of professional development borrowed from literature and used to guide the conceptual model for interventions in this study. It then reviews some well-known teacher professional development models intended for professionally educated teachers in the developed context vis-à-vis contextual constraints relevant to this study. Based on these models, and the salient features from theory, the chapter finally presents a tailor-made conceptual model for professional development of para-educators operating in disadvantaged contexts. This model guides the design and implementation of the professional development program featured in the subsequent studies. Chapter 4 deals with the first pilot sub-study in the design phase. It describes the first prototype and formative evaluation of the professional development program aimed at gaining a preliminary insight into how the program was perceived and whether it yielded any early gains. Chapter 5 presents the second sub-study of the design phase in which a modified professional development program was implemented to adapt to different contextual conditions. It includes the second formative evaluation, aimed at assessing the extent to which the revised professional development activities lent themselves to being institutionalized in the new setting. Chapter 6 and Chapter 7, which deal with the evaluation phase, describe in detail the summative and the impact sub-studies respectively. Finally, critical findings and points for discussion, as well as reflections on the research approachand recommendations, are provided in Chapter 8. Tools from the various sub-studies are included in the appendices.

CHAPTER 2
Analysis: Understanding the needs and context [2]

The sub-study presented in this chapter assessed the context of the para-educators' work, their professional learning requirements, and contextual and organizational influences on developing learner-centered interventions. The introduction (2.1) sets the tone for presenting a needs and context analysis study, rapidly recapitulates the situation of the Urban Learning Centers prevalent at the time of the study and presents the research questions of this sub-study. In section 2.2, crucial factors determining the context of para-educator learning, identified on the basis of theory, are described. These factors lead toward the theoretical framework guiding this study and presented in section 2.3. Section 2.4 presents the research design, introducing the two phases in which the study was conducted: a) a field portrait; and b) a member-check approach. In section 2.5 the findings are presented, according to the two phases of data collection. The conclusions and the formulation of the objective of professional development on the basis of the findings constitute section 2.6. Section 2.7 presents a discussion of findings, recommendations for professional support, and describes how those recommendations played out in the Maitri setting.

2.1 INTRODUCTION

The importance of paying attention to teachers' context and needs, while designing professional development cannot be overstated. Rogan and Grayson (2003) warn that one of the reasons for failure of implementation of educational innovations seems to be lack of clearly thought out implementation strategies that take into account the local context. Professional developers often have genuine, well-meaning and innovative ideas about what teachers need to do, and can often be rather attached to these ideas. Fullan (1991) helps moderate

[2] Manuscript Submitted.

these attachments by explaining that the primary purpose of implementation (of an educational innovation) is to refine the vision of what should be through interaction with implementers and others concerned. A needs and context analysis is an effective way to achieve this and has been recommended as a necessary stage in the planning of professional development efforts (cf. Loucks-Horsley, Hewson, Love, & Stiles, 1998)

This chapter describes the first sub-study, undertaken to ascertain specific learning requirements of the para-educators and the contextual factors that could potentially foster or inhibit their learning. It led to the formation of a concrete objective of the professional development activities that had to do with para-educators' actual learning requirements. It also provided grounding information in terms of various contextual factors in which the para-educators worked, so that the professional development activities could be designed accordingly.

As described in the previous chapter, the urban learning centers in which para-educators provided remedial educational support to children were undergoing complex functional and organizational changes. With the introduction of these changes, they had a greater number of new responsibilities as well as more advanced teaching duties. Mainly, para-educators were now responsible for ensuring revenue for their centers through individual home visits for collecting fees, teaching new subject matter for children up to age 14 and adopting learner-centered strategies in their instruction. The need for professional development was felt by the management amidst these challenges; priorities for which were set by the sub-study described here. It was carried out in two phases, shaped by the following research questions, respectively:

Phase 1: What professional learning requirements and contextual and organizational factors must be considered while designing learning support for these para-educators?
Phase 2: How might contextual factors enhance or inhibit the development of learning interventions for the para-educators?

The first phase aimed to identify professional learning requirements of para-educators and describe contextual factors influential in shaping learning support. The learning requirements were defined in terms of learning needs expressed by the para-educators as well as through gaps evidenced in their enactment

practices. The second phase was undertaken to understand how contextual and organizational factors may enhance or inhibit teacher learning. Guided by literature on teacher professional development and workplace learning, these two phases resulted in professional learning objectives and recommendations for how to shape learning interventions within this context. The following section elaborates upon the theoretical background of the sub-study.

2.2 RATIONALE: TEACHER LEARNING IN CONTEXT

Para-educators do not undergo regular teacher training nor are they experts in a subject matter domain. Unfortunately, professional development of para-educators working in underserviced communities and NGO environments is under-researched. However, recent insights from teacher learning and adult learning literature can be valuable for defining learning by para-educators, since the heart of both the teachers' as well as the para-educators' roles, is the task of teaching children. This section begins by documenting salient features that characterize teacher learning and which can be relevant towards shaping learning for para-educators in this NGO. The view of teacher learning taken here supposes that contextual factors, among others, influence what and how teachers (para-educators) learn. Therefore, this paper identifies contextual factors that are likely to support or constrain the way para-educators learn. Finally, within the rationale that teacher learning is situated in and influenced by these contextual factors, it brings these factors together to culminate into a conceptual model that underpins this sub-study.

The idea of involving teachers actively in their own learning is central in professional development literature. It implies, as a first step, that professional support practices must cease to view change as something that is done to teachers who are passive participants of programs (Imants & van Veen, in press). Literature on teacher development and workplace learning emphasize that lasting changes in classroom practice are gained when teacher learning:

- Is supported in a sustained manner (Sparks, 2002; Supovitz & Turner, 2000);
- Is connected to and derived from actual practice through participation in authentic tasks and problems arising in daily work (Bredeson, 2000; Darling-Hammond & McLaughlin, 1996);

- Engages teachers actively in planning and reflection to develop their own classroom practice as well as their professional support mechanisms (Ellström, 2001; Elmore & Burney, 1999); and
- Is grounded in interaction and sharing of knowledge with peers (Darling-Hammond & McLaughlin, 1996; Hord, 1997).

In order to achieve the type of teacher learning characterized above, strategies employed for their learning have also seen a shift from the isolated, one-shot workshops or trainings, in which experts hand down ready-made theory to teachers. Instead, practices that invite, structure, support and guide participation (Billet, 2006) are desirable. Such strategies combine learning 'as work' and 'at work' (Bredeson, 2000) and combine effectively the use of in and out of classroom tasks (Putnam & Borko, 2000). For instance, learning is connected with practice, continuous, and actively involves teachers when it is drawn from tasks like teaching, lesson planning, lesson modification and assessment activities (Davis & Krajcik, 2005). When such learning is reinforced through peer coaching, workshops, mentoring, performance tasks, study groups and action research (Bredeson, 2000; Darling-Hammond, 2006; Loucks-Horsley, Hewson, Love, & Stiles, 1998) it builds more opportunity for interaction with peers and experts.

Organizational (school) structures and culture may not always be suited to support the type of teacher learning and strategies described above; especially when the organization follows more conventional or top down approaches to staff learning. School organizational structures, systems and processes must be redesigned so that they actively support staff learning and collaboration around serious problems of practice (Darling-Hammond & McLaughlin, 1996; Silins & Mulfort, 2002). In turn, these result in learning and outcomes that get embedded in organizational systems (Boreham & Morgan, 2004). As a result, new policies, structures or procedures which are more aligned to instructional development needs, (Gallucci, 2008) are developed.

The discussion above shows teacher learning as a process of engaging teachers as learners, through a continuous, authentic, active and collaborative process. It helps identify some strategies that enable such learning, as well as asserts the need for an organizational context that makes it possible to employ such strategies. This view emphasizes that teacher learning does not take place in a

vacuum or in isolation, but is vulnerable to various contextual factors that may have a fostering or inhibiting influence on the learning process. It is therefore, difficult to understand the nature of teacher learning in a particular situation without understanding relevant contextual factors and how they operate upon the teacher learning process. Going forward, this chapter outlines some critical contextual factors.

Context, in simple terms, refers to the teacher, the student and the surroundings in which these function (Fordham, 1982). Teachers' will, capacity, prior practice, and student perceptions interact with learning opportunities and incentives mobilized by policy (Spillaine, 1999). In addition to the teachers themselves, factors known to influence teacher learning include: instructional setting, organizational factors, and policies (Fordham, 1982; Loucks-Horsley, Hewson, Love, & Stiles, 1998; Rogan & Grayson, 2003; Spillaine, 1999) Each of these factors is discussed below.

2.2.1 The teacher

The personal characteristics, professional competencies and learning needs of teachers influence the way they learn. Teachers are often conditioned by their personal experiences of traditional schooling (Darling-Hammond, 2006). In traditional societies, the hierarchical nature of social relationship is manifested in teacher student relationships. Due to such educational or social influences, teachers' conceptions about teaching and learning are often rooted in rote-based teacher-centered notions, especially in India. Countering misconceptions that accompany such personal experiences is a powerful challenge faced in learning to teach using learner-centered strategies (Darling-Hammond, 2006). Such learning is enhanced when backed by the need to make a difference; a moral purpose that brings the teachers closer to the needs of children (Fullan, 1993).

However, the extent to which teachers can optimize new ideas and opportunities is influenced by their existing professional competencies. These include knowledge about learners, subject matter and teaching; ability to integrate these (Darling-Hammond, 2006) and to skillfully use the knowledge in real time for making instructional decisions in their classrooms (Darling-Hammond, 2006; Davis & Krajcik, 2005). Additionally, resources that foster

their learning like planning, reflection and collaboration abilities also bear influence (Ball & Cohen, 1999; Darling-Hammond, 2006).

As teachers are the direct participants, professional support interventions, must also take into consideration their specific learning needs. Their learning needs primarily include content knowledge, pedagogical content knowledge and curricular knowledge (Shulman, 1986). Scribner (1999) found that commonly teachers needed to engage in learning activities in order to address (a) content knowledge needs, (b) pedagogical skill gaps, (c) challenges to classroom management, and (d) gaps in student centered strategies. Jagannathan (2000) noted in a study of para-educators in Indian schools, that para-educators lacked sufficient subject matter understanding which further constrained their ability to develop pedagogical concepts. Additionally, teachers' perceptions and beliefs also influence how they receive and learn new ideas. For instance, teachers are more open to learning when they believe that the new tasks expected of them are practical and relevant (Doyle & Ponder, 1978; Fullan, 1991; Rogan & Grayson, 2003).

2.2.2 Instructional setting

The instructional context refers to content, teaching and learning methods, assessment, and classroom environment (Fordham, 1982; Loucks-Horsley, Hewson, Love & Stiles, 1998) all of which influence the way in which teachers are able to learn about and adopt new practices. The content that teachers are required to teach may or may not be aligned to learning goals. Or the learning goals and the content may or may not be aligned to the teachers' capacities.

Teaching and learning methods pertain to the learning strategies, the material, teachers' role, the student grouping arrangements, requirement to implement the strategies and the time available. Assessment practices include criteria for assessment, strategies and tools and the actual learning progress of the students (W. Kuiper, Nieven, & Vissher-Voerman, 2003; Loucks-Horseley, 1998).

Additionally, classroom size, the availability of materials, the number of children, socioeconomic and cultural aspects of the students, norms of behaviors (Fordham, 1982; Loucks-Horsley, Hewson, Love & Stiles, 1998) contribute to the complexity of the instructional task. That differs from tasks

teachers are usually confronted with. When the classroom environment is under-resourced, the extent to which teachers can develop alternative practices is constrained (Brodie, Lelliott & Davis, 2002).

2.2.3 Organizational setting

The teacher and the instructional environment do not exist in vacuum, but within an organizational environment. This organizational environment determines the learning environment of teachers through its resources, leadership, and its climate. Resources include making available, time, money, space, structures, expertise, and strategies needed to foster learning (Fullan, 1991; Loucks-Horsley, Hewson, Love & Stiles, 1998). Professional learning happens effectively when time is released for teachers to familiarize themselves with material and curricula, when structures and roles encourage supporting each others' learning, and when continuous assistance and feedback are offered (Darling-Hammond & McLaughlin, 1996; Howe & Stubbs, 2003).

Perhaps even more, these teachers need a leader who can foster a shared vision amongst the members, elicit their active participation in decisions and share authority with the members (Fullan & Pomfret, 1977; Hord, 1997). Additionally, a trusting and collaborative climate (Hord, 1997; Penuel, Fishman, Yamaguchi & Gallagher, 2007) that values reflection, questioning, risk, examination of goals, and practice in light of each other, makes a favorable environment for teacher learning (Darling-Hammond & McLaughlin, 1996; Silins & Mulfort, 2002). These professional learning characteristics are related to and derived from theories of adult learning (cf. Knowles, Holton & Swanson, 1998).

2.2.4 Policy

The policies of an organization like an NGO represent the organizational purpose and its means to achieve that purpose. Policy pertains to not just what organizations proclaim through formal documents but also what they do (Knapp, 1997). Knapp (1997) identified that policy reaches teacher practice through its targets (embodied conceptions about teaching and learning), instruments (strategies) and avenues (routes by which influence is exerted). The content of policies gets interpreted and enacted in organizational and classroom settings.

Desimone (2002) illustrates five attributes of policy recommended by Porter (1994) that have to do with effective policy implementation. These are specificity, consistency, authority, power, and stability. Specificity, or explicitness (Fullan & Pomfret, 1977) pertain to the detail and extensiveness of the policy in the form of curriculum frameworks and guidelines on use of materials and pacing aspects, and strategies to educate staff (Darling-Hammond & McLaughlin, 1999). Attention to right levels of specificity is important to mitigate user confusion (Fullan, 1991; Fullan & Pomfret, 1977). Consistency or the way policies cohere (Darling-Hammond & McLaughlin, 1999) or contradict with each other and with circumstances of the teachers (Darling-Hammond & McLaughlin, 1999), also affects implementation. Policies that win influence through their own authority and credibility are more effective than the ones that use power of incentives and disincentives. Moreover, organizations which are in disarray (on account of weak policies) cannot achieve success with their efforts (Rogan & Grayson, 2003). Stability of policies, students, teachers and leaders also influence implementation.

2.3 THEORETICAL FRAMEWORK

The teacher, the instructional setting, the organizational setting and policy share a complex web of relationships, which individually and collectively influence professional teacher learning. This nested systemic arrangement is visualized in Figure 2.1. Teacher characteristics are the core of the arrangement of contextual factors. Moving outwards, the instructional setting, the organizational setting and the policy factors are represented. The concentric rings are off-center, to illustrate that all factors touch one another.

The discussion above highlights a view of teacher learning which is defined by interactive elements within the organization. The figure helps to visualize teacher learning within an influential systemic structure. It leads to the aims of this study in suggesting that individual learning needs of teachers must be determined in relation to their context.

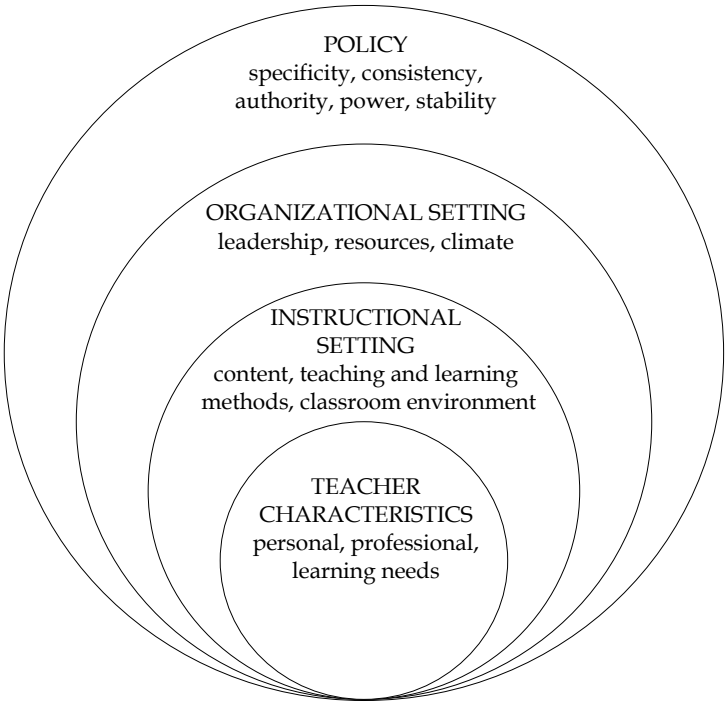

Figure 2.1 Contextual factors that influence teacher learning

Because the context of this study differs from the educational contexts most often described in literature, a needs analysis in which the NGO and Western Indian context is taken directly into account, is ecologically valid and contributes to determining the actual needs of para-educators. Additionally, knowledge regarding enhancing or inhibiting contextual influences must act as a 'reality check' while designing interventions. In some cases, when contextual factors may prove to inhibit the professional development of teachers, appropriate contextual conditions must be met prior to the start of professional development interventions.

2.4 METHODS

This sub-study was conducted in two phases. The first phase of the sub-study sketches a detailed real-life portrait of contextual factors identified in the framework shown in Figure 2.1, including the learning requirements of the para-educators. The second phase examines how contextual factors have a

fostering or constraining influence upon efforts to address the learning requirements. Throughout the two phases, participatory methods were adopted wherever possible to stimulate dialogue and reflection among participants (cf. (Mckenney, et al., 2006).

2.4.1 Participants

The Ahmedabad learning center was headed by a project leader along with an assistant project leader. They, along with three cluster-heads and the para-educators were participants in this sub-study. Twelve para-educators from across the three clusters were purposively selected for one to one interviews. Para-educators who knew the organization well and had been with the organization for at least two years were selected for the interview. The project leader of the organization was trained in learner-centered teaching and was also a qualified teacher educator from a leading teacher training institute of India. She had been an employee of the organization for five years and head of the project for three years. The project assistant was a social work graduate with relatively less educational experience. She had been employed with Maitri for two years and had been a project assistant for six months.

2.4.2 Phase 1

This phase was shaped by the question, '*What learning requirements and contextual factors must be considered while designing learning support for para-educators*?'

Interviews and observations were the main methods of data collection. Interviews (Appendix A) were used to understand para-educator personal characteristics and professional competencies like relevant qualifications and experience in teaching, professional purpose, confidence in subject matter knowledge and instruction, perceptions regarding work, and individual learning requirements. Semi-structured non-participant classroom observation (Appendix B) was used to understand the para-educators' instructional skills and the different aspects of the instructional setting. The observation tool contained instructional components like the learning objective, activity, content, materials, grouping, time, para-educators' role, and assessment cf.(van den Akker, 2003)). Data from participant observation of meetings between cluster-

heads and para-educators supported by interviews with cluster-heads shed light on organizational factors like the resources, leadership and organizational climate. Interviews with cluster-heads, the project leader and the project assistant were also used to construct the policy intentions driving the ULC. Figure 2.2 illustrates the methods used to collect data on the contextual factors related to teacher learning in the first phase of this sub-study.

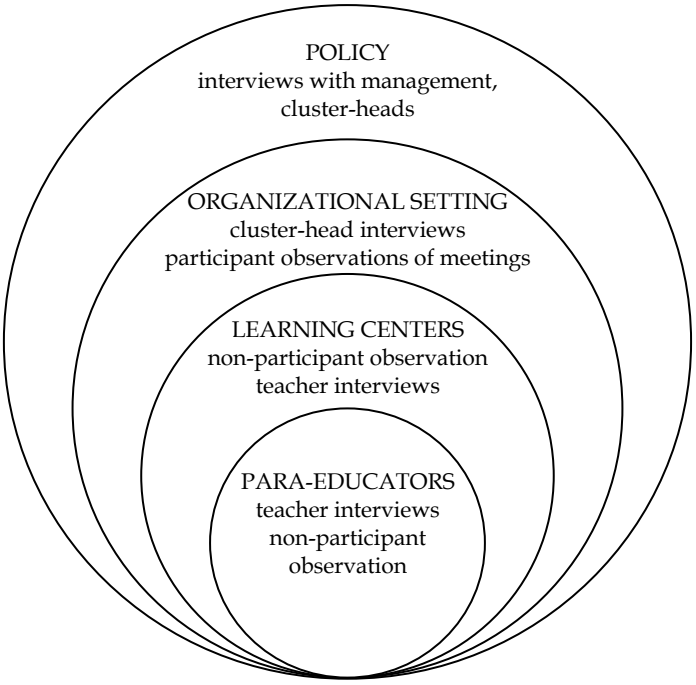

Figure 2.2 Data collection methods used to portray contextual factors

2.4.3 Phase 2

The aim of this activity was to characterize the data from the first phase into fostering or inhibiting influences on the learning process of para-educators. This characterization was developed and verified during team meetings in which respondents collectively reflected on and analyzed the information gathered in the first phase. The findings of the first phase were presented to the participants and they were asked to share their views on the nature of influence. The researcher participated in meetings to facilitate the reflection. Such a member-check approach was suitable to (a) facilitate a shared understanding about why and how the different factors affected teacher learning, and (b) create a common ground for the way forward.

2.5 RESULTS

2.5.1 Phase 1: Field portrait

The teacher characteristics

Data related to teacher characteristics covered their personal characteristics, professional competencies and their learning requirements. Para-educators were experienced in working with children, However they had limited experience with learner-centered practices, and no formal training in instruction. Para-educators expressed deep commitment and interest in their work. They shared aspirations for their learning centers to progress towards providing "*good quality*" educational support that was "*different from the traditional school.*" They valued their role as para-educators of such centers.

In one-to-one interactions, para-educators shared their lack of confidence about subject matter knowledge as well as about "*presenting the subject matter in a manner that was easy to understand for the children.*" Classroom observations revealed that a combination of inadequate knowledge and lack of preparation often resulted in coping strategies that had to be adopted when subject matter was difficult. These included (a) diverting the child's attention to easier concepts, (b) suggesting that the child should seek clarifications from regular school teachers, and (c) returning later with clarifications after taking help from peers. Para-educators were not in the habit of planning their instruction or reviewing their practice.

When asked to share their learning needs, para-educators enthusiastically listed over 20 learning needs that spanned across issues of teaching, data analysis, financial planning, and rapport building with the community. After prioritizing their needs, they came up with four needs that were commonly perceived as urgent. These were: (a) subject matter knowledge of math and environmental science; (b) curriculum implementation of math and science; (c) maintaining order and discipline in the classroom; and (d) managing heterogeneous student needs. Para-educators openly expressed that the new role of mobilizing fees for the center through door-to-door marketing activities was "*fatiguing and very time consuming*." They shared that they were "'*too worried about reaching enough fee amounts and could not focus on teaching.*"

Instructional setting

Data were collected to understand the content, teaching and learning methods, assessment and classroom environment. Observations revealed that an overall curricular framework to define 'what, when and how' to teach was not available to the para-educators. The content for teaching was selected separately for every child each day, and was not linked across days. Subject matter concepts were selected arbitrarily based on criteria like the sequence of concepts in textbooks, specific difficulties expressed by children, their own comfort level with concepts or an imminent test or in the child's school.

Para-educators' classroom environment (figure 2.3) and the teaching-learning strategies in the classroom were also observed. The para-educators' mandate was to provide supplementary academic support to children in their grade-specific subject matter. This did not take into account the actual knowledge level of the child. Knowledge attainment of the majority of the children was much below their actual grade requirements, for instance, a child in grade 5 or 6 was often barely or not able to read a text from grade 2. The learning requirements of these children ranged from literacy and basic math to the syllabus of grade 7. Children from the same age needed support in different subjects and at varying levels. Para-educators adopted different instructional strategies to cope. They ranged from asking a child to memorize a section in the book and then checking how well the child reproduced it; explaining orally a difficult concept with the help of examples; solving a specific math problem in front of a child; and verbalizing the "working of a math problem" as ways of handling difficulties. Curricular material included textbooks, practice books and teaching aids supplied by Maitri. The teaching aids included some guidelines, tests and material for teaching different concepts in Environmental Sciences and Mathematics for grades 2, 3, and 4. In interviews, para-educators expressed their opinions in relation to the material provided by Maitri, saying that: (a) the materials were interesting and more '*practical*', but difficult to implement due to low familiarity; (b) unclear instructions; (c) the material often served to teach certain concepts only partially, and they had no additional material to address the remaining parts of the concept; (d) the assessment tools that had practical questions, were not easily usable as children were used to a traditional question-answer tests; (e) some tests were not consistent with the teaching modules; and (f) pre-tests and post-tests were not consistent in difficulty levels. There were no records of previous assessments.

Observations indicated that classrooms were in small, poorly ventilated spaces in the community, usually at the residence of a community member. The classroom had between 30-40 children ranging from three to 14 years old. These children usually attended formal government schools and came to the centre for supplementary support. Para-educators explained that the children were not enrolled for a fixed or uniform time period. About fifty percent of these children came on a monthly basis, that is, they might attend class for one month and not for another month. Concurrently, new children were added at the end of each month, to make up for the fall in the fees. The classrooms often became disruptive, with only a few children engaged in work. Para-educators were found to be shouting out repeatedly to restore order in the class. However, on the whole para-educators were affectionate towards children.

Figure 2.3 Mixed-age classroom; inefficient individualized teaching

Organizational setting

Within the organizational context, focus was to understand the resources, leadership and organizational climate. The daily activities of the para-educators outside class hours and professional support activities gave insight into the type of learning resources para-educators could access. Both meeting observations and interviews revealed that teacher schedules entailed 2 to 3 classes a day of two hours each, followed by about two hours of house to house visits to collect pending fees and weekly administrative work. Cluster-heads

explained that every six months the para-educators went on a "*marketing*" drive, to enroll children and collect fees during which classes were closed for a month. Different types of support focused on reinforcing their revenue generation capabilities. These included activities, like periodic budgeting, financial reviews, planning of marketing strategies. Organized support for addressing teaching concerns was missing. There were no time slots available in which para-educators could prepare for their daily lessons. They spent late night hours to familiarize themselves with the subject matter. New teaching aids were the only supports para-educators received for teaching activities. But this material usually reached the para-educators just before the term started, leaving little preparation time.

Cluster-heads shared that their tasks mainly involved *supporting and managing their teams to get better revenue*. Their role in the improvement of the teaching task was limited. They shared that they seldom conducted classroom visits and if they did they were *just to check if the class was functioning.* All the three cluster-heads shared that they felt pressured by the need to achieve financial targets. The para-educators trusted their cluster-heads; conversely, the cluster-heads supported their para-educators and empathized with their situation.

Policy

The policy of the organization was assessed in terms of its specificity, consistency, authority, power and stability in relation to adoption of learner-centered materials by para-educators. Formal documents that could be treated as policy statements were not available. Interviews with cluster-heads, the project leader and assistant helped construct policy intentions that government the ULC implementation. However, the rationale governing strategies at the cluster and center level, proved to be insightful regarding organizational intentions. The project head shared that in all three broad policies had been introduced: (a) a move towards a revenue-based model instead of free educational services; (b) inclusion of higher level subject matter up to grade 7; and (c) adoption of learner-centered materials to teach subject matter. Cluster-heads shared that specific strategies and guidelines were set up for better revenue. These strategies pertained to enrolment of children, professional support interventions, and incentives. For instance, a detailed directive for enrolling children into classrooms emphasized that the "*amount necessary to be generated for covering the operating cost of the centre divided by the amount of fees collected per child equals the number of*

children to be enrolled in the center." To optimize fees, the children were to be enrolled for either a period of six months if the parents were willing to pay for the entire period, or the children would be enrolled for one month at a time. Moreover, if a child discontinued after the end of a month, a new child had to be enrolled to compensate for the drop in the revenue. Specific curricular policies or guidelines to inform teaching activities were missing.

Such mandates were not consistent with the remaining two policies of including teaching of higher grade subjects through learner-centered methods. For instance, in order to obtain fees, para-educators had to "*commit to teach whatever the parents expected them to teach their children."* Parents agreed to pay fees with the expectation that their child's attainment in his or her specific grade level would improve substantially at the learning center within a single term. Para-educators had to heed this condition irrespective of the child's current attainment levels in order to secure the terms fees. Para-educators were expected to teach such heterogeneous classrooms without any ongoing support. Another inconsistency was found in the way roles and responsibilities were allocated. For instance the head of the project was only accountable for improving revenue and was not accountable for learning improvement. The project assistant was accountable for instructional development; however, the final authority of approving or disapproving her recommendations lay with the head of the project.

The revenue-based policy was adopted and promoted using incentives for those who achieved higher revenue. At the classroom level it led to high instability due to rapid turnover among students.

2.5.2 Phase 2: Enhancing and inhibiting factors to shape teacher learning in Maitri

Para-educators

Cluster-heads as well as management members acknowledged that the para-educators' commitment, despite the difficult working conditions, and enthusiasm for new learning were commendable qualities and could play a foundational role in enhancing the effectiveness of any professional development program. Additionally, it was also acknowledged that para-educators' rapport with children and their familiarity with the socio-cultural environment of the children were also important aspects of prior understanding

that must be capitalized on during the learning interventions. The factors that needed attention as they could inhibit learning were identified as the lack of professional habits like regular planning and review as an impediment to learning; and a weak attention to their teaching role which could interfere with their readiness to focus on instructional concerns on a sustained basis.

Instructional setting

The instructional setting of the para-educators posed several challenges towards developing instructional practice. Some conditions like the classroom space were fixed conditions which could limit the extent to which para-educators could explore classroom management and instructional alternatives. Also identified were other constraints that were modifiable, but had substantially inhibiting influences on para-educators practice. For instance, the manner in which children were enrolled imposed a very heterogeneous and unstable student population. It would be difficult for para-educators to find time to plan for many different groups of learning needs and to include all the children in their span of attention during instruction. Additionally, material was inadequate and curricular decisions of 'what should be taught, to whom, how, and when' were left entirely to para-educators. This reduced the instructional process to a set of precipitate decisions made by the para-educator with little meaningful experiences that could be drawn upon to strengthen learning.

Organizational setting

The organizational climate was viewed as one with mixed implications for teacher learning. On one hand it was fraught with difficult working conditions and anxiety over revenue matters. On the other hand, para-educators shared a considerably cohesive relationship with one another and the cluster-heads. However, it was agreed that the current work routines of para-educators offered them no time for instructional work outside class hours. Related to this, the burden of daily non-instructional responsibilities was identified as a critical deterrent of teacher learning. It was discussed that para-educators and cluster-heads viewed revenue generation and not instructional work as their primary role, and this would impede the development of instructional learning.

Policy

Organizational mandates and their implications for teacher learning were critically discussed by cluster-heads as well as management members. Cluster-

heads appreciated that the organization's commitment to support autonomously functioning learning centers was an important backbone for improving instructional practice. However, it was argued that currently, the transition towards learner-centered instruction was neglected in favor of the transition towards financial autonomy. The key criticisms were that, student enrolment strategy and professional support were aimed at optimizing revenue; the roles and incentives were also determined to develop revenue generation practices. The overall policy environment reflected a greater ownership for revenue mobilization, which trickled down to the other parts of the organization. It was finally argued that the current approach of treating revenue mobilization and instructional development as mutually exclusive, led to a conflict of interest in which instructional learning of the para-educators was sacrificed. For instance, the policy of promising to teach children what the parents expected, or the policy of enrolling students based on fee criteria, undermined the confidence of the para-educators, led to a curriculum load that was not achievable in terms of time and capacity of para-educators, and created a classroom with a complexity in student needs that para-educators could not address meaningfully. In this way, teaching and learning concerns were compromised. The need for replacing this with an approach that would balance the two was clearly expressed.

2.6 CONCLUSION

This sub-study developed through two phases. The first phase described contextual and organizational factors identified in the theoretical framework, including the professional learning requirements of para-educators. It demonstrated that para-educators are committed to their work and enthusiastic about receiving support. However, they lack requisite qualifications, experience and training. They feel chiefly pressured with mobilizing revenue from the community. Their expressed professional learning needs include improving (a) content knowledge of math and science, (b) pedagogical content knowledge, (c) maintaining order and discipline in the classroom, and (d) managing heterogeneous student needs. Additionally, the physically low-resourced instructional setting is further complicated by a lack of a consistent curriculum or guidelines, large, diverse and unstable student population, and teaching strategies that are a precipitate set of 'on the fly' choices made by the teacher.

Potentially on account of no prior professional training, the para-educators are unfamiliar with the practice of regular planning for structuring their instruction. The organizational setting is attributed by a cohesive group of para-educators and cluster leader. Work routines and professional support are dominated by revenue concerns. Finally, the broad policy intends three main reforms: greater revenue and financial sustainability, learner-centered teaching; advance pedagogy. Strategies at the center and cluster level have been developed to yield an improvement in revenue. Few concrete strategies that focus on the pedagogical aspects of the policy were evident.

The second phase sought to identify the enhancing and constraining influences relevant to professional development interventions. It concluded that para-educator commitment and willingness to learn alongside the organization's sincere intention to encourage growth towards autonomous learner-centered community learning centers are promising starting points for teacher learning. However, para-educators lack the necessary competencies to carry out well-planned and structured instruction. The kind of ill-structured classrooms found in this sub-study offer a weak experiential basis for drawing meaningful insights about instruction. The instability of the instructional environment imposes further complications and could interfere with para-educator abilities to learn how to plan and implement instruction. Future teacher and learning efforts could be constrained by the lack of available time and structures for supporting instruction. The strategic focus on fee improvement could further inhibit the number and flexibility of professional development opportunities.

It can be construed from the above facts that there are not only (endogenous) learning requirements but also (exogenous) teaching and contextual constraints that together influence effective professional development in this context. The learning requirement clearly seems to be to plan and implement lessons that are (a) coherent and well structured – a basic teaching skill that most regular teachers cultivate during professional teacher training, and (b) develop learner-centered approaches (of classroom management and instruction). Guided by this, a professional development objective based on the learning requirements of the para-educators was framed as, *Supporting para-educators to design systematic learner-centered lesson plans*. It was expected that within such an objective both the learning needs expressed by para-educators (e.g. for improving pedagogical content knowledge or managing heterogeneous

classrooms) as well as those identified during the analysis of fostering and inhibiting influences (structuring lesson plans) would both be met. In terms of other contextual factors which might complicate the achievement of the professional development objectives, attention must be given to the policy and practices of the organization that are fee-centered rather than instruction-centered. In practice, they lead to detrimental conditions like complicatedly large and mixed classrooms or lack of time to prepare for everyday teaching. The next section reflects the core findings and overall research approach.

2.7 DISCUSSION

2.7.1 Reflection on the findings

This sub-study was undertaken in an NGO to identify professional learning requirements of para-educators while newly adopting learner-centered teaching. It also investigates contextual influences that shape the development of learning support for the para-educators. Guided by a framework that emphasized the roles of individual factors and environmental factors in shaping para-educator learning, the study highlights the need for targeted interventions to overcome specific instructional difficulties faced by para-educators. It also suggests that in the current organizational context where attention is centered on fee generation, it is difficult to implement and achieve effective instructional learning for the para-educators. The sub-study illuminates the contextual factors that need alteration in order to be conducive to the instructional learning of the para-educators. Literature has consistently supported such a rationale for professional development, indicating that paying attention to the learning process of teachers as well as the contexts in which they function (Loucks-Horsley, 1998; Penuel, Fishman, Yamaguchi & Gallagher, 2007) is crucial. This is even more crucial for those who enter teaching without adequate pedagogical and subject matter knowledge. Similarly, recommendations that learning must be ongoing, authentic, collaborative and systemic are relevant for shaping learning support for this NGO. However, most teacher learning literature originates in a western context, and while at a philosophical level it holds applicability, the way these factors may play out in actual practice could be

very different depending on the context. This section uses the case of Maitri, to highlight some contextual aspects that substantially influence the extent, pace and method of supporting para-educator learning.

- *Amateurs versus professionals:* Instructional change is difficult even for school teachers who have formal prior training and who work amongst trained or experienced colleagues. NGO staff, as found in this study, is usually volunteers, and para-professionals or grassroots workers do not have the technical training or sufficient expertise required to carry out their role requirements (Wirz, 2000). In such situations, the knowledge, skills or habits that can be expected of professionally qualified teachers cannot always be taken for granted. For instance, data reflected that para-educators did not perform basic tasks that strengthen instruction, such as planning for daily lessons, keeping a time table, following a link between two days or assessing children's progress. Such practices do not get integrated into the role expectations of para-educators especially in NGO contexts like Maitri, where most or all peers and supervisors of para-educators are novices and the institutional understanding about instruction is limited. Moreover, organizational and financial factors even more heavily constrained effective teaching by para-educators. Hence, opportunities for individual para-educators to learn through modeling or peer- guidance are also limited.
- *Hierarchical relationships:* Depending upon many factors including cultural perspectives, people view learning and decision-making as either passive or active, and as either being owned by the learners or being owned by an expert (Desai, 2003). The para-educators in this study belong to a cultural background in which challenging or debating decisions taken by authority is not very common and is often even frowned upon. This might explain the fact that cluster-heads and para-educators continued to work in self-defeating circumstances such as those evidenced in the sub-study for nearly two years, without questioning or resisting ongoing strategies.
- *Multiple accountabilities:* An uncompromised commitment to instructional improvement is fundamental to effective professional development, but data from this study reveals factors that hinder the establishment of such a commitment in this NGO. Although it is an educational NGO, the policies and practices of Maitri reflect a weak instructional focus to begin with, let alone an environment characterized by commitment to instructional improvement. Such a contradiction is not uncommon with NGOs, for they often seem to vacillate between three sources of accountability: to their

donors, to their own vision, and to their clients or communities (Najam, 1996). NGOs often interpret their own visions and rationalize their activities under the influence of donor expectations and constraints, in part due to their dependency on the donors. For instance, the urgency of the financial autonomy of the clusters on account of an imminent termination of donor funds took priority over the need to make the clusters instructionally effective. Since parents are willing to pay the fees as long as their expectations are met, the prioritization of focusing efforts on financial autonomy met little resistance, and in fact provided a pretext of meeting community expectations. The study indicates that if NGOs allow such inconsistent accountabilities to prevail, it may affect the way para-educators experience and implement their responsibilities. In this study, this was evidenced in the form of feelings of pressure, overload of non-teaching tasks, and ineffective teaching and learning.

- *Inadequacy of resources for learner-centered teaching:* Literature recommends that teachers need introductions to new theory, research and practices that expose them to theoretical and practical ideas about teaching and learning. However, learner-centered teaching is not yet commonly found in India, and while there may be some schools that may be modeled on such teaching, published research on this approach in India is scarce, and even more rarely accessible in local contexts and languages. The only concrete resource for learner-centered teaching available is the teacher guide printed by the government of India for school teachers that offers activities and practical strategies for teaching the concepts in the textbooks.

2.7.2 Recommendations

This sub-study illuminates several strengths of para-educators which include their willingness to learn, persist in difficult working conditions, work at low remuneration, and chiefly be driven by their 'moral purpose'. The sub-study also demonstrates that tailor-made professional development solutions have to be designed for this specific group of para-educators that are quite different from teachers that enter schools immediately after their initial training at teacher training colleges. Besides, it suggests strongly that when systematic learning interventions and organizational conditions to cement the commitment are lacking, para-educator work remains ineffective. It also points toward some

individual and organizational characteristics that merit specific attention while designing professional support.

To help manage the issues discussed above, several recommendations are discussed here. *First,* para-educators could be supported through induction programs and/or through in-service support in basic instructional knowledge and skills that are important to qualify for teaching roles and bring some order to their instructional practice. Subject matter support and learner-centered teaching practices were important needs expressed by the respondents in this study, but other specific gaps that also emerged included lack of lesson planning, assessment, classifying and grouping children for instruction, keeping a time table and defining learning objectives.

Second, it is important to define the learning tasks of para-educators realistically and authentically. In this study, para-educators were ineffective partly because their instructional tasks involved teaching a wide range of children across a wide range of 'perceived' rather than actual curricular needs.

Third, para-educators can gain from thinking tools, in the form of templates, for different activities like planning and reviewing instruction or grouping children. Such templates must explicate and help them 'think through' the different dimensions and steps involved in these activities, through transparent, simple, detailed questions or tips. At the same time they should be flexible enough to invite new ideas and serve as brainstorming tools. In poorly resourced contexts, these tools could be in the form of handouts with ample writing space and the facility to store them for later reference. Such tools, if designed appropriately, can contribute to para-educators taking charge of their own learning and become self-directed. Similarly, para-educators can also be supported in using such tools within groups for discussion and brainstorming, to help structure their efforts in learning from one another.

Fourth, besides the use of tools, para-educators must be supported through workshops in addressing difficult concepts, process skills or 'ways of thinking'. While demonstrating and modeling teaching practices, it could be useful to integrate the lesson planning and review tools so as to expose them to the cycle of planning, enactment and review. Group sessions during such workshops must

also be used as opportunities to provide practice and feedback on 'group work' abilities that para-educators from such contexts are not usually familiar with.

Fifth, it could be useful to establish simple responsibilities and routines, for instance, daily lesson planning and review, in a way that such activities constitute an important part of their own role expectations as well as the organization's expectation of their roles. It is important for para-educators to see these activities as much as a part of their 'job' as teaching itself. Supporting them in maintaining their own 'work plan' that helps balance time for both teaching and preparation for teaching is essential. This makes them actively involved in the design and implementation of curricular products and gives them a strong feeling of ownership. Active involvement and ownership are effective characteristics of adult learning and professional development.

Sixth, the content of the interventions must focus on the immediate tasks that para-educators must perform. Especially because para-educators are untrained in their task, learning is more effective when they have the opportunity to implement it rather shortly after a new learning intervention. This appropriateness for immediate use is often reported to be effective in adult learning and professional development. In the same vein, it is also important that if workshops are organized, they are not too long; lectures or theoretical inputs are given in small doses and blended well with practical experiences.

Seventh, it is important to reduce non-teaching tasks and release as much time and space for instructional preparation as is possible. While para-educators in NGOs may need to get involved in community processes that indirectly benefit their educational outcomes, it is important for them to see this link explicitly. In other words, the majority of their activities should arise out of and contribute to one's core identity as an educator.

Eighth, all these are more achievable when professional support planners are familiar with the learners (para-educators), and with their zones of proximal development. Moreover, para-educators could be supported in being more active learners only when their facilitators are trusted by them, are able to share their authority (if they are in authority positions), are capable of fielding disagreements and inhibition of para-educators, and being effective mediators between NGO managers and the grassroots staff.

2.7.3 Implementing the recommendations in practice

Based on the recommendations above, a professional development program was designed and implemented in Maitri. The following vignettes demonstrate how each of the recommendations was used to shape activities with para-educators.

- Using the first recommendation of focusing on development of basic teaching skills, workshops were organized at the start of a term, which focused on supporting para-educators in developing basic skills for teaching by modeling the strategies.
- Using the second recommendation, para-educators and cluster-heads in Maitri were supported in defining the teaching role more realistically. This was done by: (1) Helping para-educators to identify the grade level up to which they were comfortable in relation to their content knowledge; (2) They were supported in collecting current knowledge levels of their pupils to determine the actual learning requirements of their respective classes; and (3) They were asked to calculate the actual contact time with pupils in terms of days and hours. Then, based on this data, they revised (1) the enrolment criteria which earlier involved enrolling any child that could pay to now being (enrolling only those pupils who needed support up to grade 5 which was the grade level they were comfortable with), and (2) the learning targets for each pupil they would enroll (and thereby also revising the promise made to the parents.) Previously, para-educators agreed to teach what the parents expected; subsequently, para-educators determined what the pupils needed based on their actual learning levels and what could be taught within the amount of contact time available.)
- Based on the third and fourth recommendations, workshops addressed ways to help para-educators with procedural skills like planning for their lessons. This was done by combining performance tasks in the workshops along with modeling sessions. Lesson planning templates were used to help para-educators think through different components of a systematic lesson plan. Hence, para-educators could use the templates to practice designing lesson plans in groups, get feedback from peers and experts, and refine their lesson plans.
- Combining the fifth, sixth and seventh recommendations, daily routines were introduced for para-educators to get time to prepare for and reflect on everyday enactment so that everyday immediate instructional learning needs could be met. This included helping them streamline various responsibilities through a task planner so that they could re-organize their work in such a way that everyday instruction preparation time was released.

- Across each of these changes, attention was given to the eighth recommendation. For example, the design and implementation of the professional development support in Maitri, was undertaken by a management member. She combined two roles, one of a researcher bringing theoretical insights and rigor into the design and implementation, and another of a facilitator from within the organization, who was familiar with the context, was trusted, and who had demonstrated the ability to work with para-educators in an empathetic way while representing the management.

This chapter described a needs and context analysis study to shape professional development efforts for para-educators in Maitri. Thereafter, with a comprehensive examination of para-educators' perceived learning needs and their objective classroom reality, a professional development objective was framed around supporting para-educators to plan and implement systematic and learner-centered lesson plans. The chapter also laid out some contextual issues that emerged during the study, which would require attention during the design and implementation of the professional support activities. Finally, it offered some initial recommendations that could prove to be useful while addressing para-educator learning concerns. Alongside and refined by the findings from this exercise of determining the needs and contextual realities, literature study was also undertaken to shape the design of professional development , so that it would be well-informed by both research and theory. In Chapter 3, this theoretical basis is described, and also examined vis-à-vis the contextual opportunities and constraints presented in Chapter 2.

CHAPTER 3
Analysis: Theoretical underpinnings[3]

This chapter offers the theoretical foundation for the development and research activities of this sub-study. Section 3.1 makes a brief introduction to the chapter. Respectively, sections 3.2 and 3.3 which deal with the state-of-the-art knowledge about professional development, dwell upon critical features of professional development that inspired future design and development work, and two models of teacher education in particular. In section 3.4, challenges to the direct deployment of predominate western models in under-resourced contexts are discussed. In section 3.5, marrying state-of-the art knowledge about professional development with contextual realities pertinent in this study, a tailor-made conceptual model evolved to shape the professional development interventions for Maitri's para-educators.

3.1 INTRODUCTION

Like any other sound research, design research activities are rooted in an underlying rationale which is informed by extensive literature review (McKenney, Nieveen, van den Akker, 2006). This chapter presents the theoretical foundation of the design and implementation of the professional development activities. It highlights the core features of state-of-the-art professional development and reviews recent professional development models in teacher education in light of some contextual facts that prevail upon the current study. Finally it culminates into the development of a conceptual model that provides a tailor-made approach for the professional development of para-educators in India, which may also be of use in other developing countries.

[3] Paper accepted; Journal: Studies in Continuing Education

3.2 THEORETICAL BACKGROUND

In the field of education, professional development has been used as a generic term under which teacher learning activities and programs have been organized (Imants & van Veen, 2010). According to Guskey (2002), professional development comprises those activities and subsequent learning processes which are designed to enhance professional knowledge, skills and attitudes of educators so that they might in turn improve the learning of pupils. However, amidst the wide scope of activities that may be undertaken with an aim to improving teachers' competencies, meaningful professional development approaches are those that are characterized by specific qualities. Professional development, which is substantially influenced by adult learning principles, embodies the following attributes derived from literature.

3.2.1 Situated instructional focus

The aim of professional development efforts is to support teachers in a manner that leads to a change or an adoption of new teaching practices, a change in teacher attitudes and beliefs, and improved student learning (Fullan, 1991; Guskey, 2002). To achieve this, it must be acknowledged that, as adult learners, teachers experience their learning needs in relation to the concrete questions and problems arising at work (Knowles, Holton III, & Swanson, 1998; Terehoff, 2002). Teacher learning should be connected to the day to day teaching problems that teachers face, and implies their ability to solve the daily problems and challenges that are experienced by them (Putnam & Borko, 2000). Hence, teacher learning experiences cannot be too far removed from the daily context of teachers work. Rather, they should be linked to the tasks, questions or problems of daily practice and teachers' experiences with the students (Darling-Hammond & McLaughlin 1996, 1999; Penuel, Fishman, Yamaguchi, & Gallagher, 2007; Supovitz & Turner, 2000).

3.2.2 Ongoing and sustained

A patchwork of fragmented, one time learning opportunities have limited potential to impact teaching (Loucks-Horsley, Stiles, & Hewson, 1996). Change in teachers' practice is a long and gradual process that needs sustained effort over a long period of time (Darling-Hammond & McLaughlin 1996; Putnam &

Borko, 1996; Sparks, 2002). Time is needed for varied activities that include familiarizing oneself with new subject matter, understanding and re-conceptualizing innovations as per one's own context; planning for making changes to teaching practice and working with others (Loxley, Johnston, Murchan, Fitzgerald, & Quinn, 2007; Peers, Diezman, & Walter, 2003; Rogan & Grayson, 2003). This needs additional work and therefore the creation of blocks of time for teachers to work individually and collectively, as well as a reduction in the overload of initiatives that prevent genuine engagement with educational issues (Darling-Hammond & McLaughlin, 1996; Howe & Stubbs, 2003; Tang & Choi, 2009). Learning is enhanced when professional opportunities are embedded into the school time table as daily work through the amount of discretionary time made available to teachers (Little, 1999; Loxley et.al, 2007; Sparks, 2002).

3.2.3 Collaborative learning strategies

Learning by definition is contextual, that is, situated in the physical and social context of the individual. Getting people to act and interact with each other is a major route to change (Fullan, 1985) for knowledge, ideas and new ways of doing things spring not only from individual learning but also through dialogue, interaction and feedback with colleagues (Darling-Hammond, 2006; Hord, 1997; Kwakman, 2003; Loucks - Horsley, Stiles, & Hewson, 1996; Peck, Gallucci, Sloan, & Lippincott, 2009). Shared activities broaden opportunities to learn, break down the traditional isolation of teachers work, and serve as organizing tools to keep teachers learning together over a sustained period of time (Ball & Cohen, 1999; Lieberman & McLaughlin, 1996). Other than new information and sustained support, collaboration lends authority to professional development when embraced by peers and creates the trust needed to make difficult decisions (Penuel, Fishman, Yamaguchi, & Gallagher, 2007). Peer coaching and peer reviews of practice are well-known approaches that teachers can use to learn about new strategies and engage in intense deliberation.

3.2.4 Self-directed

Learning opportunities should engage teachers in posing their own questions and exploring their own answers (Darling-Hammond & McLaughlin, 1996). This entails having mechanisms so that teachers are able to identify and act on

their own needs (Loxley et. al., 2007; Mushayikwa & Lubben, 2009). This can be made possible by soliciting their role in the lesson planning, lesson modification, implementation and assessment activities (Fullan & Pomfret, 1977b; Loucks-Horsley et al., 1987; Mullen, 2008). Learning during these activities is supported by integrating into them strategies like peer coaching, joint writing of assignments, peer reviews, performance tasks, and mentoring (Darling-Hammond, 2006; Loucks-Horseley, 1998). Sometimes teachers need to get away from the pull of the existing classroom environment in order to get the space to reflect and experience content in a new way in staff development activities like workshops for instructional practices (Putnam & Borko, 2000), study group and action research projects. Portfolios that are generally a collection of materials and artifacts from teachers work, including descriptions of instructional plans, or logs are useful for teachers to examine and learn from each others' work (Darling-Hammond, 2006). Such self-directed learning approaches view teachers as adults who are who are capable of owning and learning from their own experiences; an important attribute of adult learning (cf. Knowles, et al 1998; Merriam, 2001; Merriam & Cafarrella, 1999).

3.3 MODELS OF PROFESSIONAL DEVELOPMENT

When professional development is viewed in this manner, the traditional input-output model (still very much alive in India), which assumes that acquiring new knowledge in academic workshops will result in changed practices in the classrooms, reaches a deadlock. Joyce and Showers (1981), who studied teacher training extensively, recommended that training alone may lead to new knowledge or skills but does not necessarily help teachers transfer those skills to practice. They advocated that the need to help teachers integrate new skills in to their active repertoire must be an integral concern of professional developers. Guskey (2002), through his model, asserted that new knowledge from a workshop or professional development experiences must be tried out and tested in the classroom. This enactment experience coupled with positive student outcomes result in changed practices and lasting attitudes. But recent models view the linear relationship from professional development experience to changed practices as a limitation of the model proposed by Guskey (cf. Clarke & Hollingsworth, 2002). Instead, they emphasize that teachers' learning and enactment experiences enrich each other in an iterative rather than a linear relationship.

For example, a model of professional development by Kubitskey and Fishman (Kubistskey & Fishman, 2005) accentuates a bilateral interaction implying that professional development not only effects changes in teacher competencies but is in turn informed by those changes as well. This interactive relationship is realized through the interplay of several structural elements highlighted in the model. These structural elements include professional development activities, curriculum, teacher competencies, classroom enactment and student outcomes (for example, test scores). Within this interplay amidst the different structural elements, influence flows from professional development programs to teachers' competencies (knowledge, beliefs and attitudes). Enactment and student outcomes are thus changed, which in turn strengthens teachers' competencies (for example, leading to formation of new attitudes). These changes in teacher competencies, in addition to curriculum and design elements, become starting points for further continuation of professional development activities.

Kubistkey and Fishman's model eloquently exposes the defining structural elements and their interactions in enabling teacher professional development. Clarke and Hollingsworth (2002) in their model of professional development go a step further by qualifying the interactions between different components. Their model highlights four domains. The *external domain* represents an external source of information; the *personal domain* represent the teachers' knowledge, beliefs and attitudes; the *domain of practice* represents professional experimentation; and the *domain of consequences* represents salient outcomes. They also presuppose an interactive relationship between all these domains (which are structural elements in the Kubistkey and Fishman model). But their model clarifies further that the interaction between these domains does not happen in a vacuum. It happens as a result of two processes that teachers undertake: enactment and reflection. In other words, unlike the Kubistkey and Fishman model, enactment is a functional ingredient of this model, along with reflection, and it is these functions that mediate the influence between domains. Clarke and Hollingsworth further elaborate that enactment is not just any activity undertaken by the teachers, but the conscious putting into action of a new idea or practice. Such enactment is a critical process which transfers change in one domain to another domain. For instance, when a teacher develops an interest or conviction in a new approach (the personal domain), it would lead to enactment of the approach and, hence, influence the domain of practice. The concrete experience of enactment or as a source of learning is central to the model

presented in this article. Drawing upon Dewey's explanation of reflection as an 'active, persistent and careful consideration', the model postulates that new information can result in new knowledge or beliefs through a reflective occurrence. Reflection takes place not just on student outcomes but also on other perceived consequences of their actions during enactment. Similar two-way reflective links connect teachers' practice, the interpretation of outcomes (consequences of the practice), and revision of knowledge or beliefs.

Such iteration between teaching practice and learning, especially the functional constructs of enactment as concrete experience and reflection specified by Clarke and Hollingsworth, are core inspirations in the model introduced in this chapter. Enactment as experience, and reflection on the experience are also central to adult learning schools of thought that view teachers as self-directing adult learners (Terehoff, 2002). In a context in which teacher learning is still dominated by the traditional training paradigm, there is a compelling argument for integrating actual enactment and reflection within para-educator professional development practices. However simply adopting models from other contexts without modifying them to fit the new environment creates more challenges then resolutions (Bantwini, 2009). Hence, while drawing inspiration from models such as that of Clarke and Hollingsworth, it is equally important to acknowledge some challenges that may be faced in trying to apply models from predominantly western literature to an under-resourced NGO context.

3.4 CHALLENGES TO PREDOMINATE MODELS

First, most models have been developed to assist professional development interventions within educational organizations such as schools that are professionally organized. Johnson, Monk and Swain (2000) argue that the ultimate constraint on producing change in educational systems does not rest solely in teachers' skills but is also determined by external barriers that determine their ability to apply those skills effectively. In the case of NGOs, some of these external barriers appear because of the fact that NGOs often are set up in a relatively less professional manner which may not be able to support the type of professional development process discussed above. This can lead to some implementation problems. For example, the models discussed above highlight the important role played by student outcomes (e.g. learning

outcomes) in teacher professional development. Professionally run schools usually have well-developed, readily accessible systems for regularly collecting learning outcomes. NGOs are not formal educational organizations, and often not accountable for learning outcomes in the way schools are. A study of six leading educational Indian NGOs by Jagannathan (2000) reported that while these NGOs were successful in designing innovative learner-centered teaching methods, appropriate assessment tools were not yet developed. While the creation of such systems could be considered part of the professional development process, such work could also distract from addressing more immediate learning needs of para-educators. In this context, it is useful to derive a conceptual model which makes it possible for professional development interventions to take off in relatively less developed organizational contexts while espousing the basic attributes of professional development for educators.

Second, development of a teachers' knowledge base starts during formal teacher education and this knowledge base modifies with experience (Stolk, Bulte, de Jong and Pilot, 2009). Models like that of Clark & Hollingsworth introduced above, are appropriate for teachers who are professionally qualified, have substantial experience, and are capable of making the transition of knowledge from professional development activities to actual practice in classroom situations. Para-educators, who do not have any prior professional teaching experience, need intermediate support in the form of interventions and/or tools which scaffold the application of basic teaching ideas into enactment, especially given the difficult environments they work in. It is thus useful to have a conceptual model that explicates the type of professional support adequate for combining the realistic concerns of such untrained teachers during enactment as well as relevant (theoretical) design considerations (Stronkhorst & Akker, 2006).

Third, in India, and many developing counties, most learning takes place through traditional teacher-centered practices, stemming from cultural traditions and beliefs about education (Sarangapani, 2003; Smith, Hardman & Toolley, 2005; Sriprakash, 2009). As a result, teachers in these countries often tend to view knowledge as fixed and objective (Abd-Kadir & Hardman, 2007), which can be a barrier to the type of iterative learning discussed in western models. Moreover, in developing countries, relationships tend to be more

hierarchical. For instance, the teacher's authority is generally unquestionable in classrooms (Ottevanger, van den Akker, & de Feiter, 2007); and at work places, authority is centralized and power distances are known to be greater (Hofstede, 1983). Organizations with centralized authority themselves lack the knowhow and culture necessary to support certain professional development practices. Further, many western approaches rest on several preconditions that include a situational view of knowledge, basic tools that are necessary for reform ideas like reflection, as well as a culture where a sense of professional autonomy prevails, all of which are rare in developing country contexts (Sullivan, 2002). Thus, western reform ideas cannot be applied directly without accounting for ways to overcome these barriers and building adequate support in light of the stage of development of the teachers (Kasanda et al., 2005; Ottevanger, Akker, & Feiter, 2007; Margo C. Sullivan, 2002). Considering such barriers in assessing the applicability of the models discussed above to the context of para-educators, gives rise to the need to clarify activities which can mediate a reflective process for those who are not used to reflection in their work and which are realistic within the context of their organizational culture. Similarly, it becomes necessary to explicate the concrete activities that can help organize collaboration amongst para-educators who do not collaborate habitually.

Last, professional development models are often used to facilitate the implementation of newly introduced curricula in the western education system, in which enactment and reflection experiences provide an experiential basis for exploring theoretical concepts introduced in workshops and summer courses. Amateur and under qualified para-educators require intensive implementation support on a daily basis. Their ability to absorb theoretical input is limited and they depend more on learning derived directly from practice. Their professional development would benefit from a conceptual model that addresses both their needs, that is, scaffolds daily teaching tasks and supports inductive learning about teaching from planning, enacting and reflecting on their daily tasks. Organizing participation in everyday work such that opportunities of learning and development are embedded in the activities and thus treating learning as a daily part of work practice (Billett 2001; Bredeson 2000; Gustavsson 2009) is especially relevant for para-educators. Such a conceptual model would capture both the content and process of the teachers' (para-educators) work and the content and process of teacher learning in the context of their classrooms (Imants & van Veen, 2010).

From the above synthesis, an iterative spirit, enabled by enactment, and reflection on enactment experiences, as concrete functional referents for grounding para-educators' learning, is an important guiding principle for designing professional learning for para-educators in NGO contexts. However, it is also true that para-educational setups like NGOs may not have adequate organizational systems for professional development processes in ideal forms. They may also not have prior experience in designing the kind of active learning activities that professional development requires. At the same time, due to lack of training and difficult classroom settings, para-educators are even more in need of immediate scaffolds that help them transform ideas from workshops or materials to classroom realities. Moreover traditional social and organizational backgrounds constrain para-educators' ability to reflect or collaborate, which creates the need for structured activities that can scaffold the development of such procedural skills, in a way which is realistic for the organizational cultures within which they operate. Finally, the need for para-educators to learn from practice is even greater than regular teachers, because their ability to absorb theoretical inputs is not as high as well-qualified and professionally trained teachers. They need support in developing pedagogical (content) knowledge because of a lack of professional training. Thus, a model is required that may work as a starting point for initiating professional learning activities in NGOs, by combining the contextual realities with elements of professional development and adult learning that include a situated instructional focus, proximity to experience, ongoing self-directed learning and learning through collaborative participation in the workplace.

3.5 CONCEPTUAL MODEL

This section introduces a conceptual model for supporting para-educator learning that is responsive to the contextual needs discussed above. The model integrates core characteristics of effective learning drawn from professional development literature and supported by adult and workplace learning, including conceptual aspects of the models presented above.

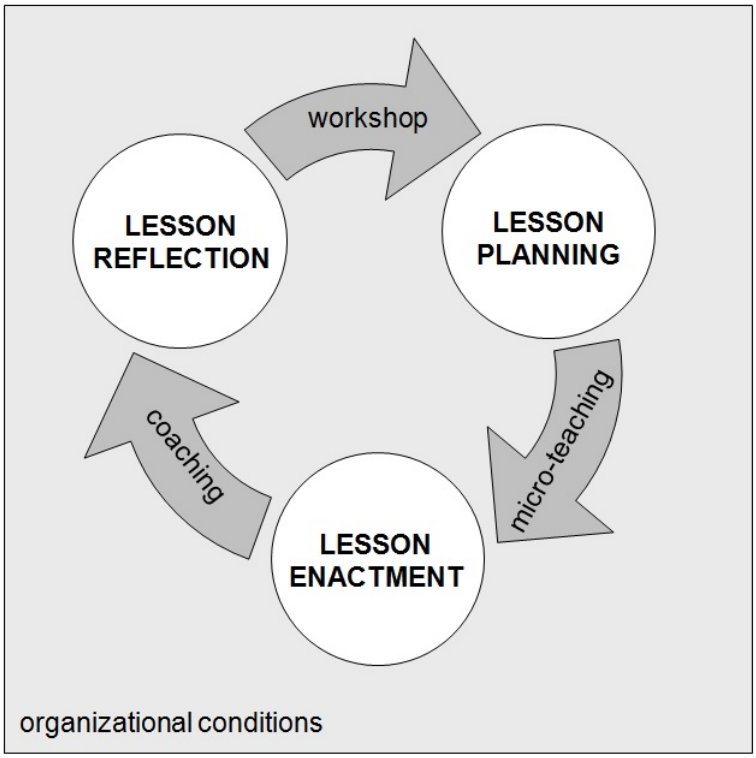

Figure 3.1 Plan-enact-reflect activity and supportive strategies

The model (Figure 3.1) has three core activities within a cycle and supportive strategies outside the cycle that are aimed at strengthening the core activities; this all takes place within an organizational context that provides the conditions for these activities. The core activities to be undertaken daily are: lesson planning, lesson enactment and lesson reflection. As discussed above, for the para-educators, learning from practice and reflection are abstract ideas; the strategies of workshops, micro-teaching and coaching support learning from the three daily activities. Together, the three core activities, when embedded into the daily work routine of para-educators, can prove to be concrete and effective ways of integrating learning with work.

This model has some attributes that make it innovative for the context in question. First, the model asserts that the core cycle of planning, enactment and reflection has the potential to become a standalone source of learning for para-educators. This model presents the core activities as the main locus of the learning process around which all other professional development activities may be organized instead of it being one part of a larger professional development process. While the plan-enact-reflect learning cycle in itself is not new, embedding it in the daily work of NGO staff is considered innovative.

Second, this model must be viewed in a context where para-educators are not in touch with the professional autonomy of finding their own problems and designing their solutions, para-educators do not possess the procedural skills to plan and reflect, and where para-educator learning is predominantly available in the form of top-down training. In this context, by being at the heart of the professional learning process, the core cycle offers a simple, realistic yet powerful starting point for para-educators to begin to own their own problems and develop the necessary procedural skills. It can be realistically implemented in the cultural context, and can also become a concrete referent around which the improvements in organizational systems can be designed to enhance instructional learning.

Third, by presenting the supportive strategies, the model combines multiple contexts of teacher learning in a focused way. It grounds the workshop, micro-teaching or coaching agenda in concrete problems and competencies needed to strengthen the core activities. The multiple approaches give coherent structure, while mitigating the risk of having disconnected strategies like one-shot workshops.

3.5.1 Planning

Teachers best understand the day to day needs of their class and their students (Squire, Makinster, Barnet, Luehmann, & Barab, 2003). But most teachers do not intuitively know how to plan and structure instruction so that it meets the needs of students and the demands of content (Darling-Hammond, 2006). When supported with appropriate tools, lesson planning activities can also serve as supports for the translation of ideas presented in workshops or teaching guides into enactment. Kwakman (2003) lists lesson preparation as a way of experimenting by teachers, through which they gain new experiences and ideas, and thus put effort in improving their own professional learning. In this way, lesson planning is an opportunity to promote a teachers' pedagogical design capacity, and empowering the teacher to be an agent in the design and enactment, rather than merely implementing curricular ideas (cf. Davis and Krajcik 2005). Moreover, lesson plans themselves can also serve as concrete artifacts, which have the viability to record and recall teaching experiences over a longer duration of time (Darling-Hammond, 2006), on which feedback can be

gained from teacher participants and educators, while similarities and differences can be exchanged with other teachers teaching the same lesson (Thijs, 1999).

3.5.2 Enactment

Lesson planning along with enactment are relevant sources of learning as they engage teachers to identify their own needs, explore and act on solutions, evaluate, adapt and enact (new) curriculum materials (or ideas) in the light of their own unique needs and contexts, thus leading to meaningful classroom experiences (Darling-Hammond, 2006; Darling-Hammond & McLaughlin, 1996; Forbes & Davis, 2008; Fullan & Pomfret, 1977; Loucks-Horsley, et al., 1987; Loxley et al., 2007; Mullen, 2008; Squire et al, 2003). All educational change eventually must occur in classrooms and what happens there is largely determined by teachers (Leyendecker, 2008). But it is one thing to know or intend something, and quite another to act on it amidst the dynamic challenges of the classroom (Darling-Hammond, 2006). Teachers can learn about meeting these challenges realistically, if teacher learning experiences are grounded in their own practice, especially in their classroom enactment (Putnam & Borko, 2000). For instance, participants' enactment experiences can be observed and they can receive feedback on it (Elmore, 1997); participants can also bring their enactment experiences to professional development sessions like workshops focused on instructional practices (Putnam & Borko, 2000).

3.5.3 Reflection

Both lesson planning and enactment are concrete experiences that are critical sources of learning and must be strengthened by reflection (cf. Kolb, 1984). In teacher learning, reflection is referred to as the critical thoughts of teachers about their beliefs and knowledge of teaching and about the teaching practices and effects elicited by those beliefs and knowledge (Sung, Chang, Yu, & Chang, 2009). Reflection involves continuous self-evaluation and self-critique towards improving lessons, reaching out to and finding ways to meet the needs of learners (Stronge, 2007). In their study on the relationship between approaches to learning and stages of reflective thinking, Leung and Kember (2003) identify a hierarchy of reflection that involves habitual action, understanding, reflection, and critical reflection. *Habitual action* is at the surface level and involves minimal thought and engagement; it is referred to as unreflective.

Understanding refers to comprehension of content without attributing it with any meaning and lacking any relationship with personal experience. *Reflection* involves conscious engagement through assumption-challenging, identifying areas for improvement and seeking alternatives; this has a deep meaning attached to it. Finally *critical reflection* involves a critical review of presuppositions from conscious and unconscious prior learning and of their consequences, leading to a complete change in firmly held beliefs and ways of action (Leung and Kember 2003; Peltier, Hay & Drago, 2005). Since untested assumptions by definition have a greater probability of contributing to ineffective outcomes, awareness of assumptions is a guiding tenet for critical reflection (Lizzio & Wilson, 2007). Since the quality and depth of reflection influence learning, different structures and processes are often used to help people learn from their experiences (Lizzio & Wilson, 2007). In the model presented above, reflection on enactment as an intention of influencing the way teachers plan and implement their lessons, is an integral part of the professional development experience.

3.5.4 Supportive strategies

The model also highlights supportive strategies that include workshops, micro-teaching, coaching and creating appropriate organizational conditions. The supportive elements of the model are termed so as to suggest that they be developed not in isolation but with the objective to support and improve the process of design, enactment and reflection undertaken by the para-educators. Each strategy can be used to reinforce one or more aspects of the core cycle. In the model, workshops play the specific role of supporting para-educators in understanding how to develop learner-centered lesson plans. For instance, modeling new or difficult pedagogical ideas, para-educators can get a 'mental image' that can make it easier to adapt the ideas into their lesson plans. Every day lesson planning can be supported by micro-teaching sessions in which para-educators get the opportunity to practice the enactment of their lesson plans within their teams. Coaching support by peers and supervisors can also be used to support reflection on enactment. For instance, peers can ask critical questions, provide suggestions, and share personal experiences during a reflective session. Or, coaches can share their reflections from classroom observations. Finally, organizational conditions are required to ensure that the core activities and other supportive strategies flourish. Considerations like

releasing time for such activities and ensuring that non-teaching roles do not dominate the work of para-educators and their supervisors are important for elements of the model to be successful in practice.

The conceptual model presented here depicts the importance of embedding learning with routine activities of lesson planning, enactment and reflection by practitioners in education, especially para-educators in developing countries. It pays close attention to the cultural and contextual realities of these practitioners, and offers a professional development route that is viable amidst these challenges. It argues that professional support interventions must entail designing tools or processes required to develop this cyclical approach in the professional routine of the para-educators. Moreover, it provides a concrete structure which views para-educators as active learners who individually and together try to address their classroom problems and reflect regularly on both their solutions and their own learning. Such a process provides para-educators who are completely unfamiliar with any learner-centered approach with the experience of being an active learner. With this conceptual model as the backbone, program design, development and evaluation was initiated, with the objective of supporting para-educators in planning and enacting well-structured learner–centered lessons. The next chapter describes the first of these iterative activities in the form of a pilot program for supporting the para-educators in learning.

CHAPTER 4
Design: Pilot study[4]

This chapter describes the pilot sub-study on designing and implementing a professional development program for the para-educators in Maitri. Section 4.1 introduces the chapter by reminding readers about the objective of the professional development formulated after the needs and context analysis, and the conceptual model. The actual professional development program as designed and implemented during the pilot is described in section 4.2. Section 4.3 shares the aim of the formative evaluation of the pilot program and the research design. This is followed by the results of the first formative evaluation in section 4.4, describing the early perceptions of the para-educators about the professional development experience and the type of developments in para-educators' lesson plans and enactment. Section 4.5 presents conclusions from the sub-study.

4.1 INTRODUCTION

Chapters 2 and 3 described the preparatory phases before the commencement of the professional development program. Chapter 2 portrayed the learning requirements of para-educators and led to the formulation of the professional development objective for para-educators. The objective was defined as supporting para-educators to plan and implement systematically-structured and learner-centered lessons. Chapter 2 also provided informative evidence about organizational practices and policies which were likely to complicate para-educator learning. Chapter 3 provided a conceptual model with its core and supportive strategies that took into account various formats for supporting para-educator learning, and stressed the need for appropriate organizational conditions while paying attention to the learning activities of para-educators.

[4] Paper submitted.

This chapter presents the first pilot professional development program. The program was conducted during a summer vacation when working conditions of the para-educators were more relaxed and more time was available to adapt to the professional development initiatives than was the case during the regular term. The pilot was formatively evaluated. It looked at the perceptions of para-educators towards their first new professional development experience. It assessed whether participants had acquired a systematic and learner-centered approach in their lesson planning. It also examined perceptions about changes in the classroom enactment of the para-educators, who had engaged in planning activities for the first time. In the next section, the design and implementation of this first professional development program for para-educators is described.

4.2 PROFESSIONAL DEVELOPMENT PROGRAM

Based on the model presented in Figure 3.1 (Chapter 3), a pilot professional development program was developed. The program was introduced during the summer holidays when mainstream schools were closed. The community centers organized free art classes for the children in the slum communities. Para-educators were provided with art teaching material for 30 days by the NGO, through which children could develop skills in 'art appreciation' and 'art creation'. Para-educators and their pupils were unfamiliar with such activity-based art teaching and learning. No fees had to be collected for the art lessons. Para-educators taught only one class a day, so they had more time to prepare for each lesson. The pilot was introduced during this summer period with art classes as para-educators had more free time and less pressure of learning content (like math or science). It was expected that the para-educators would be able to get used to lesson planning and reflection activities more easily in a relatively low-stress state.

Before the commencement of the art classes, an orientation workshop was organized. Thereafter, para-educators reflected daily on their work and planned for the next day. Additionally, time was made for micro-teaching activities to practice the next day's lessons. Cluster-heads co-facilitated these activities along with the researcher. A reflection activity was also scheduled every Saturday, which was facilitated by each cluster-head in their respective clusters.
Tentative and modest organizational changes conducive to these learning activities were introduced. For example, tasks were reorganized in order to

integrate new planning and reflection routines in their timetables. Supervisors also learned to redefine their roles: redesigning their work routines, developing the lesson-planning tools, workshops and coaching. Table 4.1 provides an overview of the professional development program elements.

Table 4.1 *Professional development program elements*

Core Activities	**Tools and Content**
Daily lesson-planning	A lesson plan template with elements of systematic lesson-planning described in the form of a question
Daily enactment of lesson plan	(The lesson planning template was often used during class)
Daily reflection on lesson plan	A simple tool with the same elements of the lesson plan
Weekly reflection	Template for each individual to support reflection on enactment experiences over the week and plan for the following week Cluster level meeting facilitated by the cluster-head
Supportive strategies	**Material /Content**
Monthly workshop	Total of 6 sessions 3 demonstrations of enacting art activities 1 group discussion on use of classroom norms as behavior management strategy 2 group work sessions: study, discuss and clarify how to plan lessons and reflect using templates
Daily micro-teaching	Practicing enactment of lesson plan Peer feedback and sharing of ideas
Daily coaching	Cluster-heads visited classes during enactment Peers and cluster-heads coached during reflection and lesson-planning

Para-educators developed daily lesson plans using a template designed to help them 'think through' the different aspects. This involved planning activities through simple yet detailed questions, with the additional help of teacher guides that described learner-centered activities for different concepts. The questions were flexible so that participants could borrow ideas from the teacher guides as well as brainstorm their own. Each question was aimed at helping them operationally plan out the essential elements of curriculum (cf. Klein, 1991; van den Akker, 2003). Table 4.2 displays the questions in the lesson-planning template.

Table 4.2 *Lesson-planning tool inspired by curriculum components*

No	Questions
1	What is the objective of the art activity I will be doing tomorrow?
2	How will I start the day in the class? Will I start with a fun activity, a game, a story or any other way? (How much time and what material do I need for this activity?)
3	What types of norms are necessary to be followed by pupils during tomorrow's activity? How will I support them in deciding these? Will I scaffold by demonstrating a situation, giving examples, asking questions, or any other ideas?
4	What steps will I take when pupils violate established conduct norms and it disrupts their work? What type of reinforcements can I use?
5	How will I link the previous day's work with the current day's work?
6	What type of instructions do I need to provide while introducing the activity so that the pupils clearly understand what they are required to do during the art activity? (How much time do I need to instruct all the groups?)
7	How many groups can I form for the activity and how will I form them?
8	What criteria will I use to form the groups?
9	What are the detailed steps in the activity? (How much time will each group need to plan the activity and what material should I prepare?)
10	Based on the recommendations provided in the material, what are the things I have to keep in mind as well as avoid to facilitate the group process well?
11	How will I determine whether children completed the activity successfully or not?

4.3 METHODS

The main aim of the pilot study was to understand if and how para-educators were able to develop lesson-planning skills through the support provided, without prior knowledge of lesson-planning. Because perceived value influences the adoption of new ideas and skills, this study also examined how para-educators felt about the new ways they were being asked to teach. Three research questions guided this study:

1. *How did the para-educators experience the professional development program?*
2. *What lesson-planning skills did the para-educators acquire?*
3. *What are para-educator perceptions about changes in their own classroom enactment?*

4.3.1 Participants

Nine para-educators, three from each of the clusters, were selected for the data collection, in consultation with the management team and the cluster-heads. With the hope of following para-teachers longitudinally, participants who were expected to stay with the organization for a long time were sought.

4.3.2 Data sources

Lesson-planning skills were examined through document review of lesson plan templates and also through para-educator self-reporting on lesson-planning skills gained through interviews. Perceptions about classroom enactment were gained through in-depth interviews (Appendix C) with cluster-heads and para-educators. Table 4.3 reflects the data collection methods used for the different research questions.

Table 4.3 *Matching research questions with data collection methods*

Research question	**Methods**
How did the para-educators experience the professional development interventions?	Para-educator interviews
What lesson-planning skills did para-educators acquire?	Document reviews Para-educator interviews
What are the perceptions about changes in classroom enactment?	Cluster-head interviews Para-educators interviews

4.3.3 Analysis

Participant interview data were analyzed first. Pre-defined themes based on the research questions were used to categorize the data. Thereafter, analysis involved looking for new themes and recurring patterns of meaning cf. (Merriam, 1998). Document review of lesson plans was done quantitatively. From the 20 lesson plans created during the four weeks, three from each week were selected at random for a total of 12 lesson plans per person. Altogether 108 lesson plans were analyzed. Four parameters were developed to analyze the plans: completeness, accuracy, appropriateness and detail. Answers to each question in the planning tool were coded according to these parameters. A code 'y' was allotted when the question fulfilled the parameter and 'n' when it did not fulfill the parameter. Scores, based on percentages of 'y' codes, were used to

rank participant performance on each parameter and each question. Performance scores between 0 to 33 percent were considered low, 34 to 66 percent was considered moderate and scores above 66 percent were considered high. Table 4.4 provides the definitions of each parameter and codes given for two sample answers (sample answers are italicized).

Table 4.4 *Example of document analysis of lesson plans*

Document analysis coding			**Excerpt from completed lesson plan**
Para-meters	**Indicators**	**Code given**	What type of norms are necessary to be followed by pupils during tomorrow's activity? How will I support them in deciding these? Will I demonstrate some useful behavior by demonstrating a situation, giving examples, asking questions, or any other ideas?
Complete-ness	Logical beginning and end to the answer; each question answered	y	*Group wise norms :* *Group 1 : Share materials within the group; ask for material from my group mate and not snatch it from him/her ; not getting up and leaving the group in the middle of an activity;* *Group 2: same as above, but also not distracting group 1 while they are working.* *Support in defining:* *To remind both groups about the norms, I will ask them to recollect these norms from yesterday's discussion before the group activity and agree with them that we will follow these norms.* *I will talk to them about the advantages of following these norms from yesterday's example. For instance, point out that there are no quarrels in the class ; the everyone gets a chance to work, we finished the activity in time, etc.*
Accuracy	Question understood correctly	y	
Appropriateness	Not stringent and easily implementable by the children; Intended for making the activity productive and not aimless, 'for the sake of it'	y	
Detail	Answer in detail, making each step possible transparent	y	
Complete-ness	Logical beginning and end to the answer; each question answered	n	*Go out of the class*
Accuracy	Question understood correctly	Y	
Appropriateness	Not stringent and easily implementable by the children; Intended for making the activity productive and not aimless, 'for the sake of it'	N	
Detail	Answer in detail, making each step possible transparent	N	

4.4 RESULTS

4.4.1 How did the para-educators experience the professional development program?

The participants shared in-depth perceptions on core and supportive strategies, particularly (a) how they viewed the specific roles of the different learning activities, and (b) what specific aspects they found difficult or inconvenient about each intervention and what aspects easy and beneficial.

Core activities
The participants commented on the newly-added activities of lesson-planning and daily reflection.

Daily lesson-planning: All participants expressed more confidence and ease in teaching because of prior preparation through lesson-planning. They reported that lesson-planning was very useful as a preparatory activity stating different reasons for it,

> "*It became possible for me to become familiar with the materials as well as have a teaching plan based on them even though each day's activities and materials were completely new*."

And,

> "*At the end of the planning, I could visualize two hours of teaching time and I had clarity about what to do in teaching as well as classroom management throughout the two hours of class work."*

Almost all the participants explained that they referred to the lesson plans when they forgot something during enactment. Most participants had found some of the questions on determining norms difficult to think about. Five participants thought that writing was more difficult initially than just thinking and talking about ideas.

Daily reflection: A recurrent theme in the interviews was that daily reflection activities helped para-educators gain a snapshot of the day and share feelings about the day's work. Participants reported different reasons that made the daily reflection activity useful. For instance, one participant said:

> "*New ideas got generated while reflecting and discussing everyday for addressing different aspects of the teaching process*."

While another shared,

"*It made things easy, as the insights I gained were already ideas for the next day*."

Only one participant thought,

"*Sometimes those discussions go on and on; it's a waste of time*."

Six participants stated that they found it easy to review their day's work in terms of satisfaction or dissatisfaction, but it was difficult to articulate why. Every participant felt it was easier to reflect jointly than individually. Most of the participants shared that lesson-planning and reflection felt difficult in the beginning, but with daily support by the cluster-heads and peers and daily practice, it became easier.

Weekly reflection: Participants from two clusters shared that the cluster-heads facilitated discussions based on the weekly reflection tool contents, through which the participants were able to address concerns resulting from the past week's action or following week's planning. One of them said that the weekly reflection was useful as,

"*At the end of the week I took stock of my as well as my pupils' progress*."

Another participant shared that,

"*I could get to consolidate the daily planning and reflection of the whole week*."

In one cluster, participants felt that the weekly activity in their cluster was just an activity of mechanically filling in the tool, where no discussion was facilitated by the cluster-head. Overall, participants felt they could be more independent at the later stages of planning and reflection; at the earlier stages they were much more dependent on the cluster-heads and facilitator.

Supportive strategies

Participants also shared their experiences about the different supportive strategies employed to strengthen planning, enactment and reflection activities.

Workshops: All the participants judged that the workshop was useful as an orientation process to understand what a practical activity looks like in reality. For instance, according to one participant,

"*The demonstration activities gave a mental image about the practical way of teaching art*."

Or, another expressed that,

> "*I got an idea how to use the teaching materials practically during an art activity*."

A commonly expressed concern was that the practical demonstrations were easy to understand but it was difficult to relate to the ideas that were discussed in the group-discussion about tools and disciplining strategies. Participants also shared that they had started viewing art differently in terms of what is entailed as a subject as well as how it can be taught. As one of the participants shared,

> "*I realized that art involves creating and appreciating the things around us. This was the first time I saw what art is about and how it can be taught*."

Micro-teaching: One of the predominant perceptions regarding micro-teaching experiences was that they themselves understood art differently because they had also been 'art students' during the micro-teaching activity. For instance one participant shared,

> "*I learned by creating my own drawings during micro-teaching sessions that there is so much detail one can observe when one looks at nature around. When one learns to look minutely, one can imagine and create one's own scenery picture*."

Another shared that by being the learner in the micro-teaching sessions over one month, she had started believing that she could also draw and be creative, and started viewing her peers differently in terms of their art skills. She also expressed that,

> "*I learned art by doing it and slowly over time I could see that I had improved. Therefore I could also treat my pupils like that. I did not expect them to draw the best picture in the first instance, unlike how it was for us when we were students*."

Another participant echoed a similar impression,

> "*I and all my peers have learned by doing. We have learned to draw and be creative by practicing it. This is how our pupils will learn as well*."

Participants also explained that they found micro-teaching useful to share new ideas about enactment. Across different participants they provided examples of enactment ideas gained from micro-teaching sessions, for instance, finding effective ways of explaining to pupils how to enact activities, modifying specific activities for fast track pupils, or having a sufficient repertoire of questions that can be asked so that they could provide more children with the opportunity to participate in a discussion. Some participants felt that they learned just by watching the peers enact during practice sessions. For instance one participant said.

"*When I saw in the practice session that my peer did not involve all the learners, I made a note that I should not do it, because the image stayed in my mind*."

Many said micro-teaching was useful when they had not understood the activity well enough after reading the manual. Participants from two clusters shared that it was difficult in the first week because,

"*I did not feel confident of demonstrating before others*."

"*Peers find faults for the sake of it*."

"*Peers purposely behaved like small children and misbehaved*."

However they shared that this was solved soon as with practice their fear of presenting in front of others was diminished and with feedback from the cluster-heads, peers slowly changed their attitude at the micro-teaching sessions.

Coaching: Participants shared that their cluster-heads were present everyday to support reflection on their activities; and two cluster-heads also supported the weekly reflections. Participants from all the three clusters supported each other during reflection. In all the clusters, similar coaching support was also solicited during lesson-planning, according to the participants. They consistently found planning and reflection easier over time, on account of the daily support available for the heads and the peers. A comment, supported by many others,

"*Often when I reflected on my class, I could not think of how I could solve a difficulty, but if the cluster-head was present, she would identify a strategy that she had observed in my peer's class which would be helpful to me, and ask her to share it with me. So I got new ideas and we also learned to bring out more examples from our own practice to help our peers because of the coach's facilitation*."

4.4.2 What lesson-planning skills did the para-educators acquire?

A review of the planned lessons together with interview data helped address this question. As indicated in Table 4.5, the mean scores from each cluster were quite high, with over 66 percent for completeness, accuracy and appropriateness of their lesson-plans. However, the mean score for detailing of the questions was much lower. For detailing, two participants scored low, below 33 percent, and the rest achieved a moderate score.

This indicates that these participants paid greater attention to ensuring that they understood the questions correctly and came up with legitimate classroom teaching strategies for each question.

Table 4.5 *Mean percentage scores of participants on quality parameters in lesson-planning*

Participant (pseudonyms)	Cluster	Complete	Accurate	Appro-priateness	Detailing
Meera	A	68%	68%	69%	51%
Harsha	A	75%	77%	76%	60%
Varuna	A	67%	75%	75%	32%
Sarojini	B	82%	85%	85%	55%
Avnita	B	76%	86%	86%	50%
Shubhlaxmi	B	76%	79%	79%	47%
Mital	C	86%	95%	93%	35%
Chanda	C	67%	75%	75%	32%
Sanjana	C	71%	95%	94%	51%
Mean score per parameter		**74%**	**82%**	**81%**	**46%**

Legend: Dark grey = high, medium grey = moderate, light grey = low.

Table 4.6 gives the mean scores for each question. Questions where participants had scored high, that is, above 66 percent, in order of ranking were:

Q2. Introductory activity
Q5. Linking the day's work with previous day
Q10. Strategies to steer the group process based on recommendations in the material
Q11. Concluding activity
Q6. Providing clear directions to the pupils when assigning a group activity
Q7. Formation of groups
Q1. Objective of the activity

The other questions ranked in order in the moderate category (scoring below 66 percent) were:

Q8. Criteria for determining sub groups
Q3. Defining norms
Q4. Reinforcing norms
Q9. Main steps of the activity

As indicated in Table 4.6, no questions received mean scores falling in the low category.

Table 4.6 *Mean percentage score per question and per participant*

Question	Meera	Harsh-a	Varun-a	Saroji-ni	Avni-ta	Shubh-laxmi	Mital	Chand-a	Sanja-na	Mean
1	75	75	60	68	75	68	68	60	75	69
2	100	80	98	98	98	98	100	98	83	94
3	15	35	60	70	63	70	78	60	55	56
4	8	25	73	63	58	63	70	73	70	56
5	100	100	70	95	98	23	88	70	95	82
6	98	98	48	93	85	93	73	48	80	79
7	88	90	60	48	88	48	70	60	75	69
8	28	30	58	63	63	63	73	58	78	57
9	40	80	45	55	30	55	76	45	63	54
10	68	80	68	98	80	98	95	68	90	83
11	88	100	45	98	88	98	61	45	93	79
Part. total score	64	72	62	77	75	70	77	62	78	

Legend: Dark grey = high, medium grey = moderate, light grey = low.

When lesson plan scores per week were compared, they reflected no substantial difference between week 1 and week 4 for any participant. All participants started with a high or moderate mean percentage score, and retained that over the four weeks.

Interview data showed that participants had acquired a systematic approach to planning lessons. A common response was,

> "*I have learned to plan my lessons in a step by step manner*."

Participants discussed that they began to pay attention to aspects like beginning the lesson, and the lesson objective. Some perceptions were,

> "*I pay attention to having a good introductory activity, because when the class begins in an enjoyable way, pupils become motivated and attentive*."
>
> "*There was no objective for any of my class activities earlier but now I learned to write down objective of each activity*."
>
> "*I learned that I have to determine whether the objective is achieved or not, instead of just leaving the activity open ended*."

Most participants indicated that they could plan time better. One said,

> "*Planning helped me to allocate time for each step and therefore the overall time for the class*."

Another commonly acknowledged learning was about planning activity steps and materials. Participants shared,

"*Planning the learning activity helped in thinking step by step for the activity and how and when to use what material*"

"*I learned how to plan for using the materials in a more organized manner based on the relevant stage in the activity and not randomly*"

"*It has helped me in making the activity simpler through examples and questions*"

Participants also talked at length about grouping children and planning appropriate learning tasks for groups. For instance,

"*During February and March (before the interventions), I took into consideration only 2-3 children, e.g. which math sums I would give to std. 6th and 7th kids. But during art trunk, and by filling the planning, I learned to plan for each and every child as well as the classroom on the whole, as I had divided the class in groups*"

Participants thought aloud about how they now paid attention to forming classroom norms. Several said lesson-planning,

"*Helped me in making norms and following the norms along with children*"

But they also shared that they found it difficult to think of specific norms everyday or to find new ways of reinforcing them. Some of the participants admitted that they often skipped that question because they did not know how to address it.

4.4.3 What are para-educator perceptions about changes in their own classroom enactment?

Data to answer this question were gathered mainly from cluster-heads who, based on observations, shared their perceptions of enactment aspects that were satisfactorily achieved and those aspects which should be reinforced in subsequent versions of this program. The biggest change all three witnessed was that the para-educators had ceased to follow a whole-class or inefficient individualized teaching approach and worked with pupils in groups. For instance, one of them confidently stated,

"*You can come and make a surprise visit to any of my class and I assure you, that you will not find the teacher teaching the whole class for the entire teaching time*."

The cluster-heads also shared that the majority of the times during their classroom visits they had found para-educators and pupils engaged in the activity-based methods and not the typical traditional way of teaching art, in

which a teacher draws a picture on the black-board and expects pupils to reproduce it in an identical manner. The para-educators tried to engage children by using questions and real life examples for discussion and explanation, and systematically conducted the class from introduction to conclusion. The cluster-heads shared their perceptions about their para-educators which are such as,

> "*Now one does not find the teacher shouting to control the chaos in the class like earlier*."
>
> "*Most of my teachers are more patient*."

However, all three cluster-heads expressed that the actual activity gets diluted in enactment. For instance one cluster-head shared that,

> "*During a micro-teaching session, they may have discussed many more examples of questions that can be asked for involving children in a discussion, however many are forgotten during the actual class*."

Another cluster-head explained the reason for this saying,

> "*Para-educators do not integrate all suggestions of peers into their lesson plan, and therefore they often forget the ideas*."

Another concern shared was that most para-educators tried to formulate behavior norms with children but did not consistently reinforce desirable behavior and discourage non-desirable behavior. As a result, children discussed 'how to behave' but often slipped into old behavior.

Para-educators also reflected on their own classroom practices. They felt that they knew how to group children, use a practical activity to teach art as well as teach in a more structured way. However, their main concerns were how to use this practical approach with other subjects like math and science, and regulating the behavior of children more effectively.

4.4 CONCLUSIONS

This sub-study looked for evidence to indicate if and to what extent participants had acquired lesson planning skills as a result of the professional development pilot. As lesson planning support was provided through various strategies, the study also looked for how the para-educators experienced them. Moreover, lesson planning is meant to enhance their own enactment, and if the participants did not experience more satisfying classroom experiences, lesson

planning would not be meaningful. Hence, the study explored perceptions about changes in classroom enactment, as well.

Overall, the participants' first professional development experience was positive. Their interview responses indicate that each core and support strategy contributed to their professional learning and confidence. Their perceptions also clearly highlight some attributes of the professional development program which contributed to the positive experience. These include more practical strategies like demonstrations and micro-teaching; joint rather than individual planning and reflection; immediate ongoing support by coaches during daily planning and reflection; and active facilitation by the coach during weekly reflections.

An additional conclusion is that para-educators learned lesson-planning skills through this professional development experience. Most participants got a high or moderate score for quality parameters of completeness, accuracy and appropriateness as well as for the different questions. Such scores as well as the interview data, help to conclude that para-educators had gained considerable knowledge about different components that lead to a well-structured lesson plan, for example, topic introduction, step-by-step application of learning activities and materials or lesson conclusion. Similarly, data from lesson-plan reviews as well as interviews about enactment reflect a learner-centered orientation in choices about grouping, questions, examples and practical activities. Perceptions from both para-educators and cluster-heads indicate that para-educators' enactment had improved in terms of being more systematic and more learner-centered as compared to what it was before the professional development experience. Cluster-heads were confident that classroom teaching practices reflected greater use of group work over whole class methods, more practical learning activities, and questions and examples instead of rote methods. Cluster-heads felt that there was dilution between lesson-planning and enactment. This can be explained in two ways. On one hand, it takes experience to transfer knowledge to practice (which these para-educators lacked) and on the other hand, the participants' lesson plans were not worked out in sufficient detail. Both lesson-planning and interview data helped identify that para-educators continued to experience difficulty in planning for and implementing disciplining strategies successfully.

Overall, it is concluded that the pilot professional development program, as the first experience of its kind for these para-educators, was very well-received. When compared to the pre-professional development period, when teaching was ill-structured and incoherent, as well as rote-based, there is indication of a definite shift towards better structured and learner-centered lesson-planning after the first pilot.

This study provides interesting insights for those working with un(der)-trained para-educators, and in under-resourced contexts. It gives an example of the type of planning and teaching skills that such para-educators could need, and be able to achieve realistically. That is, improving basic planning and teaching skills seems well within the zone of feasible innovation.
Moreover, this study also provides an approach to professional development that can lead to effective learning gains in a short period of time (one month) even for completely untrained para-educators. Guiding principles embodied in the professional development program described here include:

- Embedding their learning with daily tasks like lesson planning, enactment and reflection.
- Ensuring immediacy in timing and content of professional support.
- Simple standardized templates to scaffold planning and reflection.
- Preparatory as well as ongoing support for implementing these learning activities.

While para-educators are considered valuable for enhancing educational opportunities in developing countries, especially India, very few empirical studies exist on designing effective and feasible professional development for them. This sub-study contributes by providing a description of what kind of support can lead to increased para-educator capacities and how it can be implemented.

Based on the momentum gained through the pilot sub-study, and the feedback from the para-educators regarding different interventions, the professional development was carried forward to the regular term when para-educators had to teach regular subjects. During the regular term, parents paid for the classes, and the temporary measures taken during this pilot, were no longer sufficient to meet the necessary organizational and classroom conditions. Specifically, it was obvious that without addressing some of these aspects that directed a substantial portion of para-educators' time and efforts into generating fees, the

professional development program could not be carried out effectively. Hence these conditions were modified along with extending the professional development to help institutionalize the core activities into the daily work of para-educators. The next chapter describes the design, implementation and evaluation that comprised the sub-study on the second prototype.

CHAPTER 5
Design: Institutionalization study[5]

This chapter describes the second iteration of the professional development program. Aimed at achieving institutionalization of the professional development activities, the efforts described in this chapter focused on making crucial organizational changes which would prove to be more conducive for the professional development activities to flourish. In section 5.1, this phase is introduced, followed by the description of the professional development program with key organizational changes in section 5.2. In section 5.3, the research design for the formative evaluation of this phase has been presented, followed by the results in 5.4. Section 5.5 presents the main conclusions drawn from the formative evaluation study.

5.1 INTRODUCTION

The results of the pilot study were insightful and indicated that the professional development program could meet the objective of helping para-educators develop learner-centered lesson plans. Participant reflections about the core and supportive strategies helped identify that which was more simple for them to deal with and that which was more difficult. Moreover, it was clear, that the program was well-received and yielded definite developments toward more well-structured and learner-centered approaches. However, the pilot phase was implemented during the summer vacation period when working conditions of the para-educators were more relaxed than during the regular term. But, as identified in the needs and context analysis, certain organizational policies and practices were not conducive to the professional development of the para-educators. As also addressed in the conceptual model which emphasizes appropriate organizational conditions, it was clearly evident that without addressing organizational conditions in Maitri, it

[5] Paper submitted.

would be difficult to expect that professional developments could enjoy success similar to that experienced in the pilot iteration.

This iteration therefore aimed at modifying essential organizational policies and practices necessary for the professional development strategies to become institutionalized and thereby sustained within the organization. First, organizational conditions were redefined and then the professional development program (with modifications guided by the pilot sub-study) was implemented and formatively evaluated. Data were collected to: (a) investigate what professional competencies were gained through the professional development support; and (b) ascertain the role organizational changes played in supporting the institutionalization of the professional development process. The next section elaborates the organizational changes introduced and the implementation of the professional development program in the second phase.

5.2 PROFESSIONAL DEVELOPMENT PROGRAM

After ascertaining that the professional development cycle led to the acquisition of systematic and learner-centered lesson planning and enactment, the second phase sought to institutionalize this cycle and explore its value during the regular school term. Several substantial organizational changes were necessary to allow the professional development activities to flourish. After reviewing program policies and strategies that were perceived as counter-productive to the objective of achieving quality learner-centered teaching, changes were made through a decentralized decision-making process. In this process, cluster-heads and para-educators worked together to develop new policies and organizational conditions that were conducive for improving classroom teaching. The active involvement of the cluster-heads in this process was also considered a key change in organizational conditions.

5.2.1 Cluster-heads lead the creation of a foundation for professional development

The changes in the organizational conditions were spearheaded during a workshop with cluster-heads which was held over a ten-day period. Together with para-educators, the cluster-heads:

1. Identified policies which were detrimental to the teaching and learning quality of the centers.
2. Modified planning and reflection tools based on the feedback from the pilot activities and also designed new tools for para-educator learning.
3. Developed planning and reflection tools that they, themselves, could use to strengthen their own abilities to support the centers as cluster-heads.

Thereafter, the cluster-heads made several changes to the policies, and thereby the organizational conditions, in consultation with the para-educators and the program-head. The researcher facilitated this process. The cluster-heads made the following decisions:

1. Narrowed program objective: Keeping in mind the para-educator current capacities, the centers would aim to teach only pupils who needed remedial help up to grade 4.
2. Increased time duration: In order to increase the contact between para-educators and pupils, each academic term would be for 6 months.
3. Stabilized pupil population: For a stable class, pupils would enroll in the beginning of the term only, even if pupils dropped out, and the fees dropped.
4. Realistic and well-planned curricular targets: The para-educators would set learning objectives for pupils based on actual learning needs and the cluster-heads would support para-educators in setting both realistic learning targets and communicating these targets to parents.
5. Reduced class size: An assistant teacher would be added for the preschool children, and the para-educators would only work with older children for a maximum of two classes a day.
6. Reduced heterogeneity: The set of older pupils would be classified into a basic group needing basic reading and math skills and an advanced group.
7. Systematic and efficient task planning: With the help of a task planning tool, para-educators should reallocate tasks to free time for daily lesson planning and reflection on week days and make community visits only on Saturdays.

5.2.2 Professional development program implementation

After modifying policies and organizational conditions as described above, the work processes of para-educators were set up such that the core activities of lesson planning, enactment, and reflection could be incorporated into their daily routine. In addition, a weekly reflection activity was held in each cluster.

As in the pilot phase, planning and reflection were supported through various strategies of workshops, micro-teaching and coaching. Some modifications to the program were made in the second phase.

- A two-week self-study workshop, prior to the commencement of class, and before the workshop, was provided for the para-educators to study the material to be taught in the next months and to practice making lesson plans and enacting those plans through micro-teaching activities (figure 5.1 portrays teachers involved in micro-teaching). Para-educators could identify difficulties that they encountered and could not solve during this period, to the expert workshop.
- In addition, during the expert workshop, as per the feedback gained in the pilot phase, more activities that involved experiential learning were added.
- In contrast to the pilot phase when para-educators planned daily lessons, this phase also involved basic steps for grouping a multi-level class in different groups, and planning curricular objectives for each group. Templates for supporting these steps of planning were also provided to the para-educators.
- The daily lesson planning and reflection tools were shortened in length and their sequence was modified based para-educator recommendations made during the pilot.

A micro-teaching session for a lesson on water-reservoirs

A micro-teaching session on the solar system

Figure 5.1 Micro-teaching sessions to practice enactment based on lesson-plans

Other supportive strategies continued as in the past. The instructional workshop under expert guidance helped para-educators develop lesson plans for topics they found difficult. Once classes commenced, cluster-heads provided coaching support. Throughout implementation of the professional development program, heads of each cluster met once a week with the facilitator, sharing implementation problems, and also receiving feedback from the facilitator on their coaching approach. Table 5.1 provides a description of the professional development interventions.

Table 5.1 *Description of the professional development program*

Core activities	**Content**	**Material**	**Attributes**
Planning	Grouping: Foundation and advanced groups	Template	Differentiation instead of individual teaching
	Planning learning targets : Long and short term objectives; daily time table	Templates	Focus on actual learning needs of pupils instead of ad hoc choices
	Daily lesson planning	New, shortened template; Teacher guides; subject matter books	Supported by template; individual / joint
Enactment	Relevant subject-matter teaching	Learning materials; lesson plan	Supported by prior lesson preparation; instead of spontaneous
Reflection	Daily reflection on experiences, problems, ideas.	Modified Template	Supported by templates; individual / joint
	Weekly reflection on progress; problems, new plans.	Template (used by Clusterhead)	Group meeting Facilitated by cluster-head
Supportive strategies	**Content**	**Material**	**Attributes**
Workshop	Self-study workshop: Advance preparation of subject matter; practicing teaching strategies; preparing lesson plans for topics to be taught in the immediate term.	Subject- matter books, teacher guides, lesson plans	Focus on immediate topics 2 weeks before the term Individual / Joint study.
	Expert workshop: 6 sessions: Expert guidance on: lesson-design of difficult topics; demonstration on enacting by expert/peers; reflective discussion on enactment; modification of lesson plans based on discussion	Teacher guides; Planning and reflection templates	Focus on difficulties experienced during self study workshop Paired lesson planning Demonstrations in small groups Group reflection Expert guidance on content and process (e.g. on lesson plans as well as group work skills)
Micro-teaching	Practice of teaching strategies based on lesson plan	Lesson Plans	Prior practice of enactment Peer feedback; Modification of lesson plan
Coaching	Cluster-heads during enactment. Peers and cluster-heads during reflection and lesson planning	Planning templates (of cluster-heads and para-educators) Reflection templates of para-educators	Focus on immediate learning from planning/enactment.

5.2.3 Tools used in the professional development program

Like in the pilot sub-study, para-educators learned how to design systematic learner-centered lesson-plans through a daily lesson planning activity, but with a template which was modified based on the findings of pilot study. As compared to the template used in the pilot, this template had fewer questions, clearer language with an explanation provided wherever necessary, and a different sequence of questions. For example, certain questions for including an introductory activity were removed as the pilot study data gave the impression that these aspects were understood by the para-educators. Similarly, certain questions were combined (for example, norms) and some questions placed earlier in the template (grouping). Based on the modifications in the lesson-planning template, corresponding changes were made to the reflection template.

A new role for cluster-heads, focusing more on educational leadership than on administration, was deemed vital to the success of the professional development program. This role was introduced in the pilot phase. However, during this phase, it was supported through self-designed templates that aided cluster-heads in using problem-solving strategies to support para-educators. The cluster-heads and their facilitator (and researcher) met weekly, during this 2nd formative phase where these templates were used to exchange ideas, share problems and get feedback on their role in supporting the para-educators (see Table 5.2).

Table 5.2 *Questions in the lesson planning template*

Q. no	Lessonplan components	Questions in the lesson plan
1	Grouping	Group the children in the class into basic and advanced groups based on their baseline attainment in reading, writing and math. Write down the names of children who come in each of these groups.
2	Learning objective	For each of the groups what are the learning objectives for the day, what activity will you choose for that and how many sub groups are needed.
3	Learning activity, material and time	Write down the activity steps for each activity you are conducting for each of the group along with the material and time needed for each.
4	Para-educator's role in facilitating learning in groups	You must explain the activity to the children in such a way that the children can carry out their task on their own in their group. Write down the specific steps / actions you will ask the children to do in detail in the right sequence while you are away.
5		For each of the activities, at what point should you go back to review the progress and how will you do that?
6	Para-educators' role in fostering discipline	While doing the activities what are the disciplinary rules children should observe that you will discuss with them. What kind of reinforcements can you use to sustain them that you will discuss with the children?
7	Conclusion	How will you verify what each group has learned?

5.3 METHODS

As previously mentioned, this phase was undertaken to institutionalize the professional development program and explore its value during the regular school term. With those project goals in mind, this study investigated two main areas:

a. The first aim was to determine the effectiveness of the professional development program, by ascertaining whether para-educators had retained their ability to design systematic learner-centered lesson plans which they acquired during the pilot program; and whether their enactment reflected a shift towards being well-structured and learner-centered. As empowerment and collaborative working relationships are viewed to be critical in professional development, examination of effectiveness therefore also

includes exploration of other professional growth experiences of para-educators besides those directly related to the plan-enact-reflect cycle.

b. The second aim related to a critical assessment of the institutionalization of the professional development program. As substantial policy changes were implemented, the study specifically investigated what role those changes to the organizational conditions played in the functioning of the professional development activities.

The four research questions based on the above stated aims were:

- To what extent did participants' lesson planning reflect a systematic learner-centered approach?
- In what ways did the para-educators' enactment reflect a well-structured learner-centered approach?
- What other kinds of professional development gains did participants experience?
- What role did the (changed) organizational conditions play in supporting and/or hindering the professional development process?

The same nine para-educators as in the previous sub-study, three from each of the clusters, were selected for data collection, along with cluster-heads

5.3.1 Data sources

Lesson planning skills were examined by means of self-reports through interviews and through document review of lesson-plans. Changes in enactment were verified during classroom observations for each participant over four weeks and subsequently discussed through in-depth interviews. Four observations were conducted for each participant, with a total of 36 observations over 4 weeks. Perceptions about other professional growth experiences were gained through interviews with para-educators and their respective cluster-heads. Insights about what role the organizational changes had in the institutionalization of the professional development activities came through interviews with para-educators and cluster-heads. Table 5.3 shows the data collection methods used for the different research questions.

Table 5.3 *Mapping research questions with data collection methods*

Research questions	Data collection methods
To what extent did participants' lesson planning reflect a systematic learner-centered approach?	Para-educator interviews Document review
In what ways did the para-educators' enactment reflect a well-structured learner-centered approach?	Para-educators interviews Classroom observation
What other kinds of professional development gains did participants experience?	Para-educator interviews Cluster-head interviews
What role did the (changed) organizational conditions play in supporting and/or hindering the professional development process?	Para-educator interviews Cluster-head interviews

5.3.2 Instruments

Interviews were semi-structured. Participants were asked to describe their perceptions about changes in lesson planning and enactment as a result of the professional development experience. They were also asked to describe their perceptions about any other changes that they experienced in their way of working or overall approach, besides specific lesson planning and enactment practices. Both the para-educators and cluster-heads were also asked to specify if they could perceive any changes in the organizational conditions, and to describe their perceptions of any benefits or drawbacks of the program (Appendix F).

Classroom observations (Appendix E) were conducted with the help of a curriculum profile. The use of curriculum profiles in classroom observations for formative as well as summative purposes has been successfully used in several studies (Ottevanger, 2001; van den Akker & Voogt, 1994). van den Akker and Voogt explained the use of curriculum profiles in classroom observations and described it as a set of statements about activities and intended behavior of the teachers during the observed lesson (cf. Motswiri, 2004). The extent to which teachers realize these intentions is established by crediting scores based on classroom observations, which results in the actual practice profile of the teacher (van den Akker & Voogt, 1994). Such a curriculum profile was used to explore the nature of enactment practices. The curriculum profile instrument used in the sub-study discussed here was adapted from other studies (Ottevanger, 2001; Thijs, 1999).

The curriculum profile was comprised of 39 items, each one representing a desirable practice. It was divided into four main phases, presented in this order: (1) Preparation for the class; (2) Introduction of the main lesson; (3) Lesson Body: (a) para-educator's role in facilitating the group activity; (b) Pupil's role in the group activity and (4) Conclusion of the lesson. For each item, the observer could put a 'yes', 'no' or 'not applicable'. Inter-observer reliability was established through an intra-class correlation coefficient measure. Three observers observed three classes each. The intra-class correlation coefficient value achieved was .95 which indicates a strong inter-observer reliability. Table 5.4 shows an excerpt from the curriculum profile, with one example from each main section (see Appendix E for the full instrument).

Table 5.4 *Example of the curriculum profile*

DESCRIPTION OF THE CLASS	**YES**	**NO**	**NA**	**COMMENTS**
Preparation for the lesson				
1. The para-educator arrived on time				
2. There is a monthly and weekly target calendar in the class available				
3. Relevant tests have been completed				
Introductory of the main lesson				
4. Provides a link with the previous day				
5. Children are able to recollect the activities and the content of the previous day				
6. Has introduced the concept through relevant examples / activities				
Lesson body: Para-educator's role in facilitating the group activity				
7. Has grouped children as per learning levels within the concept				
8. Para-educator has allocated each group with an appropriate activity				
9. Para-educator has tried to use as much experiential / applied activity as possible				
Lesson Body: Pupil's role during group activity				
10. Children are maintaining their groups while the activity is going on				
11. Children share and discuss with each other rather than doing individual activity within a group				
12. Children are enthusiastic about making a good presentation or product				
Conclusion of the lesson				
13. Different groups are brought together to share their discussion with each other				
14. Para-educator scaffolds with appropriate intervention for left out insights				

5.3.3 Analysis

Interview questions were analyzed per question. Data were categorized for each question, across all participants, based on common patterns or themes. Document review was conducted the same way as in the pilot sub-study. That is, from the 20 lesson plans created during four weeks, three from each week were selected at random, for a total of 12 lesson plans per person. Altogether 108 lesson plans were analyzed. In order to assess the extent to which each component of the lesson plan (presented in Table 5.3) was addressed systematically and with a learner-centered orientation, six parameters were developed. The first four were the same as the pilot study, namely *completeness*, *accuracy*, *appropriateness and detail; and t*wo parameters were newly added. One new parameter *internal consistency:* the consistency between the learning objectives and learning activities (Appendix D). Another parameter was *new ideas,* which involved looking for ideas or solutions that went beyond what teacher guides provided. Like in the pilot sub study, answers to each question were coded according to the pre-defined parameters. A code 'y' was allotted when the response satisfied the parameter and 'n' when the parameter was not fulfilled. Scores, based on percentages of 'y' codes, were used to rank participant performance on each parameter and each question. Performance scores between 0 to 33 percent were considered low, 34 to 66 percent was considered moderate and scores above 66 percent were considered high. An inter-rater reliability score was calculated for the document review in which coding by 2 coders for 36 lesson plans, that is one third of the total 108 lesson plans, were compared. The Kappa Coefficient was 0.86, reflecting strong inter-rater agreement.

Classroom observations were also analyzed quantitatively. A mean score was obtained for each of the four aforementioned phases (Preparation; Introduction; Lesson Body: teacher role and pupil role; and Conclusion) of the lesson, based on the number of observations with 'yes' within that phase. Although the para-educator's role and the pupil's role were part of the lesson body phase, their means scores were calculated separately. Total mean percentage scores were obtained based on the phase scores for each observation. Participant scores per week were also calculated. Performance scores between 0 to 33 percent were considered low, 34 to 66 percent as moderate and scores above 66 percent were considered high.

The results of the analysis described here are presented by research question in the following section.

5.4 RESULTS

5.4.1 To what extent did participants' lesson planning reflect a systematic learner-centered approach?

In interviews, participants explained that this was the first time they had used intensive planning in teaching regular academic subjects. All participants reflected on their science teaching, in the pre-professional development period, and identified different lesson planning aspects that they had newly acquired through this period. Participants' expressed their thoughts about teaching as a "*step by step process*" which they were prepared with instead of, "going *to class and wondering what to do.*"

Participants discussed how they composed groups according to the pupils' current knowledge about a topic, instead of the inefficient individual teaching approach followed earlier. They also said they had learned to choose appropriate learning tasks, according to the actual attainment level of the groups, rather than by allocating tasks randomly. The following excerpt shows that para-educators developed an appreciation for ability grouping during lesson planning,

> *"This whole daily exercise of putting children's names in separate tables according to their baseline attainment and planning learning targets based on the baseline, now it's a habit. Earlier I did not plan like this, and would just start teaching any subject matter to any child based on his school syllabus, not paying attention to what his current level was."*

The para-educators also added that they had learned to think carefully about the relevance of a learning activity for each group. They expressed this in many ways. For instance, one of them exclaimed,

> "*It gives me a lot of scope and it visualizes an activity in the way it should be adapted for my pupils.*"

While another elaborated,

> *"Now with the help of lesson planning I have to keep the specific group of pupils in mind together with the activity, not treat the activity and the group in isolation."*

Additionally, they explained that lesson planning had revealed to them the importance of considering the specific purpose of the different learning material and activities based on learning objective. As one of them explained,

> *"Earlier, I used to implement an activity, for instance, a visit to the garden, or distribute picture cards, but I was not conscious of the purpose of the material or activity, and so I simply completed the activity without helping pupils synthesize any concrete learning from it."*

Talking about how she had learned to match the group's learning needs with the material, one para-educator explained,

> *"Earlier we used to have all the material, and children with different levels, but we did not know which children should study together, and we also did not know which children the material could be used for. But now we can do it with the help of the planning activity"*

Participants also reported about planning for their role in facilitating the group activities. All of them explained that they could plan action points for themselves to oversee the group activities, instead of

> "*Just forgetting about the group after allocating a task*"

Participants also shared making sure that they planned how to review what pupils had learned at the end of the day.

> *"… I don't just have to pick up one activity and finish it for the sake of it, but consider whether learning has been achieved or not , and if not have to adjust my daily time table, until children learn it."*

In addition to daily lesson planning, they discussed how they had learned to plan a curriculum in a more systematic way in terms of quarterly and monthly learning targets and a daily time table. Most participants also shared that they learned how to become more realistic in the daily planning. As an example one of them stated that because of the planned daily activity and actual daily activity,

> *"The tool allows me to compare if my planned activity and daily activity correspond. So I learned how to plan more realistically."*

Another shared that,

> *"In the first two weeks I just put a monthly and weekly target randomly, based on what I wanted to achieve in the class, and then planned activities per day, but after two weeks I realized that it was not happening, and I had to adjust my targets according to what was realistic to complete in one day. And not just daily work, we also have to plan according to holidays which take away working days."*

Lesson plan reviews also indicated that for the first five parameters (Table 5.5), which were completeness, accuracy, appropriateness, detail and internal consistency, four participants (of which three were from Cluster A) ranked in the high category, and three participants ranked either high or moderate for each of these categories. Only two participants ranked in the low category for the parameter of detailing the questions. Three participants ranked either high or moderate for these parameters. The only quality parameter in which no participant scored in the high category, and in fact most scored in the low category was 'new ideas'. This indicates that participants scored high on the parameters that explored the quality of adaptation of the ideas in the teacher guides, but ranked low on thinking outside of the teacher guides.

Table 5.5 *Participant wise, ranking per parameter used for determining the quality of lesson planning*

		Mean percentage scores per parameter					
Parameters	*Clusters*	*Complete*	*Accurate*	*Legitimate*	*Detailing*	*Internal consistency*	*New ideas*
Meera	A	89	85	89	87	60	23
Harsha	A	100	98	100	87	83	52
Varuna	A	95	90	93	75	81	35
Sarojini	B	57	56	46	12	42	2
Avnita	B	89	85	89	87	60	23
Shubhlaxmi	B	80	73	85	48	67	28
Mital	C	100	86	93	62	82	32
Chanda	C	86	67	62	30	47	5
Sanjana	C	94	81	80	49	64	18

Legend: Dark grey = high, medium grey = moderate, light grey = low.

Table 5.6 indicates that all participants got a high or moderate overall score on lesson planning. Their scores for individual questions also reflected that, for question 1, which dealt with grouping, all participants ranked high. On questions 3 (Learning activity), 5 (Facilitating the group activity through ongoing review) and 7 (Conclusion), all participants gained either high or a moderate score, and no participant received a low score. On question 2 (Learning objective) and question 6 (Role in disciplining), eight participants received a high or moderate score, and on question 4 (Para-educators' role in facilitating the group activity by directing pupils clearly), seven participants

achieved a high or moderate score. This indicates that on all lesson-plan components a majority of the participants demonstrated a high, or at least a moderate level of proficiency.

Table 5.6 *Participant wise ranking per question in the planning templates*

	Mean percentage score per question										
No	Lesson plan components	**Meera**	**Harsha**	**Varuna**	**Sarojini**	**Avnita**	**Shubhlaxmi**	**Mital**	**Chanda**	**Sanjana**	**Mean**
1	Grouping	92	100	100	50	92	90	100	96	100	91
2	Learning objective	67	98	98	48	67	65	98	17	63	69
3	Learning activity	58	83	82	49	58	58	79	75	83	70
4	Teacher's role in facilitating learning in groups	71	83	85	15	71	61	65	19	29	56
5		82	94	82	38	82	74	90	57	67	74
6	Para-educators' role in fostering discipline	79	65	58	13	79	43	44	44	53	53
7	Conclusion	81	100	67	56	81	72	78	63	82	75

Legend: Dark grey = high, medium grey = moderate, light grey = low.

5.4.2 In what ways did the para-educators' enactment reflect a well-structured learner-centered approach?

During interviews, para-educators reflected that compared to the pre-professional development period, they had brought in many changes in their own roles as teachers especially in terms of structuring and grouping their classes, learning activities they used and how they facilitated group work. Para-educators also shared their perceptions about their pupils' roles and engagement as a result of the changes they had introduced in their own role.

Participant perceptions of own role in facilitating learning

One of the main changes the participants reported was regarding a shift grouping based on the current attainment of the pupils. As one participant said,

"Earlier we used to attend every child one by one and just pick any topic from the school syllabus, or we used to sit with the whole class and generalize without taking individual levels into consideration. But now we follow a group approach, and I feel that by doing that, the individual as well as group learning needs can be addressed"

Participants also expressed that they now were able to teach in a '"*practical way*"and use real life examples and questions. One participant shared,

"First I just used to explain a concept to the child by repeating what was written in a text book. Now I also understand that when an activity involves children practically in doing something, they understand it better. So now I ensure that I use practical and experiential activities, it takes time to prepare for them, but I do it."

Participants also shared that they used material more appropriately now during the activity. Some of them shared that they found it difficult to make sure that each group had enough to do because the material was not sufficient at times.

The participants shared about their role in facilitating the group activity.

"Earlier I made groups, but if I went from one group to the other, the previous group would start talking or distracting others, but now I make sure I task the group well before I shift to the next group."

Four participants stressed that they still had trouble with ensuring that all groups were appropriately engaged, and that the problem was accentuated when they ran out of material, or that they did not understand how to break down the activity for the pupils.

The participants shared different practices they tried to adopt for behavior management and for ensuring that the groups work independently. Some participants appointed group leaders who helped their pupils follow classroom norms and *"pay attention to work."* Some of them said that they distributed the participative children across groups and showed them how to engage other group children in the learning process, like asking or coaxing others to share, or help them when they need help. All of them shared that they helped different groups decide their own norms of *"do's and don'ts"* Others shared that they let children take responsibility for parts of the learning tasks like,

"Ensuring every child gets to use the material in the group, the material is used properly without getting damaged."

Participant perceptions about pupil roles in the class

All participants shared that their pupils were much more punctual than before. Two participants shared,

"My pupils are more regular, and more motivated,, even those who were not interested in studying earlier."

"Initially children would bunk classes but later they realized that if he didn't come for one day then he will be left behind other children in the group so they regularly came."

Others shared that they found their pupils more engaged and active in the learning process than earlier. They gave examples for this, such as,

"Children concentrated more on the task because the activity is engaging, and we don't have to worry about disciplining so much any more. Earlier children were hesitant in giving answers. Now, they are more attuned to responding to the questions."

"Children are better involved they understand better, and secondly because the activity is engaging, we need to worry less about discipline, they are on their own more well behaved."

"Because of group work, pupils are more involved with each other than with me."

Participants also shared that their pupils had learned to work in groups and cooperate with each other better than earlier. (In figure 5.2 students showcase the outcome of their group-activity)

"The grouping is very simple. It took only one week for children to get used to sitting in their own groups. Now they sit in their groups on their own. "

"Earlier, sharing of material, activity, expression, doing work together was not there. Due to the group processes, the children learned to share, express and not fight and the class was less chaotic during this period."

"Earlier pupils were not bothered if the other child has not come to the class. In this case, because the group work will get affected, they make sure no one is absent and go and call pupils from their homes."

Figure 5.2 Model of a check-dam made by pupils during a group activity for science class

Classroom observations also provided information on para-educators' and pupils' actions. Mean percentage scores were obtained for different phases of the lesson body (Table 5.7), preparation and introduction of the lesson, lesson body (para-educator's role in facilitating learning activity, pupils' role during learning activity), and lesson conclusion. All participants gained a high or moderate score in lesson preparation, and eight participants, in the introduction of the lesson. For para-educator's role in facilitating the group activity as well, majority, that is seven participants ranked high or moderate. On the pupil engagement, the number of participants gaining high and moderate score was still at a majority of five. No participant scored high in the concluding section, and a majority scored low. In terms of total participant score, the strongest aspects of the enactment process were the introduction of the main lesson and the para-educator's role in the activity, and the conclusion was the weakest.

Table 5.7 *Participant wise ranking for different phases of the lesson body*

Participants	Mean percentage scores for different phases of the lesson				
	Preparation for the class	*Introduction of the main lesson*	*Lesson body: para-educator's role in facilitating group activity*	*Lesson body : pupils' role during group activity*	*Conclusion of the lesson*
Meera	54	82	98	100	35
Harsha	67	64	95	100	40
Varuna	58	64	66	60	20%
Sarojini	58	54	32	23	0
Avnita	54	79	82	98	45
Shubhlaxmi	67	36	23	30	10
Mital	67	54	59	28	35
Chanda	67	57	48	30	15
Sanjana	63	82	73	58	10
Total mean perc. score	**62**	**64**	**64**	**58**	**23**

Legend: Dark grey = high, medium grey = moderate, light grey = low.

Enactment over four weeks (Table 5.8) reflected that participants had progressed in their enactment from the first to the third and fourth week. Three participants started in the high category and retained that categorization in the fourth week. Five participants started in the low category, of which three were ranked in the high category and two scored in the moderate category by the fourth week. Two participants' scores fluctuated in the first two weeks, that is, they scored less in the second week as compared to the first week, but stabilized in the third and fourth week. Only one participant had a fluctuating score in all the four weeks, and showed no stability. In the fourth week, six participants ranked in the high category and three in the moderate. There was none in the lowest category.

Table 5.8 *Participant-wise ranking, per week*

		Mean perc. score for observations over one month			
Participants		*1*	*2*	*3*	*4*
Cluster 1	**Meera**	82	74	82	85
	Harsha	77	77	82	82
	Varuna	26	54	72	77
Cluster 2	**Sarojini**	28	15	44	44
	Avnita	74	64	85	85
	Shubhlaxmi	23	21	41	44
Cluster 3	**Mital**	36	31	67	59
	Chanda	33	23	46	72
	Sanjana	23	64	77	79
Total mean. perc score		**45**	**47**	**66**	**69**

Legend: Dark grey = high, medium grey = moderate, light grey = low.

5.4.3 What other kinds of professional development gains did participants experience?

This was explored through interviews with participants and cluster-heads. All participants shared that they experienced greater confidence, better organizational skills in terms of streamlining their work and lastly, greater ability to learn on their own as well as collaborate with their peers.

Participants gave examples of how more positive enactment experiences led to greater confidence in subject matter as well as their teaching skills. The following two excerpts illustrate this.

> *"I feel more confident about my science knowledge, because I have been able to answer many more questions from pupils than before."*
> *"I can see that my pupils know more than what they knew when they first came to class, and that gives me confidence in my teaching."*

Others drew confidence from higher level of learner engagement in the process. One of them expressed,

> *"Earlier I used to feel stressed, now the biggest difference is that my pupils and I both enjoy the teaching-learning process, I feel better because I know that I am adding value, earlier I did not feel sure of whether there was any contribution I made or not."*

Commenting on how reflection activity was beneficial for her confidence, one participant stated,

> *"Reflecting on my class gives me a sense of completion and accomplishment."*

Besides improved confidence, participants shared instances indicating a greater level of skill and conscientiousness about planning their tasks and time efficiently. The two excerpts demonstrate this.

> *"The personal planning exercise has helped me to see my non teaching hours for a week together. No longer I have to wonder each day what to do after class. I know which days to go for fee collection, when to plan and review lessons and when to practice subject matter."*

> *"I take my work planning very seriously now, and I take care not to waste my time."*

Several participants shared that better organizational skills gave them a feeling of well being. For instance, one participant shared her feelings by saying,

> *"Earlier I used to work without any plan for the day but I really like the personal work plan tool very much and I plan each day now."*

Finally, all participants discussed how as a result of the daily core activities, they took more charge of their own learning and also appreciated the value of collaborating.

> *"Earlier I was dependent. Now I am more confident of studying material and solve my own doubts instead of always depending on others."*

One more participant reflected on her and her peers' approach and commented,

> *"I think all of us have learned to ask questions when we have doubts."*

Several participants expressed that they evaluated their own progress much more closely. One participant pointed out,

> *"At any point I knew that I had to focus on improving one specific aspect, at one point it was how I group my pupils, at another time it was a specific concept that I was weak at or a specific learning activity."*

Participants also expressed a new belief in importance of collaborating for their own learning. Two participants stressed this belief by recounting their own experiences of collaboration.

> *"Working together is useful, because we had to justify our work, could review each others' work and get new ideas about our plans for others."*

> *"Not only do we feel supported when we plan and reflect together every day, but certain things we can only understand through discussion. I only learned about how harmful very stringent classroom norms can be when I heard the example of my colleague and I also got more ideas from them on how I can use more positive ways of reinforcing pupil behaviors"*

Participants expressed that they took much more individual and collective initiative because they saw all problems as common problems.
For instance,

> *"We took turns to solve different technical problems. For example, if material was missing for one concept, one of us would volunteer to develop it and share it with everyone."*

They also developed different strategies at cluster levels for addressing their preparation. For instance, in two clusters, they shared how they had formed task groups for studying subject matter. In one of the clusters they improvised the weekly reflection when necessary for organizing spontaneous demonstrations for difficult activities by peers who were more knowledgeable on a content area. In all the three clusters, they shared the initiative of keeping a list of desirable ideas accumulated during discussions on different areas such as, strategies to reinforce norms, and types of questions to ask pupils for assessing their learning or interesting introductory activities for their class.

When interviewed, the cluster-heads shared that the most important change in the para-educators in their clusters was that they were more inspired and motivated to learn.

One cluster-head made an observation that the para-educators in her cluster were more committed about preparing for their class. She described this development in the following way.

> *"Earlier, if a teacher did not know something, she would do nothing about it, just go to class and teach whatever she could, but now they read up, discuss with each other, practice it and then go to class, and even come back and share what they did well and did not."*

Another cluster-head also reported similar changes in the para-educators of her cluster.

> *"Earlier it was very common for para-educators to not even open the materials and study them, because they waited for someone to come and train them. Now they don't wait, but solve it as much as possible amongst themselves and feel less dependent on the management team to organize workshops."*

Even the third cluster-head narrated a similar scenario in her cluster.

> *"Before, if we asked them to refer to something, they would look at one idea, and give up. But now they themselves look for three or four different ideas when there is a doubt; they want deeper understanding of it, because they feel good when they can go and share it in the class."*

5.4.4 What role did the (changed) organizational conditions play in supporting and/or hindering the professional development process*?*

Both cluster-heads and participants provided insights to this question by discussing in interviews their perceptions about organizational changes. Both groups expressed that they experienced a positive change in the attitude of the organization as compared to the past. The para-educators shared that the following were the most important changes that the organization had introduced.

- Not to enroll a new pupil as soon as an old pupil dropped out, as it gave their classes more stability;
- To enroll pupils for a longer period, instead of one month, as it gave them longer contact with the pupils;

- To enroll only pupils up to grade 4 which they felt more confident about in terms of subject matter knowledge and a manageable variety in pupil learning needs;
- To promise parents of pupils, only what could be feasibly taught in the given period; and
- The time and support provided at the cluster level for improving teaching.

Cluster-heads also reflected on the same question, and as illustrated below, expressed that the organization played a role in supporting instruction which was most important for them.

> *"Earlier the management and we had little role in the teaching-learning matters. All we ever spoke about was how much fees was collected and what marketing strategies we would employ."*

Another cluster-head spoke about how they as well as the para-educators had felt more reassured by the organizational attitude. The following reaction reveals this sentiment.

> *"We felt supported when we were reassured that even if the revenue reduces, we should not worry, and we should focus on improving our teaching-learning quality. That gave us the confidence that we did not have the pressure to just enroll any child in the class just because he was willing to pay fees. We could focus on thinking about what was desirable for the classroom environment."*

The third cluster-head shared her feelings saying,

> *"Now I feel that both revenue and learning quality have equal importance. Earlier all the organization seemed to be bothered about is how many more children are enrolled in class, and not about the learning quality, now I feel they are sensitive to our needs."*

The cluster-heads reported that their own involvement in supporting para-educator learning was a new aspect introduced that had changed their outlook substantially. They shared that they realized that they had a leadership role in supporting the teaching and learning process and they were not merely supervisors.

One cluster-head explained her need to take greater responsibility.

> *"As a leader I want to make extra efforts to coach them, I just feel a pressing need to contribute …"*

The second cluster-head described the changes in her actions.

> *"Earlier I would go to their class, but really not care about the quality of teaching. Now I sit with them after their class to discuss my observations, and whenever it is possible, I even prepare myself in the subject matter of the class that I am going to see."*

The third cluster-head displayed a greater willingness to learn by admitting the following,

> *"Earlier, if I did not know something, I used to hide, but now I accept that I don't know and I even learn from them. I pay more attention during workshops to improve my own knowledge, because I want to be a proper support to them. I also want to start teaching myself again."*

The cluster-heads also demonstrated they had learned how to improve their ability to support the para-educators. The main shift shared by them was a change from 'judging' the work of the para-educators to finding ways of helping them showcase their work to their peers as well as learn from their peers" For instance, one of them shared,

> *"In the initial stages, I only used to pick the weak areas and criticize. Then I learned to point out both strong and weak areas. But now I go one step further, I don't just tell them whether t is strong or weak; I also get other teachers to demonstrate how they have done it when I find a teacher struggling with something."*

5.5 CONCLUSIONS

This chapter described research conducted alongside the second phase of Maitri's professional development program for para-educators, in which, along with a regular routine of planning, enactment and reflection, supportive strategies and essential organizational changes were introduced to facilitate the institutionalization of the professional development cycle. The study, a formative evaluation, investigated para-educators' lesson plan quality and enactment skills, as well as additional professional growth as a result of adopting the cyclic routine. Additionally, important organizational changes were introduced to make it possible for the cyclic routine to be sustainable. The

study also investigated the role of organizational changes in contributing the professional development of the para-educators.

The findings from this study indicate that the professional development program, which integrated para-educator learning with everyday work, led to successful adoption of systematic, learner-centered, lesson planning and enactment practices. While lesson plan reviews and observations support the conclusion that adoption had been achieved, self-reports provided insights into factors that could have fostered increased adoption. Para-educators distinguished new practices that they had adopted in their enactment which were lacking previously, including (a) grouping pupils; (b) planning learning activities according to the learners' level; (c) using practical learning activities, questions and examples; (d) strategies to keep multiple groups engaged in group work; and (e) eliciting pupil participation in maintaining discipline. The self-reports indicate that these practices were new for the para-educators, and reflect a greater learner-centered orientation than their previous practice which was characterized by rote-based teaching. This helps to conclude that when new teaching ideas and practices are introduced, these need to be carefully chosen by keeping in mind the para-educators' zone of proximal development. Especially during early stages of transition from traditional to learner-centered teaching, it appears to contribute to high adoption. Again, self-reports establish that participants experienced qualitative improvements in their lesson planning and enactment, compared to prior practice. This reinforces the conclusion that realistically chosen innovations allowed para-educators to not only implement the ideas readily, but also to see immediate differences within a relatively short gestation period. This could be an important factor to lead to a strong adoption of the newly introduced ideas.

The study concludes that the professional development activities did lead to greater empowerment and collaborative relationships of para-educators. First, the para-educators expressed greater self-confidence. Participants' self-reports speak for how reflection activities helped build confidence as they learned to take cognizance of the developments in their enactment, both in terms of their role as well as pupil responses. Second, by integrating a task planner into the planning tools of the participants, the para-educators also learned to take responsibility for creating work-plans and making time to plan and reflect for their lessons. Third, para-educators took more ownership for their learning and

valued collaboration. Such ownership is enabled when learning activities are designed to focus the attention of the para-educators to immediate instructional matters, and yet allow them the flexibility to choose and solve instructional problems in the way best suitable for the classrooms. These professional growth benefits that participants experienced help to conclude that professional development of the para-educators does not just include instructional competencies, but also related competencies like collaboration and ownership. Moreover, these two types of competencies feed each other.

Lastly, from para-educator and cluster-head perceptions about the organizational changes, the study concludes that organizational changes are important for the effects of the core and supportive strategies to flourish. The organizational changes were important because new policy changes like redefinition of program objectives, enrolment criteria and new resources of time and cluster-head support were interpreted as a sign of greater sensitivity on the part of management towards local needs. This helped to develop a more secure atmosphere within which para-educators and cluster-heads felt confident of dividing their attention suitably between fee generation activities and teaching and learning concerns. But more importantly, the study also brings out the importance of the manner in which the organizational changes are introduced. Cluster-head reports indicate the importance of their roles in designing and implementing the professional learning activities to influence the priority they gave to instructional matters, and how they changed from viewing themselves: once as administrators and now as coaches. Since one of the key organizational changes was to provide leadership support at the cluster level, the cluster-head's participation in para-educator learning was necessary. This was enhanced by giving them a lead role in identifying critical changes needed, like the enrolment policy. Finally, the reports of para-educators led to an important conclusion: that cluster-head learning about supporting para-educators does not need to precede para-educator learning. In fact, this study clearly shows that cluster-heads abilities to support para-educators grew experientially during their coaching efforts, thus indicating that para-educators' and cluster-heads' learning took place interactively.

This sub-study is enriching for those who are interested in studying and engaging in professional development work with para-educators (or others in similar settings), for four reasons. One, it proves that when professional

development activities address actual learning requirements of para-educators and when they offer learning opportunities within the daily work processes, and support their abilities to plan and reflect on lessons daily, substantial gains in para-educator learning and enactment can be achieved. Two, the study confirms that critically assessing (and where necessary, changing) organizational conditions to support development of para-educators 'capacities, not only helps teacher learning activities flourish, but also visibly signify the management's commitment and sensitivity to grassroots 'realities. Three, the study indicates that leveraging the insight and participation of para-educators and their immediate supervisors in organizational redesign can lead to decisions that prove effective. And finally, the study points towards a reciprocal relationship between the learning of para-educators and their leaders; that is, para-educator supervisors learn how to support para-educators better, through their efforts to implement the support.

This chapter ended with the convincing evidence that not only had the professional development program been effective in causing concrete developments in para-educators lesson planning and enactment, but also, a modified organizational environment had proved to be conducive for such a program to function smoothly. This reassuring outcome of the second iteration led to the third, version of the professional development program, in which, facilitation provided by the researcher-designer during the program implementation was withdrawn. In the third iteration, the core activities were left to be carried out by the para-educators and supported by their cluster-heads. This was then evaluated through a summative study, to examine, what kind of effects could be gained through the professional development program, in absence of external support.

CHAPTER 6
Evaluation: Summative study [6]

This chapter discusses the summative evaluation of the professional development program. Section 6.1 specifies the aim of the sub-study. The theoretical-framework for this evaluative study, inspired by the different levels of parameters for the evaluation of professional development are presented in section 6.2. Section 6.3 and section 6.4 present the research design and the results of the study respectively. Section 6.5 summarizes the main conclusions that emerge from the summative evaluation.

6.1 INTRODUCTION

Over the prior two phases, that is, while piloting and then institutionalizing the professional development program, there was conclusive evidence that program participants gained proficiency in planning and enacting lessons with learner-centered strategies. However, during both the phases, the program was centrally facilitated by the researcher, who worked intensively with the cluster-heads to facilitate the implementation of the core activities at their clusters. In the third phase of implementation of the professional development program, the central facilitation role was withdrawn and the implementation of the core activities was left to the cluster-heads and para-educators.

This chapter describes the summative study that aimed to assess whether the professional development activities of planning enactment and reflection continued to yield desired results even when the central support was withdrawn. The quality of the lesson plans, enactment as well as test outcomes of pupils were examined in order to fulfill the objective of this summative study. The next section presents the theoretical support upon which the study was founded.

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[6] Paper submitted.

6.2 THEORETICAL FRAMEWORK

The evaluation of the implemented professional development program was inspired by Guskey's model of professional development (Guskey, 2000). The model elaborates five levels of parameters that can be studied to evaluation professional development. These include (a) reactions of teachers: focusing on participants perceptions of the program content with reference to factors like relevance, utility and timeliness as well as about the process of the program; (b) participants learning: focusing on their newly gained knowledge, attitudes and skills; (c) organizational support and change: focusing on the organizational factors that can impede or foster the eventual success of the professional development program, (d) use of knowledge and skills: referring to the actual implementation of newly gained information or skills into daily teaching; and finally (e) pupil learning outcomes. While all the above are important in professional development and influence the eventual success of the professional development activity, literature supports the idea that the ultimate test of professional development of teachers is their ability to transfer new knowledge and skills successfully into actual teaching in a way that leads to improved pupil learning (Ball & Cohen, 1999; Guskey, 2002).

Based on these ideas, the summative evaluation of the professional development program evaluation implemented in Maitri, adopted some of these parameters (see Table 6.1). In the pilot phase, data were collected on (a) the perceptions of the participants towards the professional development activities (reactions); (b) extent of learner-centered approach in lesson planning (learning: skills); (c) para-educators perceptions about changes (towards learner-centeredness) in their enactment. In the second formative phase involving institutionalization of the program, the evaluation again focused on examining participant learning in terms of the learner-centered lesson planning skills; enactment changes towards a learner-centered approach, and the role (and support) of organizational conditions in promoting the professional development program. Since learner-centered lesson planning and enactment were the main focus of the professional development, this summative study again examined the quality of lesson planning and enactment. In addition to these two parameters, this study also focused on improvement in learning gains of pupils.

Table 6.1 *Assessment of professional development program inspired by Guskey's parameters for evaluation professional development*

Parameters of Guskey	**Iteration 1: Chapter 4**	**Iteration 2: Chapter 5**	**Iteration 3: (reported here)**
Reactions	Perceptions about professional development program		
Learning	Skill to design lesson plans with learner-centered strategies	Skill to design lesson plans with learner-centered strategies	Skill to design lesson plans with learner-centered strategies
Organizational support and change		Role of changed organizational conditions in relation to professional development program	
Use of knowledge and skills	Perceptions about changes in enactment	Actual changes in enactment	Actual changes in enactment
Learning outcomes			Pupil learning scores

6.3 METHODS

The third iteration of the professional development program was a continuation from the first two, during which the activities had proven to be successful in helping para-educators adopt learner-centered approaches. As mentioned earlier, the first two phases had been implemented with intense involvement and facilitation of a management member. In the third phase, this support was withdrawn in order to allow the cluster-heads and the para-educators to take full charge of the ongoing on-the-job learning. The main aim of this summative study was to ascertain whether the professional development program yielded the desired effects even when facilitation support was withdrawn. The summative study was thus split into the following three research questions related to the parameters of learning, use of knowledge and skill and pupil learning respectively. They were,

- To what extent did the para-educators retain or improve the previously gained skill of designing well-structured lesson plans with learner-centered strategies?
- To what extent did educators retain or improve in the use of a well structured learner-centered approach during enactment?
- What kinds of pupil learning outcomes were achieved?

6.3.1 Participants

The nine para-educators, three from each cluster, who had participated in the previous two phases, participated in the summative study. Pupils of the para-educators who were tracked over the previous two sub-studies, as well as pupils from other para-educators who participated in the professional development program but were not tracked, were indirectly respondents as their assessment scores were used in this sub-study.

6.3.2 Data sources

The design of well-structured lesson plans (first research question) was studied through a document review of the lesson plans. The extent of systematic and learner-centered enactment (second research question) was studied through classroom observations of para-educators enactment conducted over a period of one month. Four observations were conducted for each participant, with a total of 36 observations in all over 4 weeks. Pre-test and post-test scores of pupils were examined to assess pupil gains (third research question). These scores came from para-educator-designed tests, administered by them before and at the end of the academic term.

6.3.3 Instruments

Lesson planning document review was done in the same manner as in the previous phase. That is, with the help of a scheme that contained the following parameters: *completeness*, *accuracy*, *appropriateness and detail*, *internal consistency*, and *new ideas (*Appendix D). Similarly, the curriculum profile used to observe enactment practices in the previous phase was also used in this sub-study (Appendix E). The curriculum profile contained four main lesson phases, namely: preparation for lesson, introduction, lesson-body (para-educator's role

in facilitating group activity, pupil's role in facilitating group activity, and conclusion of the lesson.

The test administered by para-educators was a 25-mark test on environmental science (EVS) relating to concepts like food, water, planets and nature. The test was designed by several para-educators and approved by the remaining para-educators. It had a mixed set of objective (e.g. fill-in-the-blank) and short-answer questions (e.g. give reasons in one line) (see appendix G for details).The internal consistency of the test was considered acceptable (Cronbach's alpha = 0.74).

6.3.4 Analysis

Document review of lesson plans was done in the same manner as in the previous two phases. That is, based on the number of times a response to a question in the lesson plan fulfilled a parameter, a 'y' indicating 'yes' was assigned. Based on the number of 'y' scores, percentage scores per parameter and per question were calculated. Thereafter, the scores from this phase were compared with the parameter-wise scores and question-wise scores for each participant from the first phase (which was their first experience in lesson planning), to see the extent of retention or improvement in lesson planning.

Classroom observations were also analyzed quantitatively in the same manner as in the previous phase. Mean percentage scores for each of the four lesson-phases of the lesson, and for each week, were calculated. These scores were compared with the enactment scores gained during observations in the second sub-study (nb. classroom observation data was not collected in the first sub-study) to see any improvements. For both of the above, percentage scores were also obtained per lesson phase. Performance scores between 0 to 33 percent were considered low, 34 to 66 percent was considered moderate and scores above 66 percent were considered high.

Test scores were analyzed in terms of the difference between the pre-test and post-test scores. Effect sizes were calculated for each class. Through linear regression, the predictive value of pre-test over post-test scores was measured. Correlation of pre-test scores with learning gain was also calculated. Pupil learning outcomes of the nine (observed) para-educators were also compared through a T-test with the pupil learning outcomes from classes of the remaining

16 para-educators who participated in the professional development but were not tracked. This was done to examine any potential influence of a Hawthorne effect on the performance of the nine para-educators who were aware that work was being appraised.

6.4 RESULTS

6.4.1 To what extent did the participants retain or improve the previously gained skill of designing well-structured lesson plans with learner-centered strategies?

Table 6.2 indicates that, for the first three parameters of completeness, accuracy and appropriateness, all participants retained a high score from the pilot to the summative phase.

Table 6.2 *Participant ranking per each parameter used for determining the systematic and learner-centered aspects in lesson planning*

Parameters	**Mean percentage scores of participants on quality parameters in lesson-planning**											
	Complete		*Accurate*		*Appropriate*		*Detailing*		*Internal consistencies*		*New ideas*	
Teacher name	Phase 1	Phase 3	Phase 1	Phase 3	Phase 1	Phase 3	Phase 1	Phase 3	Phase 1	Phase 3	Phase 1	Phase 3
Meera	68	86	68	86	69	86	51	83	NA	100	NA	80
Harsha	75	86	77	86	76	86	60	83	NA	100	NA	80
Varuna	67	100	75	100	75	100	32	83	NA	100	NA	80
Sarojini	82	86	85	86	85	86	55	83	NA	100	NA	80
Avnita	76	100	86	100	86	100	50	83	NA	100	NA	80
Shubhlaxmi	76	100	79	86	79	100	47	83	NA	100	NA	80
Mital	86	100	95	100	93	100	35	83	NA	100	NA	80
Chanda	67	100	75	100	75	100	32	100	NA	100	NA	60
Sanjana	71	86	95	86	94	86	51	83	NA	100	NA	80
Total mean score	**74**	**94**	**82**	**92**	**81**	**94**	**46**	**85**	**NA**	**100**	**NA**	**78**

Legend: Ranking: dark grey = high, medium grey = moderate, light grey = low.

On the parameter of detailing, seven participants reflect an improvement from moderate (in the pilot phase) to high (in the current phase) and two from low to

high. The first study, which focused on basic developments in lesson planning, used only the first four parameters. This study looked at two new parameters: on internal consistency, all participants scored an extreme high at 100 percent; and eight participants scored a high rank on 'new ideas'. Overall, this implies that the para-educators continued to address questions for each lesson planning component completely, accurately and appropriately in terms of the subject matter and learner-centered orientation. Also, the participants improved in the extent to which their responses were well-detailed. Finally, each component of their lesson plans was internally consistent, and often they were able to integrate new ideas into their planning.

Table 6.3 indicates participant scores for each question (Q). It reflects that on Q1 (grouping), Q2 (learning objective), Q3 (learning activity), Q4 (directions for group activity), and Q7 (conclusion), the majority of the participants either started out in phase one with a high ranking score and retained it, or progressed from moderate to a high score. One participant, Avnita, made a substantial jump in Q3 from a low to a high ranking score. On Q6 which had to do with forming and reinforcing norms, four participants (Meera, Harsha, Sarojini, Sanjana) had not addressed the question at all. Two participants retained moderate score (Varuna and Avnita) and two dropped from high to moderate (Shubhlaxmi and Mittal). Only one participant (Chanda) improved from moderate to high.

When para-educators were asked to explain why they consistently left that question unanswered, they explained that they did not feel the need to think of that question everyday as they were able to help pupils think of appropriate conduct norms, and reinforce them spontaneously. This implies that they did not leave the question unanswered because they did not know how to address the question, rather as a conscious choice to address that aspect spontaneously in class. Finally Q5 which was about conducting an ongoing review of the group activity was added when the lesson planning template was refined after the pilot study and hence the comparison was not possible. However, Table 6.4 clarifies that participants score in the extreme high category for that question. Overall, the table points out where participants started with a high score, they retained it, and where they started with a moderate or low score they improved in the third phase.

Table 6.3 *Participant wise ranking per question in the planning templates*

		Participant wise mean percentage score						
Teacher name	**Phase**	Grouping	Learning objective	Learning activity	Teacher's role : directions for group activity	Teacher's role : review on going group activity	Para-educators' role: fostering discipline.	Conclusion
		Q1	*Q2*	*Q3*	*Q4*	*Q5*	*Q6*	*Q7*
Meera	1	88	75	40	98	N/A	15	88
	3	100	100	100	100	100	0	100
Harsha	1	90	75	80	N/A	N/A	35	100
	3	100	100	100	100	100	0	100
Varuna	1	60	60	45	48	N/A	60	45
	3	100	100	100	100	100	60	100
Sarojini	1	48	68	55	93	N/A	70	98
	3	100	100	100	100	100	0	100
Avnita	1	88	75	30	85	N/A	63	88
	3	100	100	100	100	100	60	100
Shubhlaxmi	1	48	68	55	93	N/A	70	98
	3	100	100	100	100	100	60	100
Mital	1	70	68	76	73	N/A	78	61
	3	100	100	100	100	100	60	100
Chanda	1	60	60	45	48	N/A	60	45
	3	100	100	100	100	83	80	100
Sanjana	1	75	75	63	80	N/A	55	93
	3	100	100	100	100	100	0	100

Legend: Ranking: dark grey = high, medium grey = moderate, light grey = low.

6.4.2 To what extent did participant retain or improve in the use of a well-structured learner-centered approach during enactment?

Classroom observations also provided information on the extent to which enactment was systematic and learner-centered. Mean percentage scores were obtained for different phases of the lesson body (Table 6.4) for phase three (summative study) and compared with second formative evaluation (in the pilot phase, observation data were not collected). Data reflects that in the third iteration, all participants gained a very high score for all the different stages of the lesson body. For the first and the second part of the lesson body (preparation and introduction), participants who started with a high score, retained it and those

who started with a moderate score, progressed to the high category. Similarly, in the next two stages of the lesson body, there was a retention of high scores gained in the previous phase, or a movement from a low or moderate to high category. In the conclusion of the lesson, there were no participants in the high category in the first phase, and majority of them were in the low category. But all the nine participants reflect a high score even for this stage of the lesson body.

Table 6.4 *Participant wise ranking for different phases of the lesson*

Participants	Phase	Meera	Harsha	Varuna	Sarojini	Avnita	Shubhlaxmi	Mital	Chanda	Sanjana	Total mean perc. score
Preparation for the class	**2**	54	67	58	58	54	67	67	67	63	**62**
	3	83	100	83	100	100	83	83	88	100	91
Introduction of the main lesson	**2**	82	64	64	54	79	36	54	57	82	**64**
	3	100	68	100	100	100	79	71	89	100	90
Lesson-body: para-educators' role in facilitating group activity	**2**	98	95	66	32	82	23	59	48	73	**64**
	3	100	100	100	100	100	95	82	100	100	97
Lesson-body_ pupils' role during group activity	**2**	100	100	60	23	98	30	28	30	58	**58**
	3	100	100	98	100	100	80	80	100	100	95
Conclusion of the lesson	**2**	35	40	20	0	45	10	35	15	10	**23**
	3	100	75	80	80	80	80	80	100	100	86

Legend: Ranking: dark grey = high, medium grey = moderate, light grey = low.

Similarly, enactment over four weeks (Table 6.5) in this summative phase was also compared with enactment over four weeks in the previous phase (Chapter 5, second formative evaluation). The table below clearly highlights that, in the previous phase, by the fourth week; six participants had already ranked in the high category. In this phase, these six participants sustained this score throughout the four weeks. Additionally, three participants who were still in the moderate category (Sarojini, Shubhlaxmi, Mittal) in the previous iteration, advanced and obtained high scores in the current final iteration.

Table 6.5 *Participant wise enactment scores, per week*

Teacher name	Phase	Observations per week			
		1	*2*	*3*	*4*
Meera	**2**	82	74	82	85
	3	97	97	97	97
Harsha	**2**	77	77	82	82
	3	83	87	90	93
Varuna	**2**	26	54	72	77
	3	91	93	93	93
Sarojini	**2**	28	15	44	44
	3	96	96	96	96
Avnita	**2**	74	64	85	85
	3	96	96	96	96
Shubhlaxmi	**2**	23	21	41	44
	3	79	83	83	89
Mital	**2**	36	31	67	59
	3	79	79	79	79
Chanda	**2**	33	23	46	72
	3	90	94	97	100
Sanjana	**2**	23	64	77	79
	3	100	100	100	100
	2	**45**	**47**	**66**	**69**
over all avg	**3**	**90**	**92**	**92**	**94**

Legend: Ranking: dark grey = high, medium grey = moderate, light grey = low.

6.4.3 What kinds of pupil learning outcomes were achieved?

To put the effects of the professional development program into an educational perspective, pupil learning outcomes of the nine para-educators were analyzed. The mean difference per class between the post-test and pre-test and the effect size of each class was calculated. Table 6.6 summarizes the results of this analysis. All classes of the para-educators showed strong effect sizes (above 0.8), meaning a significant difference between pre- and post-test scores for each class was attained. Table 6.6 also shows substantial differences between the para-educators in their average learning gain and effect size values, varying from 3.97 to 16.72 and from 0.98 to 6.50.

Table 6.6 *Mean class learning gain per class for each para-educator*

Para-educator name	N	Average learning gain	Effect size (value of Cohen's d)	Std. deviation
Meera	18	11.36	2.99	2.16
Harsha	18	9.86	3.10	3.13
Varuna	14	6.00	1.78	2.49
Sarojini	19	10.47	2.14	4.41
Avnita	13	16.08	4.18	3.73
Shubhlaxmi	16	4.28	0.98	3.69
Mital	18	3.97	1.02	3.43
Chanda	9	16.72	6.50	2.49
Sanjana	16	7.53	1.41	3.06
Total	141	9.11	-	5.18

To further analyze the para-educator and class differences observed in the mean scores of the pre-tests, not shown in Table 6.6, a linear regression analysis was carried out to understand the predictive influence of pre-test scores on the post-test scores and learning gains. The linear regression analysis revealed an R^2 value of .298 ($p < .000$). The Pearson Correlation between pre-test scores, post-test scores, and learning gains for all the 141 pupil scores together revealed a negative correlation between pre-test and learning gain ($R^2 = -.402$; $p < .000$) , and a positive correlation between post-test and learning gain ($R^2 = .650$; $p < .000$). This indicates a higher pre-test score associated with a lower learning gain; and, as expected, a higher post-test score associated with a higher learning gain.

To control for the effects of monitoring in the professional development program, the mean pupil learning outcomes of the nine para-educators were also compared with that of the remaining 16 para-educators who participated in the professional development program but whose progress was not monitored. Table 6.7 shows the average learning gains of both groups, that is pupils of tracked para-educators (T; n=9) and pupils of non-tracked para-educators (NT; n=16). The average learning gain of the tracked group (T) was 9.11 and that of the non-tracked group (NT) was 8.27. A t-test revealed no significant difference between the two groups ($t = -1.67$; $p = .092$). As the standard deviations of both groups are almost the same, the difference in sample sizes (213 vs 141) does not affect the difference in the mean scores.

Table 6.7 *Mean class learning gain of the tracked (T) and non-tracked (NT) participants*

	Status	N	Mean	Std. deviation	Std. error mean
Pupil learning gain (class)	NT	213	8.27	4.19	.29
	T	141	9.11	5.18	.44

6.5 CONCLUSIONS

The findings presented in this summative study demonstrate that the professional development program has been successful in helping the participants develop a learner-centered approach in lesson planning and enactment. The core component of the professional development program was the on-the-job learning activities of lesson planning, enactment and reflection that para-educators had to undertake themselves on a daily basis. In the earlier phases this ongoing on-the-job learning was centrally facilitated by a management member. During this phase, the central support was withdrawn, and this summative study assessed whether the gains were sustained under the NGOs normal operating conditions. The lesson planning and enactment data support the conclusion that the para-educators had acquired the skills, as well as the willingness to undertake and gain from a basic level of lesson planning, enactment and reflection on daily lessons, without central facilitation.

Test score data, with impressive effect size, reflects that pupil learning took place. Such types of pupil-learning gains were also evidenced in the remaining 16 para-educators who participated in the same professional development program but had not been monitored. Because monitoring was the only difference between the groups of 9 (T) and 16 (NT), it can be said that the NT pupil gains may also be on account of the professional development program. The absence of a Hawthorne effect thus supports the conclusion that the professional development program was distributed across the organization and not only to the para-educators who were observed throughout the previous studies. All the above mentioned facts help conclude that, a decentralized on-the-job professional development program, which aimed at legitimizing everyday learning with work through activities that could be undertaken by the para-educators and cluster-heads themselves, had taken-off successfully.

The sub-study presented here contributes to the evidence that with appropriately designed professional development support, para-educators,

who lack professional teacher-training, can successfully implement recently-adopted innovative teaching practices without external support. This sub-study is a summative evaluation of a professional development program that had been piloted and institutionalized during two previous iterations. Conjectures about the procedures employed during the previous two iterations, help put the highly positive findings of this study in perspective. Namely, it is speculated that the effectiveness of this professional development program can be ascribed to (a) the carefully chosen realistic content of the program, that is, the very basic learner-centered strategies that were considered achievable by the para-educators; (b) close attention to the process of professional development, by introducing simple daily tasks of planning and reflection as learning activities, immediate support in terms of timing and content of teaching, use of templates as scaffolds, and ongoing implementation support through diverse strategies; and (c) ensuring that organizational conditions are modified to allow the professional learning activities to take place smoothly.

This chapter presented a summative evaluation of the professional development program, conducted after external facilitation for implementing the program was deliberately withdrawn. This convincing evidence that the professional development program had continued and led to positive outcomes in absence of external facilitation was an indication that the program had sustained in the immediate term. The next chapter presents a study which assessed whether the professional development and its commensurate benefits had been sustained two years later, and whether it yielded any long-term impact on instructional practices in Maitri.

CHAPTER 7
Evaluation: Impact after two years

This chapter presents an impact study of the professional development program, two years after withdrawal of external support. The first section presents the rationale for the study. Section 7.2 portrays the theoretical ideas that backed this study. In section 7.3 and 7.4, the research design and results are presented respectively. Conclusions are described in section 7.5 and the chapter closes with a discussion of the results in section 7.6.

7.1 INTRODUCTION

This impact study was conducted to examine the status of the professional development program implemented in Maitri and described in the earlier studies, two years after the withdrawal of external support. The previous evaluation studies (Chapters 4, 5 and 6) indicated clearly that the professional development program had yielded positive results in terms of more learner-centered lesson plans and teaching practices, greater agency and collaborative interaction amongst para-educators, more proactive educational leadership role by the cluster-heads and impressive pupil learning outcomes. It was also clear during the summative study that the positive effects of the professional development program had sustained even after external facilitation had been withdrawn in the third cycle of interventions. This was encouraging on one hand. On the other hand, it was natural to speculate whether these effects had lived up to the ultimate litmus-test, of sustaining over a longer period of time and without external support which was provided during the pilot (Chapter 4) and institutionalization (Chapter 5) stages. This enquiry was carried out by means of an impact investigation which is presented in subsequent sections of this chapter.

From the needs and context analysis and from the literature review that resulted in the conceptual model of this study, four main variables were identified to

examine the post professional development program two years later. These variables pertain to: (1) the adoption of a professional development approach, and the means and interventions through which such an approach is implemented; (2) the professional capacity of the para-educators; (3) the effects of the professional development efforts on pupil learning outcomes; and (4) the organization's learning and development capacity for creating a supportive environment.

The first of these variables was operationally defined as what kinds of opportunities for professional development currently exist in the organization. The needs and context analysis in Chapter 1, which described the pre-professional development scenario, indicated that professional learning opportunities for supporting instruction were nearly absent in Maitri at that time. The professional development program endeavored to change this by placing large emphasis on the integration and support of regular professional learning opportunities. Hence, after the long gap in time, it was important to examine if, as compared to the circumstances during needs analysis, opportunities for para-educator learning existed, and in what form.

The second variable was defined as a change in enactment towards more systematic and learner-centered teaching as the target of the professional development efforts, and whether this change was well achieved. Evidence for this change could be derived from the results discussed in Chapters 4, 5, 6). It was thus crucial to examine whether a learner-centered enactment, aimed by the professional development program was still reflected in para-educator classroom practice. The third variable was defined in terms of pupil learning outcomes. As seen in the needs analysis, in the original scenario, no system of assessment was available, which in itself reflected the lack of attention towards pupil outcomes. Additionally, classroom practices were so ill-structured that meaningful and stable learning amongst the pupils was not noticeable. However, substantial improvements in pupil learning were evidenced in the summative study. Examining pupil outcomes again, to see if this development in pupil learning gained earlier still prevailed, or had receded, would be another indication of the effects yielded by the professional development program.
Finally, as noticed earlier, a conducive organizational environment was heavily emphasized for the professional development activities to thrive. Naturally, it would then be important to examine whether the organizational focus and efforts on supporting para-educators had been maintained or had weakened.

Hence, since the professional development program invested in each of the aforementioned aspects, their current status was examined to assess the long term effect of the program in Maitri.

7.2 THEORETICAL BACKGROUND

As explained earlier, this sub-study aimed to understand the nature and impact of the professional development activities, 24 months after all external support was withdrawn. Towards measuring the impact, the study was interested in four main angles. These were, the availability of professional development support currently; effects of the professional development support in terms of a learner-centered orientation in teaching and type of pupil learning outcomes; and, the organizational conditions that symbolize an organizational commitment and capacity to continuously support professional development .

This section presents the theoretical underpinnings for the four variables that were derived based on these preliminary held interests and also introduced above. They were,(a) Professional learning opportunities; (b) A learner-centered orientation in teaching practices; (c) Pupil learning related parameters; and (d) The capacity for organizational learning required to foster para-educator professional development. The four constructs have a strong link which is lucidly explained by Supovitz and Turner (2000). They explain that professional development practices are expected to lead to improved teaching practices and consequently greater pupil achievement and the organizational (school) environment that is a powerful mediator of the instruction-learning sequence.

7.2.1 Professional learning opportunities:

By definition, professional development is ongoing and must sustain over time in order to be effective (Darling-Hammond & McLaughlin, 1996; Putnam & Borko, 1996; Sparks, 2002). Certainly, the first step towards assessing whether the professional development activities had a sustained impact would be to examine whether they were still practised, 24 months after the first signs of a successful institutionalization. While staff development is at the heart of all educatinal change (Supovitz and Turner, 2000), all efforts at capacity building may not equate with professional development. The nature of the activities that

seek to support staff learning are crucial. When conceived and introduced in this study, the professional development support was based on the conceptual model that combined a set of core activities and supportive strategies (Raval, Mckenney, & Pieters, in press). The core activities which included daily planning, enactment and reflection were treated as the main vehicle to stimulate para-educator learning. These activities embodied critical attributes that are assigned to professional development in literature. Besides being ongoing and sustained, these core attributes included the qualities of a situated instructional focus, i.e. on instruction linked to learning associated to problems and questions of daily life, collaboratively, and by using self-directed learning strategies (Chapter 2). The study presented in this chapter, assessed whether professional development efforts, if currently going on, still entailed the carefully designed activities introduced in the early stages. Or, if new activities were introduced, the study would ascertain whether these activities reflected an attention to qualities of effective professional development.

7.2.2 Basic teaching skills and learner-centered orientation

Basic teaching skills: One of the basic requirements of teaching, regardless of the teaching approach, is the ability to structure classroom activities (Putnam and Borko, 1996). Such basic teaching strategies refer to skills that may be expected amongst beginning teachers, for instance, preparation for the class, classroom arrangement and management and appropriate structuring of the lesson from the beginning to the end. Reynolds (1992) identified certain competencies for beginning teachers that include planning lessons which help pupils to connect new learning with old learning, developing rapport with pupils, establishing and maintaining rules and routines, arranging physical and social conditions of the classroom, and assessing pupil learning and adapting instruction to the results. Untrained teachers, like the para-educators in this study, are known to struggle with this skill (described in Chapter 2). Putnam and Borko (1996) identified that novice teachers did struggle with establishing routines, maintaining pupils' attention and maintaining a flow of the lesson. In investigating the professional development effects for such teachers, development in their basic teaching skills claims an important place.

Learner–centered orientation: Departing from the understanding of learner-centered teaching in its ideal form, Sullivan (2004; 2006) advocates a contextual stance for viewing learner-centeredness in developing country contexts. This stance implies that effective teaching in developing country contexts must be defined based on an understanding of what feasibly brings about learning within the subjective realities in which teachers work. Sullivan identifies strategies found in such classrooms which deserve attention as meaningful teaching strategies even though they are not learner-centered in the ideal way. This is because they move substantially away from didactic approaches and are realistically adapted to difficult classroom contexts. Other authors have also noted the importance of paying attention to realities of poorly prepared teachers who work in difficult classroom conditions (cf. Ruby, 2006).

From such a contextual stance, teaching strategies that might be considered a part of a teacher-directed teaching pattern in a regular western classroom, might be categorized differently in the kind of classrooms being currently discussed. For example, strategies like closed teacher questions, brief pupil answers which teachers do not build upon, or superficial praise rather than diagnostic feedback are considered typical of a teacher-centered initiation-response-feedback pattern (Smith, Hardman, & Tooley, 2005). On the other hand, studies by Sullivan (2004, 2006) as well as others (cf. Brodie, Lelliott & Davis, 2002), by adopting a contextual stance, view certain strategies as effective ways of teaching even though they may not meet the criteria for a full-fledged learner-centered approach. These strategies are considered meaningful since they move away from didactic practices, are achievable within the constraints of the classroom, and also prepare teachers for developing capacity towards more refined learner-centered teaching. Such practices include use of resources, questioning, appropriate selection of content, use of examples, praise and feedback, appropriate time management and pacing, group work, differentiation and ongoing monitoring of pupil work. The present sub-study adopts this contextual stance while investigating the nature of teaching and learning in para-educators' classrooms. Keeping in view the reality of the para-educators, it defines learner-centered strategies as those that reflect a departure from traditional teaching approaches by encouraging pupil interaction and involvement in the learning process and, within given constraints, aim to optimize pupil learning.

7.2.3 Pupil learning outcomes reflecting the effectiveness of teaching and learning process

Pupil learning outcomes are considered to be the ultimate variable to assess effects of any professional development. Different kinds of pupil learning outcomes include the students' cognitive, affective and psychomotor (actions and behavior) aspects (T. Guskey, 2000). Studies in the Indian context have highlighted that retention of students remains bleak throughout India, both on account of school-related factors like infrastructure and learning quality in public schools, as well as on account of lack of focused academic support at home (Banerji, 2008; Drèze & Kingdon, 2001). Thus, keeping children in school is considered a critical-pupil related outcome, especially for schools catering to students in the under-serviced areas in the Indian context. Needless to say, retention is hardly possible if students do not experience learning improvements. Contrary to the popular belief that parents from poor communities lack the motivation to send their children to school, studies have shown otherwise. Studies report that parents aspire to ensure good education for their children; however, they are often dissatisfied with the teaching standards of the schools (Drèze & Kingdon, 2001). When students get left behind in schools in terms of their learning, they are at risk of dropping out (cf. (Banerji, 2008). Hence, along with retention of students in schools, the actual learning improvement of students is a crucial factor to take into account while evaluating educational outcomes.

As stated in the introductory paragraph of this section, pupil learning outcomes are meant to be the end result of a series of professional development activities that lead to improved teaching practices. The extent to which professional development can take place effectively, is substantially influenced by the organizational environment. This construct is explored in the next section.

7.2.4 Capacity for organizational learning needed to support professional development

Organizational capacity to support teacher improvement is critical. This is because teacher and student learning are profoundly affected by the organizations in which they work (King & Newmann, 2001). Thus, the design of professional development should be grounded in a conception of how individual teachers learn but also how the organization affects and is affected by teacher

learning (King & Newmann, 2001). Often, organizational elements need to be redesigned in order to create an environment in which staff can collaborate around problems of practice (Darling-Hammond & McLaughlin, 1996). For example, by democratizing or decentralizing the organizational structures and processes. Organizations constantly need to reinvent themselves in order to provide appropriate professional learning conditions. The organization's strength or ability to achieve this is determined by its capacity for organizational learning (Marks & Louis, 1999). Marks and Louis elaborate upon five dimensions of a school's capacity for organizational learning. They are:

- *Structure*: Structural impediments to professional learning must be addressed. Structural aspects that require close attention in order to enhance learning include time, roles, decision-making processes, size and complexity of the organization.
- *Leadership:* Building capacity for organizational learning demands leadership which is different from conventional modes. The leadership must be facilitative, decentralized and exercised fully at all levels.
- *Shared commitment and collaborative activity*: This refers to breaking of isolation for teachers, reflective dialogue, open sharing of practices, developing a common knowledge base for improvement, collaborating for work and establishing common norms.
- *Knowledge and skills*: This involves creation of a knowledge and skill base and access to new ideas. Different knowledge sources may include individual knowledge of members, knowledge brought from outside experts or that created by members jointly.
- *Feedback and accountability*: For improving organizational learning, a clear set of performance benchmarks are necessary, especially autonomously derived locally meaningful standards. In addition, incentives that people within the organization mutually agree upon are also equally important since they operate as feedback.

Together, these factors could help examine the organizational capacity for learning how to support teachers (para-educators). Throughout the whole study, attention has been given to the knowledge that the organizational conditions to support teaching practice do not come as a given, but have to be created, alongside efforts to support para-educators (e.g. see Chapter 4). Hence, while measuring impact, examining current professional development activities and their classroom-related effects would be necessary but not sufficient. It

would be equally important to judge whether or not the organization, through its structure and practices, has added to its promise and potential towards continuously investing in the professional development of its para-educators.

7.3 METHODS

The four variables described in the theoretical background touch upon four different aspects of front-line practice. The first aspect dealt with the availability of professional learning opportunities, the second and third aspects touched classroom effects of teaching quality and pupil outcomes respectively, and finally the fourth aspect had to do with the broader organizational practices aimed at supporting para-educators. Together, the four variables could potentially offer a comprehensive scenario of the status of para-educator learning in Maitri, two years after external support to professional development activities was withdrawn. Based on this relationship between the main aim of the study and the constructs, this final impact study was guided by the following research questions.

In accordance to the first variable, the intention was to verify whether and what kind of professional learning opportunities were available to para-educators after the long interval of twenty four months. This led to the first research question of the study:
What type of professional development activities were carried out within the organization, 24 months after external support had been withdrawn?

The second variable which addresses the status of teaching practices comprising of basic skills and skills with a learner-centered orientation, led to the second research question:
To what extent did the para-educators' enactments reflect basic and learner-centered teaching skills?

Thereafter, based on the third variable of pupil learning outcomes, the study intended to examine the retention of pupils in the program and their learning achievement. This intention was explored through the question:
What kinds of pupil learning outcomes are achieved?

The fourth variable, which conveys the importance of organizational ability to learn to improvise continuously in meeting ongoing teacher development, framed the fourth research question of the study, which was:
What kind of efforts does the organization undertake to support on-going professional development of the para-educators?

7.3.1 Data sources

Availability of professional learning opportunities was evaluated through a self-reporting exercise in which the participants listed the type of professional development activities they undertook regularly.

Classroom observations were conducted to ascertain whether and to what extent teaching practices reflected basic skills and a learner-centered orientation. Two dimensions were examined to understand the nature of classroom teaching. These dimensions were (a) teaching practices and (b) interaction patterns. Through a deductive approach, teaching practices were examined by looking for occurrences of pre-determined desirable practices with the help of an adjusted version of the previously described (Chapter 5) curriculum profile. These desirable practices were comprised (a) basic teaching strategies and (b) learner-centered strategies. Examples of basic strategies are a planned teaching agenda, appropriate introduction of topic and activity, organization of materials, summarizing the lesson. Similarly, examples of desirable learner-centered strategies include questions to assess prior or ongoing learning, grouping of pupils, assigning relevant directions for group-work, use of practical examples and learning activities, and assessing pupil learning during and at the end of lessons.

The interaction patterns were studied through a more inductive approach. The verbal incidences (off-task instances like permission to drink water were not included) during class was recorded as an initiation, response or feedback move. For example, a new question asked by a teacher would be considered an initiation move, an answer by the pupil(s) would be a response move and the teacher's subsequent reaction would be considered a feedback move. Using the typology presented in a subsequent section of this chapter, each interaction was further categorized into a particular type of initiation, response or feedback. For example, open questions or closed questions are initiation moves; individual

answers, choral answers, or pupil demonstrations are response moves; and praise, evaluation or interruptions are examples of feedback moves.

Ultimately, the different moves were interpreted as indicative of a teacher- or learner-centered orientation. Moves which appeared to elicit a greater pupil engagement in the learning process or reflect greater attention towards the learner (and his/her understanding) were considered indicative of learner-centered orientation For example, open questions were generally considered moves with a learner-centered orientation because they often sought to involve greater pupil engagement in learning. Similarly, authentic checks involve asking appropriate questions for checking actual learning of the pupil, thus reflecting attention towards the learner. In the same manner, moves which reflected relatively low levels of attention towards the learner engagement and understanding were viewed as being more indicative of a teacher-centered approach. For example, choral answers were perceived as allowing low levels of actual involvement of pupils, since para-educators could hardly assess the various responses across pupils. By contrast, ensuring individual children's response was perceived to demonstrate relatively more attention to pupil involvement.

These connections to either teacher- or learner-centeredness make sense when viewed from the contextual stance discussed above. For instance, when a teacher, who is otherwise, satisfied with only choral or no answers from pupils, changes her behavior to ensure that individual responses are gained from pupils, this suggests greater attention to the learner by the teacher. More importantly, certain categories were easily classifiable as indicative of a teacher- or learner-centered approach, whereas other categories were more nebulous. For example, an authentic check which clearly implies a close attention to actual pupil understanding can be easily viewed as learner-centered. Similarly choral answers, or interrupting a pupil response without letting him or her complete the response can be easily viewed as a teacher-centered response. However, certain moves based on specific nuances were less easily classifiable. For example, closed questions were less easily classifiable, especially in the context of specific subject matter. For example, questions like, "*what is 4 multiplied by 4?*", "*what answer did you write in your book?", or" what do you see in this picture*?" may be closed questions, yet do not necessarily imply a teacher-centered approach.
Given the limitations of the methods used, based on the combinations and relative frequency of different types of moves, this study set out to construct a

broad picture of interaction patterns, and to look for general tendencies toward teacher- or learner-centered approaches.

Pupil outcomes in terms of retention and learning achievement were gathered from the annual reports produced by the Maitri. This means that the pupil learning outcomes were not collected through independent assessments designed for this sub-study, but reflect Maitri's view of pupil learning. During the summative iteration the teachers' self-designed tests provided useful feedback for guiding teaching decisions. By this time, the centers had established a systematic ongoing assessment system, designed by para-teachers, cluster-heads and the management team, where they administered a pre-test and post-test in the first six months of the academic year, and another pre-test and post-test during the second term of the academic year (one term = four months). As administering another round of tests for the purpose of scientific study was likely to disrupt the ongoing activities of the centers, the study used the test scores reported by the organization and collated during the annual program assessment activity. The capacity for organizational learning aimed at supporting para-educators was evaluated through interviews with management members.

7.3.2 Respondents

At the time of the impact sub-study, there were five clusters in the organization, with about six para-educators each. Two para-educators from every cluster were purposively selected as respondents for the self-reporting activity and classroom observations. Of each pair from each cluster, one para-educator belonged to the group which was originally tracked during the first three phases of the study; and one para-educator was part of the group which had participated in the professional development activities but was not tracked. Thus six participants belonged to the tracked group (T) and six to the non-tracked group (NT). The report compiled by the organization contained pupil outcomes of all 30 para-educators from across the organization. Two purposively selected middle management members and one senior management member were respondents for the interview. The middle management members were directly involved in supporting the activities of the community centers. The central management member was earlier employed with the organization and after two years of being employed with another organization, this central team member was reemployed with Maitri. She thus

provided her perception of the type of changes she witnessed in the organization towards supporting para-educator learning.

7.3.3 Instruments

Semi-structured self-reporting on opportunities for professional learning:
The instrument for assessing existing opportunities for professional learning entailed a short semi-structured form that provided a snapshot of the professional learning activities undertaken by the para-educators on a regular basis. All the para-educators (N=30) in the cluster were asked to write down the activities they participate in on a daily, weekly and occasional basis for their professional learning, related to subject matter support as well as teaching and classroom management (table 7.1). Alongside each activity reported by the para-educator, the respective cluster-head was asked to provide an 'agree' or 'disagree' indicator, in order to have the cluster-head's perception of learning opportunities available to the para-educators.

Table 7.1 *Semi-structured tool to explore the professional learning opportunities in Maitri*

Learning activities	**Cluster-head's perception (agree / disagree / don't know)**
Daily	
Weekly	
Quarterly / occasionally	

Curriculum profile to assess teaching practices (basic strategies and learner-centered strategies)
The curriculum profile instrument used in the study discussed here was (a) adapted from other studies (Ottevanger, 2001; Thijs, 1999), and (b) a modified version of the curriculum profile used during the formative (Chapter 5) and summative (Chapter 6) sub-studies. This instrument made it possible to compare several aspects of the current enactment with that observed during prior investigations. The curriculum profile acted as a structured observation tool which contained sections and items related to basic teaching skills required for well-structured enactment and a learner-centered environment.

The curriculum profile was comprised of 76 items, each one representing a desirable practice. Like the basic version of the curriculum profile, this version was also divided into four main phases a lesson: (1) Preparation for the class; (2)

Introduction of the main lesson; (3) Lesson Body; and (4) Conclusion of the lesson. The curriculum profile was revised by dividing these main phases into two sub-sections, (a) Basic teaching skills, and (b) Learner-centered orientation. The items under the learner-centered orientation addressed teacher and pupil roles. For each item, the observer could put a 'yes', 'no' or 'not applicable'. Table 7.2 shows an excerpt from the curriculum profile, with one example from each main section (see Appendix I for the full instrument).

Table 7.2 *Curriculum profile excerpt*

INTRODUCTION OF THE LESSON Time:	**Yes**	**No**	**Notes**
Basic teaching skills			
1. Para-educator recapitulates the previous lessons			
Learner-centered orientation			
Para-educator role			
2. Para-educator asks questions about previous lessons (links to or refreshes prior learning)			
Pupil role			
3. Pupils can recollect activities and content of the previous lesson			
LESSON BODY Time:	**Yes**	**No**	**Notes**
Basic teaching skills			
4. Para-educator has essential materials ready and organized			
Learner-centered orientation			
Para-educator role			
5. Para-educator groups pupils for activities			
Pupil role			
6. Children share and discuss with each other during group work			

Initiation, Response, Feedback Tool to explore classroom interaction

The second instrument was aimed at understanding the interaction between para-educators and pupils. It is borrowed and adapted from a computerized observation tool developed by Smith and Hardman (2003). It is used to code each discourse move in terms of the actor, the receiver and the nature of message by means of a structure that comprises three main sections namely, initiation, response and feedback (IRF) (Smith, Hardman, & Tooley, 2005). Each category includes a typology of moves. For instance, initiation could include an open or closed question from a teacher, or a question from a pupil. Similarly, response includes moves like an individual pupil response, a choral response, a

demonstration by the pupils or a response by the teacher to a pupil-initiated move. Feedback moves mainly include strategies used by the teacher to a response made by a pupil which range from classifying an answer, evaluating it, probing, explaining, or converting a pupil response into another uptake question (converting a response into another question). The instrument was used to measure the frequency of the different moves taking place during the entire lesson. Each lesson duration was about 2 hours. Table 7.3 portrays the typologies under each of the IRF categories, with definitions of how they were measured.

Both the classroom profile and the IRF instrument were piloted before the actual data collection. Pilots were conducted on video-taped lessons from four classes (not part of the actual sample). Thereafter, three live lessons were coded as a part of the pilot. One set of three observers piloted the Curriculum profile and another set of three observers piloted the IRF instrument. In total during the pilot, each observer practiced coding seven lessons. The intra-class correlation coefficient value for both the instruments was high that is, Cronbach's alpha value = .93 (N= 3 raters) for the curriculum profile and .91 for the IRF instrument (N=3 raters). The actual data collection was done with pairs of raters, in which one member collected the Curriculum Profile data while the other collected the IRF data. Three lessons taught by each participating para-teacher were observed and rated using both the instruments. In all, 36 classroom observations were made: 18 pertaining to teaching practices (curriculum profile) and 18 pertaining to interaction patterns (IRF instrument).

Table 7.3 *Definitions of initiation, response and feedback moves*

Initiation, response and feedback moves (teacher= para-educator)	Descriptors	Tallies
Initiation		
Open question	Teacher accepts more than one answer	
Closed question	Expects a single response	
Teacher direct	Direction to do something that does not require a verbal response (Open your books . Can we all sit down?. Please pay attention)	
Cued elicitation	Use of intonation (usually mid sentence) designed to get yes/ no from the pupils	
Teacher check	Pseudo checking – asking a question without expecting or waiting for a response	
Authentic Check	The teacher asks appropriate questions to check the child's/children learning	
Pupil question	Pupils ask a question	
Response		
None	No response	
Boy answers	Self explanatory	
Girl answers	Self explanatory	
Choral answers	Self explanatory	
Pupil demonstration	One or more pupils invited in front of the class, for eg, to the board, to demonstrate, recite , explain, share.	
Spontaneous contribution	Pupils volunteer and answer (by answering or raising hand to speak) and are not called on by the teacher.	
Explain	Teacher uses examples, real life situations, and deeper questions to explain a concept in response to child's/childrens' questions.	
Teacher answers	Teacher responds to pupil questions	
Follow up/Feedback		
None	No feedback	
Classify	Teacher says Yes/No, Right/Wrong, Ok/Not Ok, correct/incorrect to child's response.	
Evaluate	Teacher gives reasons for why child's response is right/wrong, correct/incorrect.	
Praise	Praise for a response from the teacher or by pupils (for instance when teacher asks pupils to clap)	
Probe	Stay with a pupil and asks questions for further understanding/ explanation of his/her answer. (Could tie up with comment under Evaluate above.)	
Comment	Rephrase, build or elaborate upon an answer.	
Scaffold questions	Teacher stays with a pupil and helps scaffold the pupil towards building an answer/understanding.	
Uptake	Teacher incorporated a pupil's answer into a subsequent question for the whole class.	
Refocus	Refocuses the attention of the group / pupil towards the task /discussion	
Interrupt	Impatient with the pupil while he/she is answering or discussing, so cuts short the attempt	

Pupil learning outcome reports:

Pupil learning outcomes of retention and test scores were obtained from the organizational reports. The test scores were based on a half-yearly test administered by Maitri in language and math for Grades 1, 2 and Environmental Science and Math for Grade 3 (see Appendix J for the test). The test for Grade 1 tested basic language and numeracy skills. Each was divided into sections with increasing difficulty levels. Depending upon which level they were able to reach, pupils received scores from 0 to 4. The test for Grades 2 and 3 were conventional fifty-mark tests, based on the grade-specific school curriculum. Both the tests had a combination of objective questions as well as questions which needed more qualitative answers from the pupils. All test outcomes were reported in terms of five levels, ranging from 0-4. The scores of Grades 2 and 3 had been converted into the levels based on pre-assigned ranges (level 0 = 0 to10; level 1 = 11-20; level 2 = 21-30; level 3 = 31 – 40; level 4 = 41 – 50).

Interview

The three managers were interviewed using a scheme (Appendix H) comprised of open-ended questions that aimed at gaining an understanding of a) the kind of organizational changes that had been introduced and implemented in the organization; b) the main rationale for the changes; and c) the characteristics of the process by which the changes had been introduced and implemented. The respondents were asked to speak about specific changes that they had introduced, implemented or experienced in the organization in the last 24 months (since the summative study was conducted) with respect to, structure, leadership, feedback and accountability, knowledge and skills, shared commitment and collaborative activity. They were asked to describe the changes, and share their perception of why change had occurred and the manner in which the changes had been brought about.

7.3.4 Analysis

The self-reporting data provided the professional development activities listed by the para-educators. A final list of all the activities listed was drawn up and tallies were used to count the number of times each activity was listed. The total number of tallies for each frequency indicated the number of para-educators who had chosen the activity, indicating the activities that were most common and those that were uncommon.

Consistent with the data analysis in previous studies, mean percentages (of YES's), indicating how often desired outcomes were observed, were calculated to analyze the data collected through the curriculum profile. Three levels of ranking were assigned to the percentage scores. Mean percentage scores below 33.3 were assigned low, between 33.3 to 66.6 were assigned moderate category and the remaining were assigned a high category. Using a T-test means between the tracked and the untracked group were compared to assess whether the difference between the two groups was statistically significant.

The IRF data were analyzed by calculating the frequencies of each item in each typology of initiation, response and feedback. As stated earlier, data were collected for two groups, the para-educators who were tracked through earlier formative assessments and the para-educators who were not tracked earlier. Through a Mann-Whitney U test, the differences between the means of the tracked (T) and the untracked group (NT) were compared, to see if there were differences between the two groups.

The test scores were analyzed by calculating means, standard deviations and effect sizes of learning levels for pupils in each grade, per subject. These were done based on reported levels of pupil, obtained from the organizational reporting data base.

Interview data were analyzed according to relationship to the pre-defined themes related to capacity for organizational learning to support professional development. These were, structure, leadership, knowledge and skills, shared commitment and collaboration and feedback and accountability. Analysis primarily involved looking for recurring patterns of meaning within and across respondents. Secondarily, responses which did not recur were also coded, if they provided an interesting additional insight.

7.4 RESULTS

7.4.1 Opportunities for professional learning

This question was answered by asking para-educators across all clusters to list activities that were perceived by them as professional learning activities. Table 7.4 shows that the majority of the para-educators still continued a routine of daily planning, enactment, and reflection. Weekly reflection, weekly time for subject matter preparation, and trainings were still part of the professional

development activities and were listed by a majority of the para-educators. Other activities like peer visits, individual weekly meeting with cluster-head were reported by very few participants.

Table 7.4 *Professional development activities listed by para-educators (N=30)*

List of activities	Number of para-educators who selected the activity
Daily activities	
Daily planning	26
Daily enactment	26
Daily reflection	26
Peer classroom visits	5
Weekly	
Individual meeting with main teacher / cluster-heads	7
Weekly reflection	25
Zero time : Subject matter preparation	20
Quarterly	
Training	26
Curriculum planning	18

7.4.2 Nature of teaching and learning in the classroom

Classroom observation data was collected with the help of a curriculum profile. Table 7.5 reflects the mean percentage scores of both the tracked (T) and the untracked group of para-educators (NT). The section on teaching skills depicts individual scores obtained by participants for basic teaching skills and learner-centered orientation. This table also reflects individual participant scores for different phases of the lesson. Over all, the scores portray a predominance of high category rankings for all participants. Except one participant from the tracked group (Avnita) and one participant (Sarika) from the non-tracked group, all the para-educators ranked in the high category in basic as well as learner-centered skills; and in each phase of the lesson.

Table 7.5 *Participant-wise mean percentage scores for nature of teaching practice obtained through the curriculum profile*

Participant	Treatment	Teaching skills		Lesson Phases			
	Tracked/ Non tracked	*Basic teaching skills*	*Learner-centered orientation*	*Preparation*	*Introduction*	*Body*	*Conclusion*
Meera	T	89	89	89	88	91	92
Chanda		98	98	100	100	99	95
Varuna		97	94	100	98	91	97
Sarojini		97	91	100	91	93	94
Harsha		92	94	100	92	96	85
Avnita		57	82	94	58	92	43
Jigna	NT	94	100	100	98	99	94
Sarika		69	65	100	61	68	48
Chandrika. S.		97	82	100	93	88	70
Jyotsna		94	100	94	98	100	95
Gauri		94	97	100	96	99	89
Punita		93	95	100	93	97	88

Legend: Dark grey = high, medium grey = moderate, light grey = low.

A t-test to explore the differences between the means of the two groups for basic as well as learner-centered orientation, and for each of the lesson phases revealed that the differences between the two groups were not significant (>.05). The means and the standard deviation values are presented in Table 7.6.

Table 7.6 *Means and standard deviation of the tracked and non-tracked groups*

Curriculum profile components	Trached/Non-tracked	N	Mean	Std. Deviation
Basic skills	NT	6	.90	.10
	T	6	.88	.15
Learner-centered orientation	NT	6	.89	.13
	T	6	.91	.05
Preparation	NT	6	.99	.02
	T	6	.97	.04
Introduction	NT	6	.89	.14
	T	6	.87	.15
Body	NT	6	.91	.12
	T	6	.93	.03
Conclusion	NT	6	.80	.180
	T	6	.84	.20

In addition to the curriculum profile, the interaction patterns in the classes were investigated through the IRF instrument. Figure 7.1 indicates the move types which comprised the first part (initiation) of the three-part IRF interactions.
A total of 5779 initiation moves were made. *Closed questions* and *teacher directs* comprised most of the initiation moves. Interestingly, there were a lot more *closed questions* than open-ended questions, potentially indicating a teacher-centered initiation pattern. At the same time, amongst the moves to assess pupil understanding, which included *cued elicitation*, *teacher check* and *authentic check*, the authentic checks were substantially high. This tends to indicate a learner-centered orientation by means of a genuine focus on assessing pupil's current understanding. *Pupil questions* comprised of 8 percent of the initiation moves.

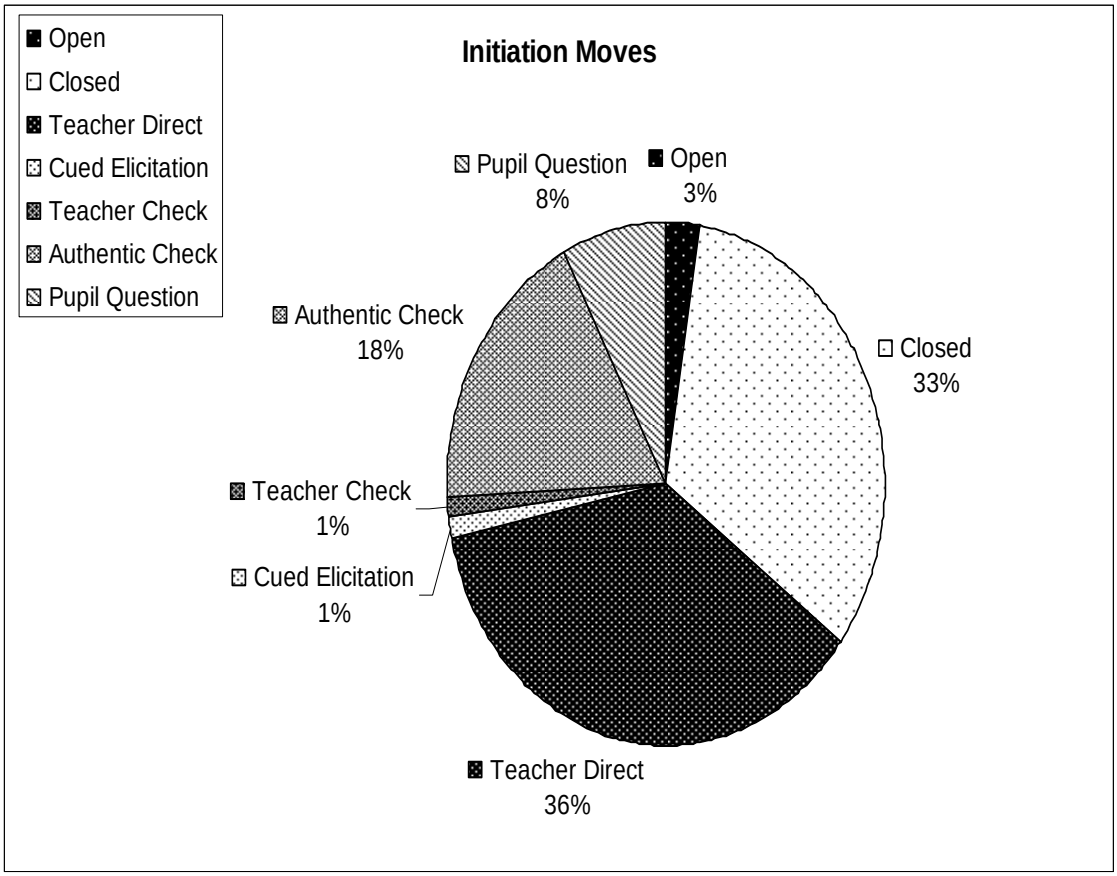


Figure 7.1 Interaction moves observed during enactment (N=5779)

Figure 7.2 indicates the response moves recorded during the classroom interaction. Of the overall 4659 response moves, the number of *individual responses* was substantial, with 28 percent responses from *boys* and 20 percent responses from *girls*. Together, *individual responses* comprised of 48 percent of the response moves. *Choral responses* comprised about 28 percent of the moves.

The number of response moves by the teacher (*teacher answers)* is 9 percent, a little more than the number of initiative moves made by pupils. This at least implies that the para-educators responded to all pupil questions.

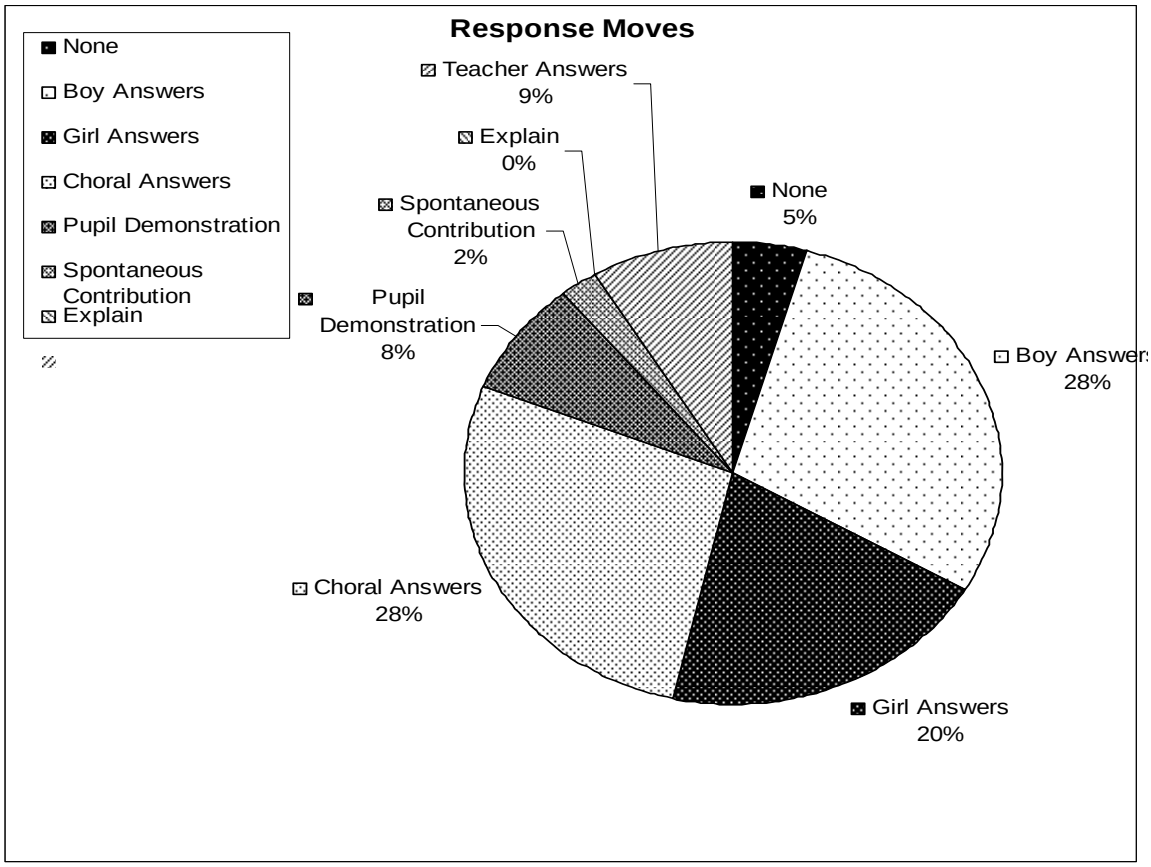


Figure 7.2 Response moves observed during enactment (N=4659)

Feedback moves are depicted in Figure 7.3. A predominantly large portion of the 1689 feedback moves was comprised of scaffold questions. Scaffold questions were smaller questions used to break down a bigger, more complex question that a child had previously answered incorrectly. Praise was the second largest constituent move amongst the feedback moves. While 13 percent of the feedback moves were directed at classifying the responses from pupils, only 2 percent further provided an evaluative feedback on the appropriateness or inappropriateness of the responses. Moves to refocus the attention of the class comprised of 12 percent of the total interaction, while uptake and probe moves were rare.

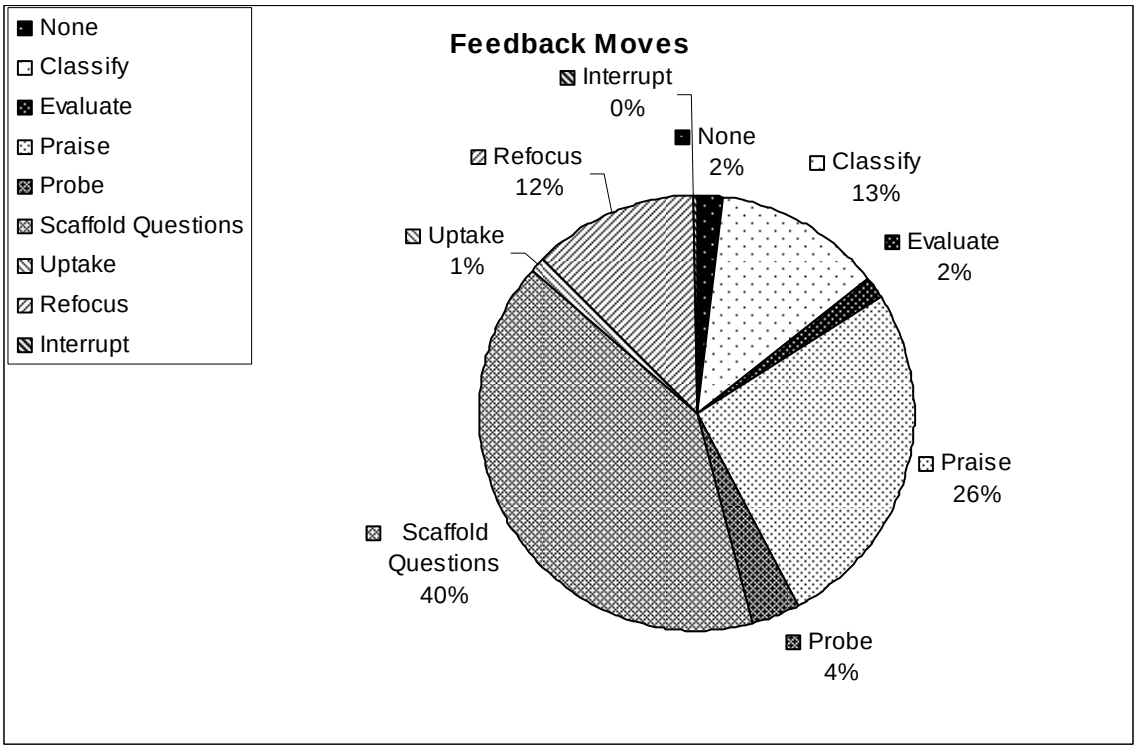


Figure 7.3 Feedback moves observed during enactment (N= 1689)

Through a Mann-Whitney U test, the tracked (T) and the non-tracked (NT) para-educators were compared (Table 7.7) to see if difference between their scores for each of the IRF categories was significant. Results indicated that the differences were not significant (p = > .05) except for *uptake* (p = .02) in the feedback moves.

Table 7.7 *Comparison of means of the tracked and non-tracked groups on IRF categories*

	IRF Categories	Tracked / non – tracked	N	Mean	Std deviation	Z
Initiation	Open	NT	6	15.83	10.27	-.966
		T	6	8.5	2.51	
	Closed	NT	6	179.67	89.68	-1.123
		T	6	136.33	62.52	
	Teacher direct	NT	6	171.83	77.62	-.080
		T	6	178.17	72.07	
	Cued elicitation	NT	6	6.33	10.764	-.887
		T	6	7.33	7.29	
	Teacher check	NT	6	6.33	9.09	-.082
		T	6	3.5	3.27	
	Authentic check	NT	6	70.83	36.83	-.961
		T	6	104.5	60.80	
	Pupil question	NT	6	43	17.88	-1.529
		T	6	31	10.88	

Table 7.7 *Comparison of means of the tracked and non-tracked groups on IRF categories (Continued)*

	IRF Categories	Tracked / non – tracked	N	Mean	Std deviation	Z
Response	None	NT	6	18.67	10.86	-.320
		T	6	16.5	12.52	
	Boy answers	NT	6	119.67	52.88	-.641
		T	6	103.17	88.68	
	Girl answers	NT	6	70.33	38.22	-.722
		T	6	87.17	42.30	
	Choral answers	NT	6	100	47.16	-.961
		T	6	114.67	51.49	
	Pupil demonstration	NT	6	38.83	31.75	-1.043
		T	6	22.5	17.42	
	Spontaneous contribution	NT	6	9	6.20	-.161
		T	6	8.33	5.79	
	Explain	NT	6	0	.000	.000
		T	6	0	.000	
	Teacher answers	NT	6	38	15.67	-1.363
		T	6	29.67	9.52	
Feedback	None	NT	6	3.5	2.51	-1.216
		T	6	1.83	1.94	
	Classify	NT	6	16	6.23	-.323
		T	6	19.5	12.31	
	Evaluate	NT	6	1.33	0.82	-.414
		T	6	3.17	4.58	
	Praise	NT	6	37.33	33.35	-.964
		T	6	36	15.76	
	Probe	NT	6	4	1.789	-.809
		T	6	6	4.65	
	Scaffold questions	NT	6	39	28.45	-1.121
		T	6	75.33	42.81	
	Uptake	NT	6	3.17	2.71	-2.221
		T	6	0.5	0.55	
	Refocus	NT	6	17.5	16.40	.000
		T	6	16.17	4.26	
	Interrupt	NT	6	1	2.00	.589
		T	6	0.17	0.41	

7.4.3 Pupil learning outcomes

Pupil data were collected through organizational reports of the pupil outcomes based on the organizational reports. Reports reflected that in terms of retention, out of 1400 pupils enrolled into the centers at the beginning of the year, 90.6 percent had been retained for the whole year, with full fees. This was a substantial improvement, as according to figures, three years ago, centers could not retain more than 30 to 40 percent of the pupils originally enrolled in class.

Achievement in pre- and post-tests scores for Grades 1, 2 and 3 showed a substantial improvement in post-test outcomes as compared to pre-test outcomes. Assessment data were available for Language and Math for Grade 1 and 2, and environmental sciences (EVS) and Math for Grade 3. Table 7.8 indicates the subject-wise class average (of levels between 0 to 4) and standard deviation for each grade. It also depicts the Cohen's *d* value indicating the magnitude of improvement between pre-test and post-test. The figures indicate a large effect size (> 0.8) for each subject in each of the three grades. Such a large effect size gives a clear indication that remedial teaching practices may be leading to substantial improvement in the subject knowledge of pupils.

Table 7.8 *Grade-wise learning outcomes of pupils using levels 0-4.)*

	Pretest		**Posttest**		**Strength of learning achievement**
Subject	*Class mean*	*Std. deviation*	*Class mean*	*Std. dev.*	*Effect size (Cohen's d)*
	GRADE 1				
Lang.	**0.60**	**0.76**	**2.95**	**1.15**	**2.41**
Math	0.39	0.68	2.07	1.01	1.82
	GRADE 2				
Lang.	0.63	0.83	3.25	0.89	4.45
Math	0.88	1.01	3.15	0.88	2.39
	GRADE 3				
EvS	0.41	0.63	3.16	3.19	3.95
Math	0.74	0.77	0.75	0.84	3.03

7.4.4 Capacity for organizational learning to support professional development

Respondents (N=3) shared about why different changes had been introduced, what the changes were and how they influenced the para-educators and their work.

All the respondents clarified that there had been several changes made in the organization since, as one of the respondents expressed,

"Our first successful experience with the professional development activities..."

They shared that the earlier objective was to maximize fees, but then was revised to improving learning quality in the classes which in turn led to many changes to support that objective. They expressed the view that improving teaching and learning was a main rationale behind the changes. This clarity amongst the respondents emerged through responses like,

> "*All changes are centered on this objective; they are for this objective and from this objective.*"

Or,

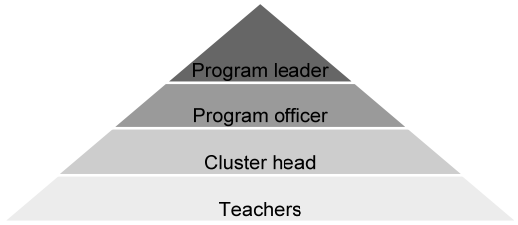
> *"The management, cluster-heads and teachers, all were involved in redesigning organizational conditions, based on information that helped them understand how their new ideas benefitted or compromised the core priority that had been identified in the field."*

While discussing what changes had been introduced, the respondents described the key changes related to the structure, leadership, feedback and accountability, knowledge and skills as well as shared commitment and collaborative relationships. These are described below.

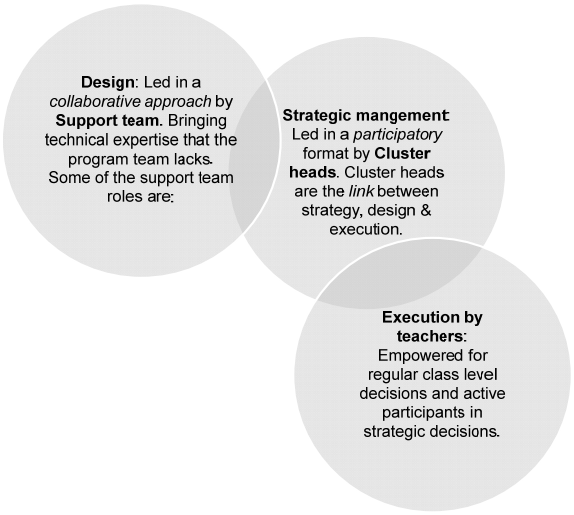
Structure

The respondents shared that three types of changes had been introduced in the last two years in order support para-educators on an ongoing basis in their work and in their professional development. These were: changes in overall organizational structure, changes in the cluster structure, and grade level structure.

- Overall organizational structure: All the respondents gave a detailed description of their view of the organizational structure before and after the organizational changes had been introduced. The participants gave convergent impressions of how many more layers and a strong hierarchy characterized the manner in which they were earlier organized. One of the respondents, demonstrated the change in the organizational structure by drawing a picture of how the organization was perceived before and after the changes (Figure 7.4).



1 Respondent's depiction of organization before the professional development program



2 Respondent's depiction of organization now

Figure 7.4 Comparison of organizational structure before and after the organizational changes introduced (represented by a respondent)

The other respondents provided closely aligned descriptions of how they viewed the organizational changes. They explained that earlier there was a program leader who made the decisions and those decisions were then cascaded down through the program officers to the cluster-heads and then to the para-educators. As per their perception, now the organizational structure through which the community centers were implemented was more participatory. They described that the main implementers of the program were the para-educators and the cluster-heads. The remaining team of people including the program officers formed a 'support team' to the cluster-heads (and the para-educators). They offered the opinion that, within this new organizational structure, the cluster-heads and support team shared a less hierarchical relationship, where the cluster-heads were the chief decision makers and the support team provided them advice in complex problem solving and technical skills, while cluster-heads remained the chief decision makers of the program. They also added that the relationship between the para-educators and the cluster-heads was more participatory than top down, implying that cluster-heads made decisions with full participation of the para-educators, and at the same time also performed the role of their coach and mentor.

- Cluster level structure: The respondents explained that the ratio of cluster-heads to para-educators had been changed from 1:12 to 1:6 so as to provide more ongoing coaching support by cluster-heads for para-educators. They also revealed that some well-performing para-educators had been invited to take up cluster-heads roles. Further, they described that the para-educators had been allocated teaching roles based on their current competencies and interests; thus certain para-educators were responsible only for pre-school class or grade 1 and 2, where as other para-educators were responsible for classes of older children.
- Grade structure: Respondents also gave details about new changes in the way classes were restructured. They explained that unlike earlier when there were heterogeneous groups of pupils in one class, and children enrolled based on whether they can pay fees; now, a system had been streamlined for enrolling pupils according to their current learning levels into a specific grade (of the ULC). They clarified that the cluster was now organized not merely as a group of highly heterogeneous classes with mixed pupils, but in grades, similar to the way schools are organized.

Leadership

The respondents expressed strongly, how leadership was more distributed in the organization, and that leadership was understood differently by everyone. One of the respondents put it simply,

> *"Now leadership is being looked at differently by each person."*

They shared that the teacher as well as the cluster-heads held leadership roles. They expressed enthusiastically how para-educators as well as cluster-heads now took an active role in different functional teams which were responsible for redesigning different systems and processes like the MIS or curriculum and assessment. The management member who had rejoined the team after a gap of two years shared,

> *"I always knew that our teachers were keen learners, but this approach that asks for their active role in designing and implementing all aspects of the program, has transformed their learning into agency."*

They maintained that the cluster-heads viewed their role not as administrators any more but as educational leaders. The main expression of this was that the cluster-heads themselves taught one grade each, so that they continued to have

the necessary teaching experience required in order to be able to empathize with and support the para-educators.

They also shared their perception about how decision-making was more decentralized. One of them stated,

"*Earlier, implementers were nowhere in the picture in the decision-making. Right now really the implementers are designing the program*"

Two of the team members who themselves were in a hierarchical authority role earlier, shared their own perception of how decision-making was different now based on trust rather than authority. Here is what one of them expressed,

> *"Earlier there was a program leader (PL) and we the program officers, and now we form a support team. Earlier PL and we were there to make decisions: now we take decisions together with the cluster-heads and teachers. Earlier we used to make the decisions and tell them and give deadlines. Now we have a long engagement process after which we come to decisions, even if it is time consuming."*

The second respondent, added,

> *"Now I don't feel that we and cluster-heads are in a hierarchical relationship any more. I would never impose a decision on them now, because I understand that the cluster-heads understand their field level realities much more than me. I can definitely provide a technical support, and strategic advice, but the cluster-head openly chooses to accept or reject that idea based on their understanding of the field which I might not have. We can debate now, exchange opinions and plan together. That is the defining factor that builds the trust between us."*

Thirdly, one of the respondents shared that there was an emphasis that decision-making was driven by actual facts and concrete data, versus earlier when they were often

> *"Decisions by the PL who was not always aware of the ground reality."*

Shared commitment and collaborative activity

Again, respondents felt that the restructuring of the organization had led to greater collaboration amongst the teacher and the cluster-heads.

As the management member expressed,

> *"Earlier they used to talk on informal things, but now I think there is a sense of community. There is energy around discussing, and solving problems together for a program that they are driving. Earlier they had no time or structure to*

help each other; they would get together to vent out their problems, but now they get together for constructively solving their problems."

Another respondent shared that there was a greater level of trust within the para-educators, and amongst the cluster-heads as well as the sense of working together towards a common goal. This was illustrated by the following explanation,

They have a shared purpose and the clarity that only together can we take it forward. It's more 'our' program rather than 'my' cluster. Earlier they were competitive, for instance each one was trying to get higher fees for her center or cluster. They wouldn't share their good ideas, but now they enthusiastically put all their ideas together. They even are openly critical and give feedback to each other. And this has happened because they are all involved in running their own center or cluster, but also in redesigning or implementing ideas for the entire program that benefits everyone. For instance, by being involved in the redesigning of the MIS for everyone, or the curriculum, they all together own the concerns for the whole program that includes all the clusters.

Knowledge and skills

All the respondents expressed a sense that para-educators and cluster-heads were learning on an ongoing basis. For instance, one of them shared her perception about the para-educators saying,

"They *are much more aware and reflective than before. I find them continuously critical with regards to what works and does not work, what are their strengths and gaps. I see that they experiment on their own in their small little ways as a way of working, not because anyone asked them to try out new things. Most importantly, they are very sensitive to what gives them nourishment and what does not give them nourishment - they are sensitive about changes with respect to that. So it is no more possible to just impose any idea, they make critical choices and influence our decisions."*

Another respondent shared his perception that cluster-heads had experienced professional growth during their efforts to support the para-educators. He explained,

"They have learned to solve higher order problems that earlier were solved and given to them. This includes thinking about how to restructure the program, consider role allocations that are meaningful for everyone, think about what kind of data to use at what stages for what kind of decisions, etc. And more importantly they have learned to work systematically, include concrete

information to inform their decisions instead of making only haphazard decisions, and pay attention to details. "

Feedback and accountability

Respondents expressed that earlier all the para-educators and cluster-heads were accountable and answerable to the PL. But now the para-educators and the cluster-heads felt most accountable to the parents. They described the new management information system (MIS) that was put in to place to enhance the accountability and feedback processes. They explained that the support team and the cluster-heads together had designed the MIS system, and thus there was a high level of ownership at the cluster level for using the MIS as a way to constantly assess the quality of implementation. They explained,

"Earlier ongoing data for program assessment was collected, but through a mechanical activity where teachers reported data like attendance and assessment figures to the program head without understanding the use of the data. But after their involvement in redesigning the comprehensive MIS, teachers and the cluster-heads have a thorough understanding of the data for assessing on-going quality and making decisions on basis of that information. Thus, now each teacher analyses her own class data on a timely basis, and discusses her data and the decisions with the cluster-head; similarly the cluster-head reviews the data for the cluster as a whole and discusses that data with the teachers as well as the support team for critical decisions."

One member of the support team clarified that,

"*We now understand that the MIS system is not a technical or a mechanical process, it helps us make our communication between teachers, cluster-heads and support team systematic and well- informed. And it is a tool that helps us think about the program's strengths and gaps"*

7.5 CONCLUSIONS

The aim of this study was to assess the impact of the professional development interventions in terms of the current status of professional learning opportunities in Maitri (at the time of the impact study), the extent to which learner-centered strategies were still implemented by the para-educators, the effects of these strategies on pupil outcomes, as well as subsequent changes in

organizational conditions to support professional development. Evidence provided by each of the four identified variables, leads towards the conclusion that the professional development program yielded a strong long-term impact. Notably indicated by the self-reports of the para-educators, the professional learning activities, especially the core routines of daily planning, enactment and reflection, which were introduced in the program are being practiced by para-educators across the organization and sustained in the organization. Moreover, the data from the curriculum profile indicates a well-retained systematic and learner-centered orientation in the teaching practices of the para-educators. Ensuring a proper introduction and conclusion to daily lessons for structured enactment, thoughtful grouping, classroom norms, use of practical activities, use of questions and examples were apparent; these were all aspects of practices introduced and well-adopted during earlier phases of professional development. A retention of these practices over two years, indicates that the enactment objectives which were met in earlier professional development phases have been sustained, indicating long term effectiveness.

In addition, substantial improvement in pupil retention was also observed in this impact sub-study. While it is not possible to make definite claims on learning achievement by pupils, due to the indistinct reliability and validity of the assessment tools used by Maitri, the large learning effect sizes from the pre-test to the post-tests form a convincing indication of the impressive positive achievement in pupil learning.. This positive gain in learning is consistent with the pupil outcome findings of the summative study (Chapter 6), which also showed clear achievements in terms of pupil learning. These learning gains expressed a crucial development as compared to the pre-professional development period, when meaningful pupil learning was barely noticeable.

Finally, the interview responses portray that crucial and comprehensive changes in the structure and functions of the organization have taken place, with a view to supporting para-educators in instruction. This attempt to create in parallel an appropriate organizational climate while designing learning activities has been a clear, though background, focus throughout the professional development program. The interviews also reflect that the importance of this focus surfaced for the Maitri staff as a result of the earlier success of the professional development program. As interview data confirm, this focus and effort towards enhancing organizational capacity to support para-educators, has not just sustained but also

been taken forward in a substantial manner within Maitri. Then indeed, it can be construed, that the professional development program has yielded lasting impact on the way Maitri's organizational ability to learn and evolve in order to optimize para-educator learning.
In all, aspects that were emphasized in the early stages of the professional development program in terms of the four variables, have either been retained, or enhanced over time, thus equating to a long term impact on Maitri's instructional and organizational practices.

Two additional conclusions from this impact study merit attention. They have to do with the nature of teaching practices and organizational practices. Data from both classroom observations (the classroom profile and the IRF instrument), reflect a mix of teacher-centered and learner-centered behavior. For example, the curriculum profile reflected learner-centered practices like active involvement of the pupils at every stage of the lesson through strategies like asking questions, using practical teaching activities and extensive group work with active pupil participation and continuous assessment of pupil progress. At the same time, the nature of interaction portrayed by the IRF data indicates some extent of teacher centeredness. For instance, aspects like predominant initiation moves by the teacher as compared to those made by pupils, greater number of closed questions over open questions and chorus responses, reflect behaviors with low level of attentiveness towards actual pupil participation or learning. However, equal number of individual responses (as choral responses) indicating active pupil participation, teacher responses for 100 percent of the initiation moves made by the pupil, and high rate of authentic questions and scaffold questions, indicate the para-educators' attempt to address gaps in pupil knowledge during interaction. From the contextual stance discussed in the theoretical section of this chapter, and for the developmental stage that the para-educators are in, these actions, do imply attention towards learners. Hence, they can be viewed as practices with a greater learner-centered orientation as compared to typical traditional practices. Thus, a mixed set of practices seems to characterize enactment of para-educators. Moreover, with the basic level of institutionalized learning interventions that were found in the study (daily plan-enact-reflect routine), previously-learned learner-centered activities could be sustained. But additional or advanced professional interventions may be necessary to learn new learner-centered approaches and to replace remaining teacher-centered practices.

Additionally, it clearly emerges that Maitri's organizational structure and functioning have undergone pertinent changes. And these changes have taken place, not in vacuum, but during efforts to support para-educators' practice. While this study has, since earlier stages, underscored the importance of modifying organizational conditions to support para-educators, the research reported in this chapter has added a reciprocal dimension to it. It implies that the efforts to support professional development in turn lead to new understanding about the surrounding conditions that are needed to strengthen para-educators' work and how those conditions should be met.

This sub-study gives evidence of a highly successful professional development program for para-educators in an educational NGO. The classroom enactment practices of the para-educators demonstrated the use of several learner-centered approaches. It is possible to speculate that the types of approaches employed by these para-educators foster a much more active learning environment than is typically found in under-resourced Indian classrooms, cf. (Clarke, 2003; Smith, et al., 2005). For example, Smith, Hardman and Tooley, (2005) studied classrooms serving low income families in India, with the intent of providing a baseline against which other studies might be compared. They found that the vast majority of classrooms were fully dictated by a teacher-led approach. Although methodological differences prevent direct comparison of the Smith, Hardman and Tooley (2005) results with those from this study, the interaction patterns are clearly different. This study clearly shows high instances of effective combination of whole class and group activity based approach use of questions, practical examples and learning activities and pupil to pupil interaction; in comparison to the Smith, Hardman and Tooley (2005) baseline, which is dominated by a whole class teaching and transmission-based teaching approach.

This sub-study points out an approach that is interesting for those who are involved in supporting or assessing practices of teachers (who are untrained and/or in under-resourced contexts) who are learning how to implement learner-centered practices. First, it highlights the possibility that teachers do not discover a learner-centered approach by making one large step, but rather, by selectively experimenting with some learner-centered strategies while retaining other teacher-centered strategies, which leads to mixed practices (as witnessed in the current study). Second, classroom learning with such mixed practices by these teachers might reflect a scenario in which the teachers tend to first focus

on aspects like pupil participation before being able to facilitate meaningful pupil learning. Of course, this is not to imply that the development from increased participation to increased learning takes place in totally discrete and sequential stages. However, such attempts at obtaining pupil participation, despite their possible imperfections, must not be and cannot be discarded as superficial. Especially for teachers who work under severe personal and environmental constraints, even attempting to employ radically different strategies to gain pupil participation is considered indicative of a embarking on a steep climb. Finally, this study also reinforces the interactive nature of teacher and organizational learning. This was highlighted by the changes in organizational practices (including routines and procedures, structures, technologies and systems) that took place in Maitri, during efforts to enhance individual learning of para-educators.

This chapter portrayed Maitri's current status in terms of teaching and learning quality in its classrooms, and of the organizational scenario in the context of fostering professional development opportunities within Maitri. Information on professional learning opportunities, enactment, and pupil learning help maintain an optimistic assessment the professional development scenario. Moreover, the inter-twined development between teacher learning and organizational efforts lend further hope that the professional support may continue to thrive in future.

CHAPTER 8
REFLECTIONS

The main aim of this chapter is to reflect on the findings and to recommend guidelines from this 5-year design-based research study on professional development of para-educators in an Indian educational NGO called Maitri. Through a design-based research approach, this development and research work sought to evolve a professional development program that could meet the professional learning requirements and contextual demands of para-educators who work in the NGO. The aim of this program was to support the para-educators in planning and implementing well structured lesson plans with a learner-centered orientation. This chapter starts with a brief summary of the previous chapters (8.1). Thereafter, it reflects on issues related to the use of a design-based research approach (8.2). It recapitulates and discusses the main findings of the study in light of insights from previous research (8.3). Based on this discussion and the overview of the study, section 8.4 presents design guidelines along with a revised conceptual model. The chapter ends with some concluding remarks in section (8.5).

8.1 SUMMARY

8.1.1 Introduction

Education for all, as one of the Millennium Development Goals, has gained tremendous attention and commitment from governments of developing countries including India. NGOs have supplemented governmental efforts towards improving educational indicators in significant ways. Chapter 1, which aimed to lay out the background and rationale of the overall study, introduced the notion that the role of NGOs in educational development is changing, from charitable service delivery towards designing and implementing innovations and influencing policy through advocacy. NGOs often work through para-educators

at the grassroots level, who are mobilized from the communities in which NGO s work. Para-educators are well known for their commitment and ability to connect with the pupils they work with; however, their teaching quality suffers because of poor educational qualifications and lack of professional teacher education. In order for NGOs to improve and sustain their educational outcomes, the professional development of the para-educators is paramount. However, current theoretical knowledge as well as examples of professional development practices of para-educators in India and other developing countries are limited.

This study contributes to the need for understanding of how to design professional development of para-educators in actual practice as well as expanding the theoretical knowledge base for doing so. As described in the first chapter, the study is located in Maitri, an educational NGO in India, and aims to design and implement professional development for para-educators working in Maitri. Maitri provides educational support to children in under-served urban communities, most of which are best characterized as slums, across many states of India through its Urban Learning Centers (ULCs). This study specifically took place in a western state of Gujarat, where Maitri implements the ULCs to provide remedial education to children going to public school who lag severely behind in their grade level attainment, a trait that characterizes public school education across India. Originally Maitri implemented free remedial services for students who lagged behind in basic competencies of reading, writing and basic arithmetic. Later it modified its strategy and para-educators were required to teach additional subjects including Gujarati (first language), English, Math, Science, History, Geography, and Civics, up to age 14 (which is up to about grade 7) in a learner-centered way, as well as charge fees for their services. Maitri felt the need to support para-educators in delivering this. This led to the present study, aiming to develop professional development support for para-educators in implementing learner-centered teaching strategies. A design-based research approach was chosen, as this approach pursues the dual aims of solving educational issues in authentic situations, and generating theoretical knowledge about the educational problem, through rigorous examination of the deigns and the outcomes.

Guided by this approach, the main question shaping evolution of professional development activities for para-educators was framed as:
What kind of professional support can help para-educators adopt and develop teaching strategies with a learner-centered orientation?
This question was answered through a series of sub-studies, each described in the subsequent sections.

8.1.2 Needs and context analysis

Initially, a needs and context analysis, described in Chapter 2, was conducted to ascertain the learning requirements of the para-educators in Maitri, and the contextual factors likely to foster or inhibit professional development. The theoretical framework for the needs and context analysis study comprised four contextual factors considered likely to influence para-educator learning. These are the teacher (para-educator), the instructional setting, the organizational setting and policy. These are represented through Figure 2.1 with four off-centered concentric circles, in which each circle represents one of the four factors. Each of these factors individually and collectively influences professional teacher learning. Data were collected to understand the current status of each of these factors in Maitri, and the fostering or inhibiting influences of their current characteristics on the intended para-educator learning. Results revealed that there was a high level of motivation and commitment on the part of para-educators towards their job which could play a crucial role in fostering professional development. The current status of para-educators was also characterized by substantial gaps in their knowledge and skills related to teaching. Moreover, factors related to the other three elements in the model also posed several challenges for future professional development of para-educators. These are presented in the table below (Table 8.1). At the end of the first sub-study, after gaining a thorough understanding about the felt learning needs of para-educators and actual needs which surfaced while observing their classrooms, a professional development objective was formulated. This objective was defined in terms of supporting para-educators in designing and implementing systematically structured lesson plans with strategies that reflected a learner-centered orientation.

Table 8.1 *Contextual factors identified during needs and context analysis*

Para-educator characteristics	1. Lack of basic teaching skills to make enactment well structured and coherent 2. Lack of learner-centered skills 3. Low confidence about subject-matter
Institutional characteristics (classroom composition; teaching strategies)	1. Large, heterogeneous classrooms with children from pre-school to Grade 7 2. Older children with lower attainment levels than their actual grade-level curricular competencies would imply 3. Coping strategies involved inefficient individual teaching
Organizational characteristics (time and opportunity for professional learning; curricular framework; leadership)	1. 2-3 classes a day, marketing for collecting fees; no daily time to prepare for teaching 2. Professional support only in marketing strategies to increase fees 3. Lack of overall coherent curriculum to define 'what, when and how' to teach 4. Cluster-head role only as administrator
Policy influences (mandates/strategies for enrolling pupils; curriculum expectations and academic term duration)	1. To enroll any child willing to pay fees towards fulfilling revenue targets for each month, and not based on learning requirements 2. To teach grade-specific curriculum to different pupils because of parental pressure, although their actual attainment was several grades lower 3. One academic term for three months, new children enrolled with each term 4. To enroll new children during a term to prevent losses in fee totals, leading to unstable pupil population

8.1.3 Theoretical underpinning for the rest of the study

After defining the aim of professional development, a conceptual model (see Chapter 3) was developed to guide the professional development program. The conceptual model is inspired by critical attributes of professional development, including a situated instructional focus which connects learning to actual problems of practice; ongoing and sustained rather than isolated one-shot events; a self-directed and collaborative focus. Moreover, the model adapts state-of-the-art knowledge about professional development to the contextual realities relevant in this study. It recommends tailored professional development activities that are feasible and meaningful given the educational, cultural and organizational (NGO) context of para-educators in India. The model emphasizes development of three core cyclical practices as a part of the daily routine of para-educators: Lesson

planning, lesson enactment, and reflection on the lesson. Furthermore, the model proposes that the core activities must be supported by workshops, micro-teaching and coaching; within an organizational context that creates the necessary pre-conditions (e.g. sufficient time to prepare for teaching tasks, or support of leaders and peers) for these activities to flourish. Thus the core activities, supportive strategies and appropriate organizational conditions are three main components that constitute the conceptual model for para-educator professional development.

8.1.4 Pilot study

Following the needs analysis and development of the conceptual model, a professional development program was designed, piloted and formatively evaluated. Described in Chapter 4, the pilot program, facilitated by the researcher (in consultation with the program-leader), introduced core activities of planning, enactment, and reflection of daily lessons using tailor-made templates for lesson planning and reflection. Supportive strategies were also implemented. As this study took place during a summer vacation while para-educators taught an optional subject, only minor organizational changes were required. The formative evaluation of the one-month pilot aimed to understand if para-educators, who had no prior knowledge or experience of lesson-planning, were able to able to design well-structured lesson plans with learner-centered strategies. The study also examined para-educators' first experience with the professional development program as well as their perceptions about changes in classroom enactment. Of the 30 participants in the professional development program, nine para-educators (three from each of the three clusters), were respondents. The study concluded that the participants' first professional development experience was positive with respondents citing favorable attributes of the program like demonstrations and micro-teaching, joint planning, reflection activities, and the immediate availability of ongoing support during implementation. The study also concluded that para-educators had acquired knowledge about and high proficiency in systematic lesson-planning with learner-centered strategies. Classroom enactment changes towards well-structured teaching with a learner-centered orientation were also perceived. The only area of difficulty experienced was in planning for and implementing pupil management strategies (i.e. discipline, facilitating pupil behavior for learning). The successful implementation of the pilot paved the way for a second phase of professional development activities.

8.1.5 Institutionalization

After the success of the pilot in terms of acquiring systematic and learner-centered lesson planning skills, the second phase sought to institutionalize the core cycle and explore its value during the regular school term. Chapter 5 described how the institutionalization agenda necessitated certain changes in organizational conditions for bolstering both core and supportive activities. These were led by cluster-heads through a workshop facilitated by the researcher. Policies and practices that compromised teaching-learning quality in the centers (for instance, fee-based enrolment) were suitably modified; and the initial planning and reflection tools for the para-educators were revised. Again, with some modifications, core and supportive strategies were implemented with facilitation by the researcher. The formative evaluation for this phase of institutionalization aimed at assessing the extent of systematic learner-centered orientation in lesson planning and enactment; other kinds of professional development gains experienced; and the perceived role of changed organizational conditions in supporting or hindering professional development. The nine para-educators from the pilot were respondents in the institutionalization sub-study. The findings from this sub-study indicate that the professional development program led to successful adoption of systematic, learner-centered, lesson planning and enactment practices even during a regular term. Professional development not only yielded greater instructional competencies, but also an improvement in related competencies like collaboration during and ownership of core activities as well as related teaching and learning concerns. Lastly, it was found that organizational changes (new realistic program objectives for the ULC, new rules for enrolling children in class to ensure more stable pupil populations, etc.) had proved to be important for the smooth and effective functioning of the core and supportive strategies. This study also showed that the cluster-heads' abilities to support para-educators grew along with their coaching experience, thus indicating that para-educators' and cluster-heads' learning took place interactively.

8.1.6 Summative evaluation

As specified in earlier chapters, the pilot and institutionalization of professional development activities was undertaken with central facilitation mostly provided by the researcher. Chapter 6, through a summative study, describes the professional development after the central facilitation role was withdrawn and the

implementation of the core PD activities was fully left to the cluster-heads and para-educators. The aim of this summative study was to ascertain whether the professional development program yielded desired effects (retention or improvement of skills learned in the previous two programs) even when facilitation support was withdrawn. It also assessed pupil learning achievement. The nine respondents from previous evaluations continued as respondents as far as lesson planning and enactment effects were concerned. Pupil learning achievement data was also collected from other para-educators who had not been part of the earlier studies, but participated in the professional development activities. Improvements in lesson planning and enactment led to the conclusion that para-educators were able and willing to gain from lesson planning, enactment and reflection on daily lessons, through the facilitation in the organizational units alone, without additional support from the researcher. The large effect sizes in pupil learning gains clearly indicated that learning took place. No differences were found between the pupil scores of the original nine teacher respondents who had been tracked in the previous sub-studies, and those of the new para-educators involved in the summative study. This result leads to the inference that effects from the professional development program were well distributed across the NGO and applied not only to the para-educators who were observed throughout the previous studies. Over all, the lesson planning, enactment, as well as test scores, lead to the conclusion that the professional development program was effective even in absence of the researcher's external facilitation and support.

8.1.7 Impact study

The formative and summative evaluation studies indicate clearly that the professional development program led to acquisition of more learner-centered lesson–planning and enactment, greater agency and collaborative interaction amongst para-educators, a proactive educational leadership role by the cluster-heads, and impressive pupil learning outcomes. Positive effects of the professional development program were sustained after withdrawal of external facilitation. Two years after external support was withdrawn, another study, described in Chapter 7, was carried out to assess whether and to what extent the professional development program yielded long-term impact. Long-term impact was studied in terms of (a) the existing status of professional learning opportunities within Maitri; (b) quality of teaching practices; (c) pupil learning outcomes; and (d) Maitri's capacity for organizational learning to support

professional development of its para-educators. The following conclusions were drawn after assessing the aforementioned variables: (a) Professional learning opportunities were readily available, and the core routine of daily planning, enactment and reflection, introduced in the earlier professional development program, was fully retained; (b) although the teaching practices of para-educators entailed a mixed approach with some strategies that were more teacher-centered and others that tended more toward a learner-centered orientation, specific learner-centered practices attempted earlier and successfully evidenced in earlier studies were retained; (c) there was a substantial improvement in both the retention of pupils, and learning achievement; and (d) the early professional development efforts had promulgated organizational changes focused on supporting para-educator development in terms of more horizontal organizational structures, participatory leadership, greater trust and collaboration between staff members, increase in greater agency and initiative amongst para-educators and cluster-heads and systems promoting autonomous data-driven decision-making. Maitri's capacity for organizational learning, which is necessary to support its para-educators, had grown not in isolation but alongside and during efforts to strengthen teacher capacities. From all this evidence, the study concluded that the professional development program had indeed yielded long-term impact in terms of retaining or improving upon all the factors that it had originally invested in.

8.2 REFLECTING ON THE RESEARCH APPROACH

Design-based research was found to be uniquely suitable for the problem statement that was central to this study. As discussed extensively in Chapter 2, the exercise of designing professional development interventions for para-educators was complicated by several contextual factors. Secondly, limited theory as well as model practices for guiding the development of contextually amenable and robust solutions made this a more daunting endeavor. The attributes of design-based

research rendered this approach compatible with the needs of the situation, due to its iterative nature and the ability to simultaneously pursue the goals of designing effective learning environments (in this case, professional learning for the para-educators), and use of such environments as natural laboratories to study teacher (para-educator) learning (Sandoval, 2004). Besides the fact that there were direct

benefits of this approach in terms of improved capacities on the ground, it is important to highlight some other enriching experiences that the approach offered, along with challenges it presented.

8.2.1 Structure that enables collaboration of different stakeholders

Collaboration per se, especially between people from different disciplines is challenging. When it concerns researchers and practitioners, the difficulties are multiplied, more so in contexts like India, where the boundaries between educational practice and research are still tightly drawn, and conflicts of interests are likely. The design-based research process eased these challenges in two ways, related to the nature and activities of collaboration, respectively.

Empathy, trust and solidarity of purpose

As the professional development program progressed, the Maitri practitioners' saw that unlike many traditional educational research agendas which decontextualize the realities of working with children, a design-based research approach sought to realize its objective (of creating new knowledge) within the ground realities and not despite the realities that they worked in. The enactment stance (as opposed to the fidelity perspective) which is the corner stone of design-based research in the field of curriculum implementation (McKenney, Nieveen, van den Akker, 2006) brings with it empathy, regard and a motive that respects actual grassroots' realties as they are. This empathy has tremendous potential to forge a sense of trust and solidarity of purpose between practitioners and researchers (in India and probably elsewhere). A reflection on the whole approach by one of the management members illustrates this positive aspect of using design-based research, "*I have often encountered a feeling that our fuzzy ground realities are almost a botheration and a hindrance to the researchers in seeking their objective, as if it compromises their quest, as if they have to come and first clean up my kitchen to be able to work in it, and that often leaves us practitioners feeling undermined and in an unequal position with them; but this experience truly put us on an equal platform*".

Concrete structured activities for collaboration

Trust and shared purpose are of course necessary for collaboration. Even after that is achieved, there are other challenges in the process. The process of designing is open-ended and complex, requiring inter-dependent decisions, extensive investigation and iterative refinement (Edelson, 2002). It is difficult for

different people to maintain singular focus at all times, and align pacing and perspectives, without concrete and structured activities that help scope objectives, tasks and roles along the process. A very early example of this is found in the needs and context analysis during which, for the very first time, multiple collaborators came together. The collaborative group included the researcher, grassroots para-educators, cluster-heads and management members. Typically in Maitri, the process of needs identification would have entailed a rather quick, intuitive and unilateral process wherein para-educators would not be involved; rather management members would commission and implement a training. The needs analysis, integral to design-based research, brought in multiple steps that avoided this process error. One, the objective of a concrete problem definition committed all stakeholders towards achieving a shared problem definition before jumping towards solutions. For example, the process obliged the management members and researchers who, during analytical tasks worked at a faster pace than grassroots participants, to adjust their pace for the others. Two, problem identification methods acted as platforms where each stakeholder represented his or her reality in a targeted manner. Interviews and/or member-checks from the situational analysis helped maintain focus by forcing discussion of problems with a direct implication for instruction rather than on aspects with little instructional relevance. This kept discussions from drifting and promoted a more efficient approach that prevented people from losing energy and concentration because of unfocused and irrelevant time consuming processes. Three, once reality was transparently laid out (through empirical data collection), the discussion between para-educators, management members and the researcher was grounded in facts and not in assumptions or biases. Hence, the discussion went beyond any one party stating a problem simplistically from their point of view, to a richer conversation centered around and more accurate, layered perspective of the problem(s) to be addressed.

The workshop to revise organizational conditions, discussed in Chapter 5, was another example in which collaboration was achieved through conscious division of roles. Through a series of interactive consultations with para-educators and management members, facilitated by the researcher, the cluster-heads took a lead role in re-designing the professional development. Here, collaboration was effective because everyone had a specific role in the design process avoiding redundancy of purpose. Cluster-heads were chief designers and critical decision makers, yet they were not the sole decision-makers. Their decisions were

informed by reflections, suggestions and critiques from management members and para-educators, who were not the designers but acted as 'consultants and advisors'. The researcher was the facilitator and coach.

8.2.2 Institutional capacity building

Design research carries two intertwined functions, directly impacting educational practice through design activities (in Maitri), and simultaneously using the design experience to gain new understanding (Edelson, 2002); with the design and development activities taking place in intense collaboration with the participants (McKenney, Nieveen & van den Akker, 2006). Such collaboration is professionally enhancing for both parties, with new knowledge about educational practice gained by the researcher, and institutional learning gained by the participating organization. Especially when an educational institution participates so intensively in a research and development process, such as in the sub-studies described here, learning gained from participating stays with the institution even after the research project concludes. For example, in the research described here, Maitri participants said they had learned about being more thorough in their design and implementation decisions. As design research involves the practice of taking implicit design elements and making them explicit (Edelson, 2002), transfer of such learning to co-participants from the organization would be likely. Also, as is found in other studies, (cf. (W. Kuiper, et al., 2003) design decisions in Maitri earlier tended to be predominantly inspired by intuitive ideas and were fairly unsystematic in nature. The practice of explicating and refining assumptions so that decisions guided by them are more robust and well-informed was welcomed by many members. Specific institutional learning within Maitri can be summarized as follows. Management members and para-educators learned:

- To question their assumption that all learning happens through training;
- To afford proper time and systematic procedures in defining the problem;
- To use empirical data to assess the quality of implementation;
- To use multiple sources of data so that what they learn about ground reality is not biased or incomplete;
- To anticipate dilution in implementation and so plan for implementation support;
- To value collaboration as essential for all or most decisions.

While some of these experiences proved enriching, there were challenges along the way. Some, which were experienced more frequently than others, are described below.

8.2.3 Multiple roles

The researcher combined multiple roles throughout these studies – that of, facilitator, (co)designer and researcher. There were some natural advantages of combining these roles. By acting as a co-designer and facilitator the researcher had a direct impact on practice through development of design solutions that were both theoretically viable and responsive to the ground realities. As a member of management the researcher had an 'insider' view of the organizational reality which may not have been accessible to an external researcher. This helped the researcher influence the integration of design and data collection activities seamlessly into the ongoing program strategy development and program evaluation.

Balancing the multiple roles did prove to be challenging. One, the researcher had to be constantly vigilant of the possibility that participants were responding positively simply because they were under study, especially because of her 'management member' role and influence (Hawthorne effect). Two, the researcher's biases and influence of prior knowledge about the individual participants had to be constantly minimized. The possibility of a Hawthorne effect was mitigated by promoting a climate where the participants were continuously invited to exercise their discretion and express opinions. Any form of pressure to implement activities without ensuring explicit buy-in was consciously avoided. Collaboration, which is a powerful tool in building participant trust (Mckenney, Nieven and van den Akker, 2006) was integral to the design and development process. Signs of partial willingness, lack of ownership, or feelings of pressure could surface during intense collaboration and be resolved through dialogue. Finally, triangulation of data served to address any biases of the researcher, and so did the data collection activities during the on-going program.

8.2.4 Over-simplification of understanding about design-based research

Design-based research takes place in authentic settings, which may be viewed as naturally-occurring test beds (McKenney, Nieveen and van den Akker, 2006) for

realizing educational solutions that are workable on the ground. However, along with the adaptability for authentic situations, guiding the rigor of the research process while subjecting it to dynamic real world realities is also integral to the design-based research approach (Mckenney, Nieven and van den Akker, 2006). Balancing these two can often prove to be a challenging exercise, especially when parties define terms such as 'authentic settings' differently. In the current study, the management of the organization was drawn to the potential of design-based research to thrive in authentic settings. However, it soon emerged that arriving at a common understanding of what was a rich design and research opportunity, and what was a threat to research rigor and quality would be challenging. For instance, in the first two years between 2005 and 2007, the research and development activities could not take off, due to contextual aspects such as the instability of the basic program. For example the fact that para-educators' roles kept changing made it difficult to identify a group of para-educators who could potentially be stable participants in the study. However, the head of the management team expected that the research and development activities could be taken up under any amount of instability, as design research was expected to take into account authentic settings, and in this case, the 'perceived instability' was in fact the natural authentic situation. It took a long time and several dialogues to arrive at the understanding that such an unstable situation was not only unsuitable for rigorous research, but also for designing lasting and effective professional development activities.

8.2.5 Quick iterations

Retrospective and parallel reflection is a necessary component of design-based research (Edelson, 2002). Such reflection requires some distance from the fast pace and complexity of reality, ideally by means of some gap between two iterations. Finding sufficient time for this proved to be a constraint in this current study, mainly because (a) the on-going professional development activities which were integral and critical to the functioning of the program needed to be supported for some length of time; (b) this support could ideally be provided by the person facilitating the program on the ground which in this case was the researcher; and therefore, (c) if the researcher withdrew for an extended time for analysis and reflection, the program on the ground could be severely compromised. Hence there was a constant battle between supporting the implementation of the design and carrying out research activities such as data

analysis and reflection. For instance, most of the interviews were conducted at the end of each professional development cycle, which were very insightful as para-educators were relatively free at that time. However, interesting insights could have arisen from interviews with para-educators at the end of the workshops which took place in the beginning of every cycle to view the first experiences of para-educators, or detailed observations of lesson-planning and micro-teaching sessions to view how the professional learning activities took place. Because the researcher was heavily involved in orchestrating the whole program, it was difficult to find time for these appropriate data collection activities. Similarly, with more time, it would have been possible for the researcher to analyze and reflect on the lesson plans of the para-educators to look for more subtle developments than just those that were examined (which were crucial, yet basic). The presence of a co-facilitator who could support the ongoing program while the researcher took some time away for in-depth data analysis, could have addressed this.

Finally, some aspects about specific tools and methods used throughout the study are worth mentioning. These are not limited to the design-based approach used in this study.

8.2.6 Quantitative versus qualitative analysis of lesson plans

The decision to quantitatively analyze the lesson plans was not an obvious decision, and was dilemma-laden. Qualitative analysis would obviously offer finer, and in some ways more interesting insights about the lesson planning practices of para-educators. For instance, the opportunity to pick out subtle beliefs reflected by the lesson plans was an obvious advantage, although more time-consuming. On the other hand, a quantitative lens allowed the researcher to gain a bird's eye view of the lesson-planning quality. More importantly, since para-educators were to design lessons for the first time, the initial mastery required was in basic aspects, such as, whether para-educators understood the planning questions and answered them accurately, and whether their lesson plans were detailed and internally consistent with each other. These details were better sourced through an objective and quantitative approach. However, with more time at hand, a qualitative view of the lesson plans in addition to what was used would have been preferable. Such insights can also lead to meaningful additions in the professional development process, by integrating them into

materials for reflective sessions during coaching, or by facilitating a group discussion around them during subsequent workshops.

8.2.7 Reflections on classroom observations

Often, while working in under-resourced communities, the socio-economic and cultural background of the researcher differs from that of the pupils and para-educators. In such cases, the presence of a 'foreigner' is often a fascinating experience for some pupils, while daunting for others. It is natural that pupils are sometimes excited and enthusiastic about engaging with the researcher or are diffident about participating naturally in the ongoing learning process. Not just pupils, community members in big numbers can huddle in and around the classroom (located around their homes), with curiosity about the visitor. All these, can affect the classroom observation data. It is found useful, for the data collector to pay a friendly visit a few times to the classes that are to be observed, to gain familiarity with the pupils and to ensure that his or her presence is not conspicuous during actual data collection activities.

Another practical aspect that was not very well addressed in these studies had to do with the use of video-taping during classroom observations. In the impact study, data was collected through live observations of classrooms. Additionally, video-recordings were made in case subsequent analyses would be desired. Pilots of classroom observations using video-recordings were conducted, anticipating that para-educators would be familiar with the process of being video-taped. However, during two observations, the video-recording process had to be withdrawn, as the specific para-educators (who were female) were uncomfortable with the presence of a male videographer. Since the video recordings were for backup, the loss of this information did not substantially affect the data collection. However, earlier attention to this important detail could have avoided an uncomfortable experience for the participtants and possibly yielded a strategy to obtained the desired video-tapes. .

8.2.8 Understanding classroom discourse

The IRF (initiation-response-feedback) tool used in the impact evaluation (described in Chapter 7) was a welcome starting point towards understanding the extent of learner-centeredness in the classrooms. At the same time, the use of the

tool in the study, gives rise to two considerations. First, the IRF tool appears to be suitable for a whole-class interaction; however, it is less practical for classroom processes like in this study, where instruction is through combined approaches of whole class and group work. For instance, in this study the instruction was divided into a whole class discussion during introduction, group work for majority of the learning task during the lesson body and then a combination of group presentations to the class and whole class discussion during conclusion. Thus there are multiple groups in the class, and the various interactions cannot be captured fully. In this study, classroom teaching was observed through two types of instruments, that is, the IRF instrument and curriculum profile, in order to gain a comprehensive understanding of the classroom teaching strategies used. In this situation, qualitative discourse analysis could have been another useful way to gain a more complete picture of classroom enactment.

In addition, the IRF tool, could be slightly revised to capture elements related to classroom management as well as instruction. For beginning teachers, classroom management and disciplining concerns are extremely important and often take precedence over facilitation of learning. The extent to which the nature of dialogue around discipline is learner or teacher centered could also prove an interesting aspect to be studied. While the overall approach of design-based research led to the design and implementation of a highly effective professional development program, and rich insights, it is also important to highlight some limitations of the specific study that took place, and the strategies or perspectives adopted to balance these limitations

8.2.9 Balancing the limitations of this study

Internal validity: This study suggests a strong causal link between the professional development program, the increased learner-centered orientation amongst para-educators, and increased pupil learning. However, the study was not constructed to conclusively prove this. Based on the type of inefficient and chaotic classroom practices encountered during the pre-professional development scenario (described in Chapter 2), it is possible to suggest that the improved pupil learning may have been because of the improved teaching practices facilitated by the professional development program. Of course, one cannot completely rule out other unlikely, though plausible alternate explanations for the pupil learning gains. For example, stricter intake policies may have helped select children from

families who prioritize their children's learning more; and/or parents of fee paying pupils may have provided additional learning support at home.
By comparing the cohort studied in this study with another control group, it might have been possible to examine such a causal relationship. However, given the practical goal of providing much-needed support to para-educators with the aim of improving pupil learning, excluding some teachers from the professional development program to create a control group was considered socially and practically not feasible.

Indistinct reliability and validity of pupil tests : Pupil learning outcomes in the summative and impact studies were collected through para-teacher designed tests, rather than through independent evaluation. The reliability of the tests used in the summative study was acceptable (Chapter 6). However, the quality of the tests used by para-educators in the impact study was not investigated. Out of respect and validation for the substantial effort by Maitri staff to design and install a proper assessment system into the ULCs, and to minimize disruptions in class, the decision was made to use the organization's tests. However, the results would have been more conclusive if the reliability and validity of the tests had been established.

Generalization: Several factors limit the extent to which the findings of this study can be generalized. In particular, the limited sample size, the role of the researcher within the organization, her high level of credibility and familiarity with the culture and organizational context, and the highly varied realities of NGOs and para-educators are all factors which would make a sound methodological replication of this study hardly possible. However, this study provides the basis for analytical generalizations, through design principles which are supported by evidence from the various studies, which serve as guidelines to undertake professional development activities in various other (comparable) settings. In addition, through the (refined) conceptual model, accompanied by detailed descriptions of the conditions for and manner in which the model was brought to life, it may be possible to compare and contrast this case with future ones (especially if they are based on the same model).

The next section presents some key reflections based on the findings of the whole study.

8.3 REFLECTION ON FINDINGS

Overall, this study concluded that, as compared to the pre-professional development period when teaching was ill-structured, incoherent and rote-based, the professional development program had successfully enabled para-educators to develop a strong shift towards better-structured and learner-centered lesson-planning and enactment. This section reflects on some of the key findings that emerged during the course of the studies.

8.3.1 Simple realistic teaching strategies that promote pupil learning within the classroom constraints

This study demonstrated that para-educators were able to adopt several learner-centered strategies and sustain them over-time. This emphasizes the importance and relevance of adopting a contextual stance while defining benchmarks for teachers in under-resourced contexts who are in the process of adopting a learner-centered approach. As discussed in Chapter 7, a contextual stance implies that while designing or assessing teaching practices in developing and/or under resourced country contexts, decisions must be guided by an understanding of what feasibly brings about learning within the subjective realities in which teachers work. This includes their external constraints as well as their existing knowledge and skills. The strategies for classroom enactment, selected within the professional development of para-educators in this study, were guided implicitly by such a consideration. These included group work, practical activities, greater pupil interaction and use of questions and practical examples. It is felt that, apart from careful design of the professional development program, another factor that contributed to a successful adoption of desired practices is the choice of these realistic teaching approaches that were feasible within the personal and environmental constraints that the para-educators worked in. Sullivan (2004) in a study conducted in Namibia, asserted the need for selecting simple achievable learner-centered skills which would begin to lead teachers away from traditional approaches. Such a stepping stone approach may not include ideal learner-centered approaches, but could potentially lead to the successful development of teachers' capacities to implement learner-centered approaches in the future (Sullivan, 2004). This thinking aligns with that of Rogan and Grayson (2003), who advocate the importance of finding the 'zone of feasible innovation' that proceeds just ahead of the existing practice.

The learner-centered aspects as well as the professional development processes employed in this study constitute this zone of feasible innovation for untrained teachers who just started a transition from completely traditional teacher-directed teaching to learner-centered teaching. Such a development in the study sparks new directions for future research. One interesting and very relevant area would be to identify a fuller set of teaching strategies that have a learner-centered orientation and are achievable for untrained teachers with such a traditional contextual background. In this study, the teaching strategies identified mostly involved general pedagogical aspects of teaching, especially (a)the shift from rote based activities to more practical learning activities and (b) strategies for fostering pupil involvement. Further research could involve identifying realistic learner-centered strategies that are more subject-matter specific.

Besides the rationale of making the innovation more achievable for the para-educators, the findings of this study also provide a second argument to support a 'stepping stone approach' in development of learner-centered teaching skills among para-educators. The results from the different sub-studies point out that the para-educators experienced several kinds of changes in learner engagement including regularity in attending class (Chapter 5), greater retention (Chapter 7), more involvement in the learning activity and greater peer-interaction among pupils. In high poverty areas, where lack of attendance and apathy towards learning are normal, greater regularity of pupils in attending class and interest in the classroom activities are immediate priorities. This study showed that with the use of new strategies, the para-educators were able to achieve these improvements over a short period of time. It can be said that this kind of success, in terms of pupil responses, are motivating for the para-educators and also generate the willingness for continuous effort in their professional learning.

8.3.2 Mixed practices: a developmental stage in the learning process of para-educators

The broad picture of enactment obtained in this study indicates that (untrained) para-educators, who are transitioning from a teacher-centered to a learner-centered approach, use mixed (teacher- and learner-centered) practices. Such mixed practices represent a stage along a learning continuum. Brodie, Lelliott, & Davis (2002), based on their study, suggested that when teachers were working under severe situational constraints, they did develop alternatives to teacher-

centered strategies but in a constrained manner, and moved between teacher and learner-centered practices to develop hybrid teaching styles. Such a mixed approach was also cited by Clarke (2003) in her study of Indian classrooms, where it was observed that teachers integrated 'activity-based learning' into their traditional rote methods of instruction, where knowledge was 'given' in demonstration and activity, and learning was still based on repetition. In this study, such constraints could include factors such as para-educators' own teaching repertoire, limited exposure to learner-centered practices and the demands of a pre-determined curriculum. Brodie, Lelliott and Davis (2002) argue such use of learner-centered practices much more in 'form' rather than in 'substance' reflects the teacher's attempts to enable learner participation and activity within the constraints of the classroom. They explain that teachers find themselves in a dilemma of having to inculcate knowledge while apparently eliciting it; and this dilemma is produced by the constraint of having to teach a specific curriculum in a specified time while at the same time trying to be learner-centered. The authors also indicate that teacher characteristics, reflective competence, grade level, subject knowledge and confidence as well as access to resources and support structures in schools are all implicated in their integration of learner-centered practices. For instance, in their study, many teachers who took up learner-centered teaching only in 'form' without 'substance' belonged to primary schools, or were struggling with other more basic aspects of teaching like continuity between lessons, and within lessons between different tasks. In effect, what emerges is the inevitable developmental process of such teachers when exploring a new teaching approach. During these stages, it is desirable to view a mixed practice approach as a point in their transition, rather than disregarding or discarding it as a poor attempt at learner-centered teaching.

8.3.3 Teacher agency: an outcome of professional development

This study shows that participants experienced greater agency in terms of self-confidence and the ability to regulate their own learning. They moved towards discovering a collaborative culture which was formally organized and regulated, but emerged spontaneously (Hargreaves, 1992). The meta-cognitive skills that the para-educators developed are considered important in professional development as resources that foster learning (Ball & Cohen, 1999; Darling-Hammond, 2006). This study highlights that, (a) appropriately designed professional development can result new meta-cognitive skills for regulating personal learning, and (b)

para-educators who are used to a traditional learning culture, need scaffolds to develop these skills. In this study, the scaffolding was provided by processes with two main characteristics: they were teacher-driven and encompassed a flexible routine. Processes invited para-educators to be involved in designing hands-on activities that were of immediate use in the classroom and helped them to recognize that they were changing and learning (cf. Daloglu, 2004). Routines were structured but not rigid. For instance, the tools and daily routines, although structured, were flexible, so they allowed and facilitated para-educators to improvise and think beyond the teacher guides, wherever possible. For Ellestrom (2001), such factors like the learning potential of the task in terms of complexity, variety and scope of action allowed, and the type and degree of formalization processes, are characteristics of work place learning. In this study, there was high formalization of some work processes like daily planning and reflection. However, the complexity, variety and scope of the work were not stifled, as the tools allowed para-educators to think flexibly, and para-educators had to use the tools to work with new concepts every day.

8.3.4 Organizational conditions contributed to professional learning

The role of organizational changes in implementing innovative curricula is crucial (Fullan & Pomfret, 1977). This is even more applicable when organizations are in disarray, as was the situation at the onset of this study. The first step in implementing innovation would be to restore order (Rogan & Grayson, 2003). At the stage of the needs and context analysis, with sufficient theoretical support, it was concluded that while designing learning interventions for para-educators' professional development, it would also be equally critical to refine organizational conditions so that the learning interventions could flourish. Thus, refinement of organizational conditions was included within the purview of the professional development interventions in order to support para-educator learning (activities). As the study progressed, in the second formative evaluation (Chapter 5), it became evident that the decision to implement these organizational changes was relevant and important. The organizational changes in this study included key policy changes determined by cluster-heads and para-educators, and the active role of cluster-heads in designing and supporting the tools and interventions for para-educators' learning. Such modifications in organizational conditions had lent motivational support and ease of

implementation of daily planning, enactment and reflection, and therefore a high levels of adoption of core and supportive strategies.

8.3.5 Efforts to build professional capacities promulgated positive changes in the organization

This study illustrates how individual learning and organizational learning processes develop through a mutually interactive relationship and not in isolation from each other. For instance, the second study showed clearly that efforts to support para-educator learning by engineering organizational support, in turn, caused an improvement in the quality of the organizational support. For example, the active role of cluster-heads as educational leaders and mentors was created as an organizational condition in order to scaffold the implementation of the core activities. And in the process, the cluster-heads reported that their experience and nature of mentoring had improved through experience. Evidence of such mutuality is consistent with previous research. Studies agree that teacher leaders learn to redesign and implement new organizational processes effectively while supporting teacher learning and by making classroom practice the focus of their attention (Gallucci, 2008; Spillaine & Thompson, 1997). The impact study further extended this finding. It revealed that while the basic core and supportive activities were sustained even after 18 months of the removal of support, the efforts to realize better teacher learning had given rise to other comprehensive organizational changes. As an end result, with continued focus on the issue of para-educator learning, new structures, systems and roles had emerged through a democratic decision-making process led by cluster-heads (a) in partnership with para-educators; and (b) with support from the middle and upper management members. This indicates that not only does organizational support lead to effective teacher learning, but efforts to build teacher learning also promulgate enhancement in organizational structures, processes and roles, termed as organizational learning. In other words, by understanding and supporting issues of practice, the organization benefits in terms of new learning and outcomes that get embedded into the organizational systems (cf. Boreham & Morgan, 2004; Spillaine & Thompson, 1997). Thus, this study confirms that teacher learning depends on organizational support (Unwin & Fuller, 2004) and efforts to help teachers learn lead to organizational learning (Spillaine & Thompson, 1997).

8.3.6 Conclusions

This study started with the following overarching question ,
What kind of professional support can help para-educators adopt and develop teaching strategies with a learner-centered orientation?'
Over the course of the study, various findings indicated that as compared to the phase prior to the professional development intervention, by the end of the summative study, para-educators could design and implement systematic lesson plans with a clear learner-centered orientation. On the basis of these developments, it is possible to conclude that a professional development program, which engages and supports para-educators in active planning, enactment and reflection of everyday lessons, amidst appropriate organizational conditions, can be effective in helping para-educators develop a learner-centered orientation in their teaching practices. Clearly, qualities which guided the conceptual model, like a situated instructional focus of an ongoing and sustained nature, and a self-directed and collaborative approach help achieve effective professional support. In addition, other insights into shaping a professional development program, can be highlighted based on this study. These are presented in terms of design recommendations in the following section.

8.4 DESIGN GUIDELINES AND RECOMMENDATIONS

One output of design research, as mentioned earlier, is educational solutions that can survive and be effective amidst dynamic complex ground realities. But from a scientific perspective, the main output of this approach is to build and test theories of (in this case para-educator) learning, through design of instructional tools that can survive the challenges of everyday practice (Shavelson, Phillips, Towne, & Feuer, 2003). In other words, participation in design and research activities, is expected to yield intimate knowledge about the theoretical and design ideas involved in the intervention (Joseph, 2004). According to McKenney, Nieveen and van den Akker (2006) such knowledge about how to build and implement educational solutions that thrive in their target settings takes the form of design principles. Design principles are not intended as recipes for successful designs. Rather, "*they are theory-based conjectures, which underpin design, and are refuted, validated or refined based on the research findings*" (McKenney, Reeves & Herrington, in press).

This design-based research study also leads to design guidelines which are presented in the tables below (tables 8.2 and 8.3). As indicated in the introduction above, the design guidelines of this specific study, backed by theory and validated by empirical evidence, offer generalized guidance for designing and implementing of professional development activities for un(der) trained teachers in under-resourced contexts. The first table explicates the substantive design guidelines. They pertain to salient characteristics of professional development that have emerged as desirable over the course of the study. The second table deals with how to implement the professional development program, or the procedures that contribute to the effectiveness of the program.

The tables are organized into four main columns. The first column in each table presents salient (characteristic or procedural) themes about the professional development program which have emerged in this study. The second column presents key insights from theory related to the theme. The third column entails key empirical evidence generated from the study associated with the theme. Finally, validated by the theoretical and empirical points, design guidelines are presented in the fourth column.

8.4.1 Substantive design guidelines:

The substantive design guidelines (table 8.2) prescribe four main characteristics of professional development based on this study. According to the table below, this study typifies professional development as, (a) Guided by individual as well as contextual (organizational requirements); (b) guided by instructional focus; (c) guided by realistic choices; (d) guided by attributes of teacher leaning and (e) a systemic approach. For each of these themes, the table presents relevant theoretical and empirical evidence (second and third columns respectively) which lead to the specific substantive design guidelines in the fourth column. For example, the first theme points to the role of individual and organizational requirements that influence the professional development agenda. The table cites ideas from previous research (Kubistskey & FIshman, 2005; Loucks-Horseley, 1998) and empirical data from this chapter found in the results found in the sub-study from the analysis phase, conducted to assess the needs and contextual requirements to design the PD program (Section 2.5.2). Both these validate the main substantive design guideline that plans about professional development must be informed by perceived learning needs of teachers, the actual status of their classroom practices

and the strengths and weaknesses of their work context (for e.g organizational factors) must be taken into considerations. Similarly, the table helps understand other substantive design guidelines prescribed by this study.

Table 8.2 *Substantive design guidelines*

Characteristics of professional development (PD)	Theoretical support	Empirical support	Substantive design guidelines
Guided by individual as well as contextual (organizational) requirements	PD should be informed by specific needs of the participants (Kubistskey & FIshman, 2005); that is, existing knowledge and beliefs of teachers as well as the context (Loucks-Horseley, 1998)	Learning requirements of para-educators were identified (e.g. working with heterogeneous classes) and enactment gaps identified in practice (incoherent teaching) (Section 2.5.2) Contextual characteristics, especially organizational constraints which potentially had substantial influence on professional development, were identified (2.5.2).	▪ Define individual learning requirements based on what teachers express as well as what their actual classroom practices reveal. ▪ Identify strengths and weaknesses of the local context , e.g. organizational factors, that could impact teacher learning
	During PD, central importance to learning processes of teachers and the particular curricular and school contexts in which professional development takes place (Penuel, et al., 2007))	Core and supportive strategies addressed individual learning needs in different ways (4.4.1) and organizational changes played an important role in supporting para-teacher learning (5.4.4.)	▪ Aim to (re)design necessary learning activities as well as meet (contextual) organizational requirements necessary
Guided by Instructional focus	PD is characterized by a focus on change in teacher's knowledge, attitudes and beliefs, new instructional practices, student thinking and learning (Borko, 2004; Fullan, 1991; T. Guskey, 2002)	Professional development program led to improved lesson planning (4.4.2, 5.4.1, 6.4.1); improved enactment (5.4.2, 6.4.2) ; ability to reflect on their work (4.4.1) and greater initiative and ownership (5.4.3)	▪ Address teachers' a) teaching capacities, b) planning and reflection skills, c) ability to take ownership of their teaching concerns.

Table 8.2 *Substantive design guidelines (Continued)*

Characteristics of professional development (PD)	Theoretical support	Empirical support	Substantive design guidelines
Guided by realistic choices	PD must consider the 'zone of feasible innovation' (Rogan & Grayson, 2003); attention to what is realistically achievable given the classroom realities of the teachers(M.C. Sullivan, 2004)	Simple achievable skills like basic learner-centered steps were adopted early in the study and well-sustained until the end (7.4.1) Simple procedures like lesson planning and reflection procedures were sustained over 5 years (7.4.1)	▪ Make realistic choices of objectives–take into account actual learning needs, their existing status and individual as well as organizational capacity to support development of needs
Guided by attributes of teacher learning	Promoting a teacher's pedagogical design capacity can help him participate in the discourse and practice of teaching. (E. A. Davis & Krajcik, 2005)	Lesson planning helped para-educators consider aspects like grouping, time, relevance of activity and materials, etc (4.4.2)	▪ Engage teachers in design as a learning opportunity (of lesson plans, materials, etc)
	Active learning and collaborative strategies, multiple approaches, ongoing (Raval, et al., in press)	The different activities led to para-educators to be actively involved in preparing for their lessons, exchanging ideas, giving feedback to peers. (4.4.1)	▪ Focus on active and collaborative learning strategies ▪ Adopt multiple approaches and strategies
	Embed learning in daily work (Bredeson, 2000); and maintain Proximity of timing and content (Penuel, et al., 2007)	Both core and supportive strategies lent immediate support in terms of time and content of teaching. (e.g. Lesson plans assisted the next day's enactment, micro-teaching helped gain new ideas for the following day's enactment) (4.4.1)	▪ Ensure immediacy for new ideas and insights in timing and content; ▪ Ensure that ongoing learning is embedded into daily work responsibilities.
	Provide Continued Follow-Up, Support and facilitation (Fullan & Pomfret, 1977a; T. Guskey, 2002) during implementation	Difficulty in implementing lesson plans and reflection was greater in the early stages than later ones. Coaching served as a support during such difficulties (4.4.1)	▪ Pay attention to supporting implementation

Table 8.2 *Substantive design guidelines (Continued)*

Characteristics of professional development (PD)	Theoretical support	Empirical support	Substantive design guidelines
Systemic approach	Redesigning appropriate organizational conditions has to do with redesigning organizational structures, systems and processes in a way that they support learning (Darling-Hammond & McLaughlin, 1996; Raval, et al., in press; Silins & Mulfort, 2002)	New organizational policies and roles were considered beneficial for para-educator learning by cluster -heads (5.4.3) Changes in the organization were introduced across different aspects like the structure, leadership roles, and feedback and accountability procedures (7.4.4)	▪ Organizational changes should be characterized by , – More horizontal structures, – distribution of decision making opportunities, – Feedback mechanisms that involve timely data-driven decisions and guidance to make those decisions – Work processes that engage collaboration. ▪ Organizational changes should be aligned across structures, roles and practices
	New organizational practices mediated through individual learning or problem-solving processes (Ellström, 2001) is defined as organizational learning; Teacher leaders learn to redesign and implement new organizational processes while supporting teacher learning (Gallucci, 2008; Spillaine & Thompson, 1997).	Organizational changes supported para-educator learning (5.4.3) and new structures ,practices and capabilities in the organization developed while supporting para-educators (7.4.4)	Support mutual development of individual learning as well as organizational practices

8.4.2 Procedural design guidelines

As mentioned in the introduction of this section, the next table describes the procedural guidelines. They prescribe certain procedures that have been found desirable based on the evidence in this study and are also recommended in literature. The procedural guidelines prescribe that professional development should involve, (a) promoting the plan-enact-reflect cycle; (b) supporting the plan, enact and reflect cycle; (c) use of templates to scaffold planning and reflection; (d) role of teacher-heads in designing and implementing learning activities (for the para-educators); and (e) careful implementation of changes in the organizational conditions. Like in the table on the substantive guidelines, theoretical and empirical supports that lead to procedural design guidelines are also presented. For example, as seen under the first theme in the table, the study recommends that promoting the plan-enact reflect cycle through daily lesson planning and reflection is desirable to support teacher learning. This design guideline is generated based on theory, (E. A. Davis & Krajcik, 2005; Raval, et al., in press) as well as empirical evidence that indicated how lesson planning and reflection had strengthened para-teacher learning. (5.4.1 and 5.4.2) More procedural guidelines, drawn similarly, are clear from table 8.3.

Table 8.3 *Procedural design guidelines*

Procedures during professional development	Theoretical support	Empirical support	Procedural design guidelines
Promoting plan-enact-reflect cycle	Lesson planning, enactment and reflection are powerful opportunities for learning (Raval, et al., in press); teacher learning is situated in classroom instruction, planning, lesson modification, assessment (E. A. Davis & Krajcik, 2005)	The core activities led to improved lesson planning and enactment skills (5.4.1 and 5.4.2)	▪ Use lesson-planning and lesson-reflection on daily enactment to support implementation of learner-centered materials
Support for planning, enactment and reflection of daily lessons	Strategies that support lesson planning, enactment and reflection are crucial. (Raval, et al., in press)	The support for planning, enactment and reflection helped para-educators feel confident (4.4.1, 4.4.2), and strengthened their instructional capacities (5.4.2,5.4.3)	▪ Use workshops, micro teaching and coaching to support lesson planning, enactment and reflection

Table 8.3 *Procedural design guidelines (Continued)*

Procedures during professional development	Theoretical support	Empirical support	Procedural design guidelines
	Engage teachers in the kind of learning eventually envisioned for the students including teaching subject matter as they are expected to teach it (Darling-Hammond, 2006)	Workshops helped para-educators through demonstration activities that modeled desirable approaches, micro-teaching offered opportunities to practice and exchange ideas, coaching provided on-going daily support and advice (4.4.1).	▪ Use experiential activities during workshops that help model lesson units and learner-centered approaches and limit the use of theory. ▪ Choose content/modules that are intended to be taught in the immediate period.
Support for planning, enactment and reflection of daily lessons	Provide opportunities to reflect with peers and experts on what worked and what did not. (Little, 1999)	- A basic level of institutionalized professional learning opportunities and support (7.4.1) helped retain the intended learner-centered practices (7.4.2). However, other teacher-centered practices still persisted (which imply need for advanced professional support; eg. experts besides supervisors).	▪ After basic level of professional learning interventions are institutionalized and the intended basic learner-centered opportunities are adopted, advanced interventions may be introduced, for instance, – Include experts during micro teaching and coaching sessions to provide immediate feedback. – Provide longer courses which blends theory along with practical work.
Templates to scaffold planning and reflection	Teachers must have tools to learn from practice by analyzing what and whom they are teaching, what is succeeding from minute to minute and day to day and how to engage and sustain student learning (Darling-Hammond, 2006)	Templates helped learn the steps of lesson planning, and more structured and learner-centered approaches (4.4.2).	▪ Use templates to scaffold lesson-planning and lesson-reflection – Standardize steps through templates with procedural and substantive aspects – Select items in templates according to need and capacity

Table 8.3 *Procedural design guidelines (Continued)*

Procedures during professional development	Theoretical support	Empirical support	Procedural design guidelines
Role of teacher-heads (school leaders) in designing and implementing learning activities	School leaders have a role in support and development of effective teachers (S. Davis, Darling-Hammond, Lapointe, & Meyerson, 2005)	Engaging in supporting para-educators helped cluster heads view themselves as educational leaders rather than administrators (5.4.4)	▪ Engage teacher-heads in design and implementation of teacher support
Careful implementation of changes in organizational conditions	School leaders have a role in creating a productive school culture, modifying organizational structures that undermine work and building collaborative processes (S. Davis, et al., 2005)	Specific organizational changes were undertaken with the help of cluster-heads and were welcomed by the para-educators and perceived as beneficial to their learning (5.4.4)	▪ Decisions about changing organizational conditions must involve active participation of key stakeholders (e.g school leaders)
	Central initiation and direction are coupled with decentralized analysis and decision making (Fullan, 1985), that is, judicious use of bottom up and top down approaches (Rogan & Grayson, 2003)	The management's initiative of facilitating organizational changes was seen as a sign of sensitivity and reassurance by the cluster-heads (5.4.4)	▪ Provide central initiative and support while encouraging decentralized decision making
	Redesign of work should focus attention on crucial problems of curriculum and instruction (Imants & van Veen, 2010 (forthcoming))	The management members asserted that rationale of all the changes in organizational conditions was to support teaching and learning (7.4.4)	▪ Make organizational changes with a focus on the frontline practice of teachers
	Learning is an integral part of workplace (Hodkinson & Hodkinson, 2005), and determined by the activities and participation (Billett, 2001)	The lesson planning and reflection activities had sustained after 2 years of withdrawing external support, indicating that they were institutionalized in the regular operations of Maitri and could sustain without any additional support (7.4.1)	▪ Design work processes that combine work and learning, which can easily become part of the daily functioning of the organization.

The two tables presented above present the design guidelines which emerged from the progressive refinement of the professional development program. Some of these guidelines were implicit in the conceptual model that shaped the study (Section , 3.2) and others have evolved with subsequent design and evaluation activities. With some new guidelines that have emerged over the course of the study and empirical evidence, it is also possible to build upon the conceptual model originally presented (Chapter 3). The next section presents how this study contributes to additional ideas related to the original conceptual model.

8.4.3 Building upon the original conceptual model

The original conceptual model had a prescriptive function, that is, it prescribed the specific learning activities within appropriate organizational conditions that could lead to effective para-educator learning. In this concluding section of the present study, it is not possible to provide a descriptive model, that helps portray how the professional development program evolved (within Maitri). This model helps put into perspective that para-educator learning takes place through an interactive relationship between the basic components that were reflected in the original model, that is , the learning activities of the para-educators (through the plan-enact –reflect cycle) and the development of appropriate organizational conditions. The figure (8.1) and the description below explain how professional development takes place based on the experience of Maitri.

Para-educator learning is facilitated by core activities, supportive strategies within appropriate organizational conditions

The findings of the study reinforce the centrality and the potential of all the elements of the original model, namely the core activities, the supportive strategies as well as appropriate organizational conditions. Hence, while rethinking the conceptual model, these components find a secure place in the para-educator learning process.

Capacity to create appropriate organizational conditions is generated during efforts to promote para-educator learning

Additionally, both the institutionalization and impact studies strongly showed that Maitri's focus and approach towards para-educator development, were strengthened during efforts to support them, and not in vaccuum. This suggests that there is a relationship of learning taking place between the teacher and the

organization-related components of the model. That is, organizational conditions promote para-educator learning, and efforts to promote para-educator learning propel further organizational learning. This learning results in refined organizational policies and practices.

Activities of designing (planning), enactment and reflecting on professional development practices foster organizational learning

The question remains as to what leads to this improved organizational understanding and performance, about how to support teacher learning. A close examination of the manner in which these decisions were taken, implies a planning, enactment and reflection practice on the part of the decision-makers as well. For example, the workshop with cluster-heads for redesigning the organizational elements, their participation in implementing the different core and supportive strategies, their new understanding about taking up educational leadership roles over administrative roles, are all examples of a process of planning, enactment and reflection of professional development work. This aspect was not explicit like the cyclical learning of the teachers due to the focus on para-educator professional development. The figure represents this explicitly under 'organizational practice' by showing the cycle activity of designing (planning), enacting and reflecting on professional development work.

The mutual learning leads to individual as well as organizational outcomes

Finally, the study revealed two types of outcomes, those experienced by para-educators and organizational outcomes. Para-educator related outcomes included instructional learning about learner-centered teaching as well learning in terms of autonomy and collaboration (Chapters 5 and 7) These two types of individual learning outcomes mutually support each other. Organizational outcomes included comprehensive changes in the structure, leadership roles, the nature of feedback and accountability, staff capacities and the extent of collaborative climate (Chapter 7). Both these types of outcomes are portrayed in the figure below.

Description of the figure depicting the model

The cyclical processes for both the para-educator and the organization are demonstrated in Figure (8.1) under *para-educator practices and management (or para-educator heads) practices.* Secondly, the mutual interactive relationship is indicated by the two arrows between components of teacher practices and organizational practices. The *para-educator* and *organizational outcomes* are also integrated into the

model in terms of *new knowledge and practices*. The arrows connecting the outcomes to the cyclical activities indicate that individual and organizational outcomes continue to inform the core processes of planning, enactment and reflection.
After the model, the next section offers recommendations for future design-based research.

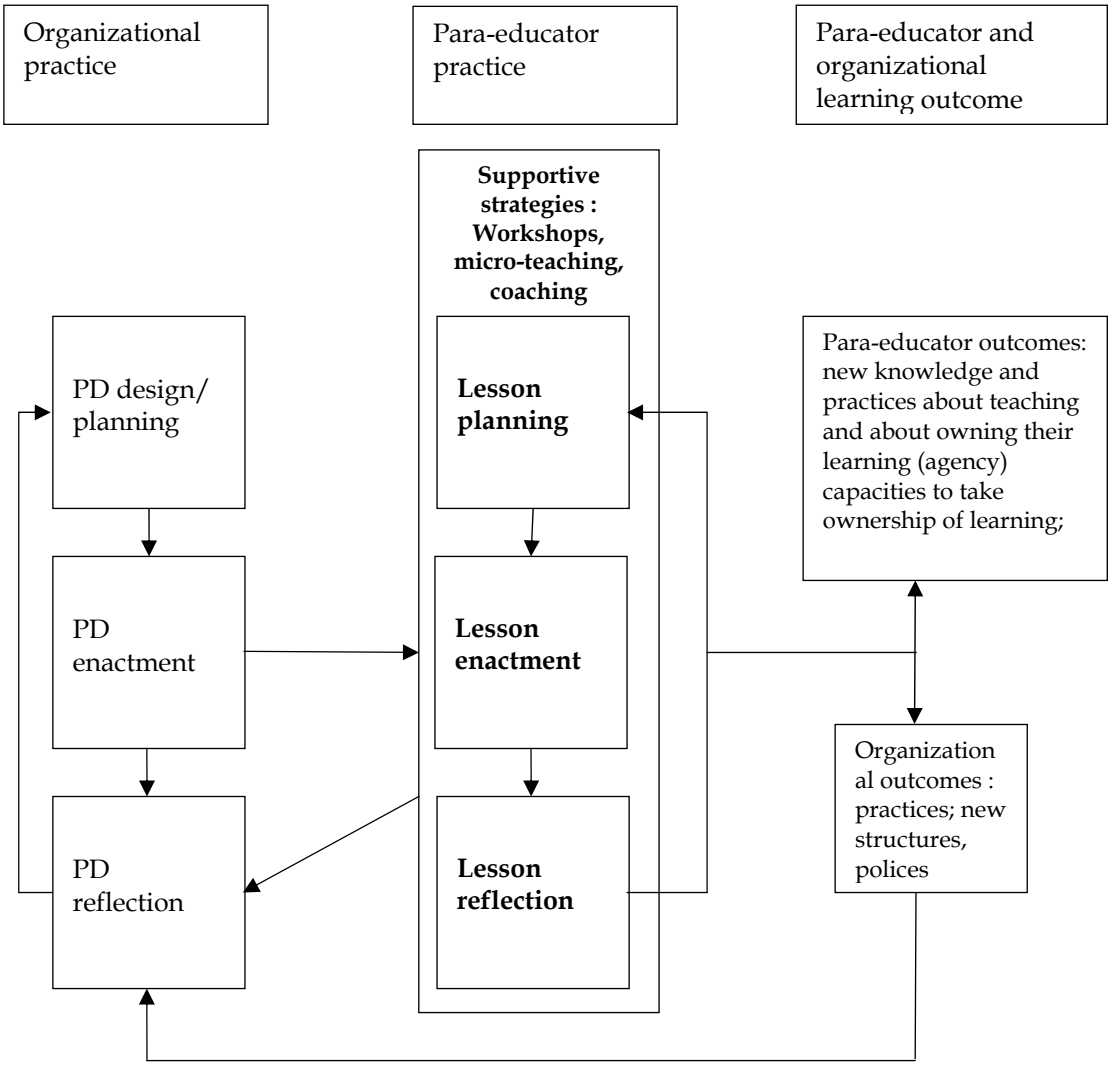


Figure 8.1 Interactive relationships between teacher professional development and organizational learning (The elements from the original model are in bold)

8.4.4 Suggestions for future design-based research

This section sheds some light on the stances that were found productive during the research and development activities undertaken in this study. This study benefitted tremendously from a clear awareness of the importance of the socio-

political dimension of designing, especially with regard to creating ownership amongst actors (Kuiper, Nieveen, & Visscher-Voerman, 2003). Presented below are some procedural design principles articulating what such an approach does in practice, during research and development activities.

Employ data-collection methods that elicit authentic participation : During needs analysis, a focus on 'ownership creation' compellingly led to the development of simple data collection strategies, where attention was paid to help the para-educators (and their leaders) who often find it difficult to articulate and prioritize their needs, in achieving a fuller and clearer understanding of their problems and learning requirements. Methods used, like the discussion between stakeholders for a situational analysis, interviews instead of questionnaires, the use of assessment tools that were designed by para-educators, yielded authentic and rich data as well as promoted rapport with and active engagement of respondents.

Align expectations through dialogue. Researchers in general and especially those involved in design-based studies often need to facilitate consensus between different stakeholders. By facilitating constructive discussion, the needs analysis also can function as a bridge between management members and grassroots stakeholders. While it assists the people at the frontline of practice to understand and voice their needs, it also helps management members see the needs in a transparent manner. Such awareness of the management also acts as an important step towards achieving management cooperation in the new ideas that may evolve over the course of the study. Such a function is especially necessary in situations that require management members (and the researcher) to reconsider their assumptions, for instance, assuming the initial problem to be a training problem (Letschert & Kessels, 2003).

Awareness of but non-attachment to personal expectations: Such work asks for a 'state of mind' on the part of the researcher. In order to arrive at an agenda which evolves with the users and participants of the educational innovations, the needs and context analysis calls for the researcher to be open and vulnerable towards the ideas and facts that emerge through the data collection. It may happen that the researcher-developer has his or her own ideas which may or may not be aligned with the grassroots expectations and requirements. For instance, in this study, the original intentions of developing higher level learner-centered skills were modified, after witnessing the complexities around the classroom and para-

educators' actual enactment skills. This requires a constant awareness and reflection of the researchers' own biases and preferences.

Non-threatening and incremental changes are levers for bigger changes: As design work began, the activities were carefully undertaken to introduce small organizational changes in the beginning and more complex ones later. This study reflects that initially, the management may not be ready to support large complex changes in the interest of instruction. The shift in focus towards instruction must be managed carefully and slowly, through small non-threatening changes at the local level implemented incrementally. Benefits gained from these changes may be used to further educate and generate organizational will towards addressing more complex problems.

8.5 IN CLOSING, FINAL REMARKS

This study's major contribution to practice has been is the design and implementation of a professional development program which is viable and effective for strengthening the work and the development of para-educators and thereby the educational NGOs in which they work. From a scientific perspective, this study provides a rich description of a feasible and effective professional development program, as well as design guidelines and a model that offer insights into how similar work could be undertaken in comparable settings.

This contribution is valuable because para-educators' professional learning has received little attention in practice, research or theory-development, although they are extensively involved in educational-improvement efforts in developing countries. Albeit a first step, this study builds exposure for the critical role of para-educators in the field of primary education in developing countries.

Further research and development activities are warranted to better serve the widely-employed, much-needed workforce of para-educators in developing countries. One, a long term project that aims to contributes to and profiles the developmental stages that para-educators go through, in their transition from teacher-centered to learner-centered teaching would have tremendous value for informing improvements in learning quality in under-resourced contexts. Two, experiences during this study suggested the need to research how on-going

learning of para-educators can be measured. For example, the findings from this study suggest that teacher learning occurs through well-structured and explicitly supported lesson design, enactment and reflection; that this learning influenced actual classroom enactment, and that classroom enactment (notably, a better-structured and more learner-centered approach) positively influenced pupil learning. While existing literature offers some guidance, further research is necessary to measure and understand what and how para-educators learn from planning, enacting and reflecting.

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NEDERLANDSE SAMENVATTING

SAMENVATTING

Deze studie is uitgevoerd onder auspiciën van een Indiase Onderwijs NGO (*Non-Governmental Organization*) en betrof de professionele ontwikkeling van de medewerkers om hen voor te bereiden op de realisering van de nieuwe doelstellingen van de NGO. De ontwikkeling van het programma voor professionele ontwikkeling van de medewerkers was mede geïnspireerd door de tweede Millenium-doelstelling van de Verenigde Naties om te zorgen voor universeel Primair Onderwijs en daarmee de verbetering van menselijke ontwikkelingsmogelijkheden. Ook India heeft zich verbonden aan deze Millenium-doelstelling en heeft de doelstellingen in zijn nationale ontwikkelingsagenda opgenomen. Net zoals van regeringswege acties worden gestimuleerd om het onderwijs in India te veranderen, manifesteren de NGOs zich ook als grote voorvechters van deze verbetering van de ontwikkelings-mogelijkheden door middel van onderwijs.
Door middel van een ontwerpgericht onderzoek zijn de eisen verkend en zijn de voorwaarden geïdentificeerd voor een programma voor professionele ontwikkeling dat afgestemd is op de ontwikkeling van kennis en vaardigheden van een specifieke groep medewerkers, para-docenten, om lesplannen voor leerling-georiënteerd onderwijs voor te bereiden en uit te voeren. Het onderwijs was bestemd voor kinderen uit achterstandwijken om hen aanvullende kennis en vaardigheden te laten verwerven.

In de afgelopen tijd hebben zich drastische veranderingen voorgedaan in de NGOs, in hun rol en hun identiteit. Deze verschuiving is mede tot stand gekomen door een internationale discussie over het begrip 'ontwikkeling'. Op liefdadigheid gebaseerde onderwijsprojecten hebben plaatsgemaakt voor

dienstverlening die gericht is *empowerment*, duurzaamheid, participatie en systematische hervorming. De para-docenten binnen deze NGOs worden ook voorbereid op deze veranderingen. Zij vormen inmiddels voor een belangrijk deel de arbeidskrachten binnen de onderwijs NGOs, en zijn in feite de leraren aan de basis van het sociale systeem. De para-docenten, gewoonlijk vrouwen, worden geworven binnen dezelfde gemeenschap, woonplaats of dorp waar zij deel van uitmaken en waar zij werken. Zij voeren de onderwijswerkzaamheden meestal uit voor een gering honorarium. NGOs verstrekken de basisopleiding aan dergelijke leraren in de noodzakelijke didactische methoden. De overwegingen om para-docenten te rekruteren zijn voor een belangrijk deel ingegeven om de verstandhouding met de lokale gemeenschap en met de kinderen te versterken. Deze eigenschap is zeer belangrijk om te werken in arme gemeenschappen waar de vervreemding van en het gebrek aan motivatie voor onderwijs zeer groot zijn. Niet alleen worden dergelijke para-docenten aangesteld door NGOs voor de implementatie van hun eigen onderwijs-activiteiten in deze gemeenschappen, maar hun benoeming is ook formeel gezien binnen de overheidsscholen in India, als een economische oplossing voor tekort aan leraren.

Echter, zowel in NGOs als in overheidsscholen wordt deze rol van de para-docenten met gemengde gevoelens bekeken. De voordelen zijn ook in internationale studies duidelijk aangetoond. Buiten India blijken deze para-docenten eveneens in een behoefte te voorzien en hun relatie met de plaatselijke bevolking blijkt een belangrijke factor te zijn. Indiase studies hebben aangetoond dat dergelijke para-docenten een positief effect hebben op de aanmelding van leerlingen en vooral op het terugdringen van schooluitval. Zij kunnen zorgen voor een versterkte motivatie bij de leerlingen en hun ouders, en zijn zo van grote invloed op de ontwikkeling van de kinderen. Door hun betrouwbaarheid in aanwezigheid en hun loyaliteit verschillen deze para-professionals nogal van de docenten in stedelijke gebieden waar het leraarstekort ook toe te schrijven is aan grote schooluitval en slechte werkomstandigheden. Het aanstellen van para-docenten gaat dus gepaard met problemen en vandaar dat hun inbreng ook met de nodige scepsis tegemoet wordt getreden. In tegenstelling tot de reguliere leraren zijn para-docenten niet gekwalificeerd en beschikken zij over zeer beperkte vakinhoudelijke kennis. Ook al hebben ze een vakinhoudelijke basis-kwalificatie en wordt de sociale support die ze verstrekken zeer gewaardeerd, zij worden vanwege hun gebrek aan pre-service didactische kennis en ervaring

toch beschouwd als onvoldoende voorbereid op het lesgeven. Studies hebben aangetoond dat het lesgedrag van deze para-docenten vaak gekenmerkt wordt door saaiheid, door sterke oriëntatie op het schoolboek, en het ontbreekt aan vakinhoudelijke kennis en kennis van pedagogische en didactische methoden.

Het onderzoek startte met een uitgebreide analyse om de behoefte van de para-docenten te bepalen en de contextuele factoren te identificeren die de professionele ontwikkeling bevorderen dan wel belemmeren. Voor deze analyse is een conceptueel model opgesteld dat vier niveaus representeert die de professionele ontwikkeling bepalen: de docent, de leeromgeving, de organisatiecontext, en het beleid. Een belangrijk kenmerk van de leeromgeving en bijgevolg ook een noodzakelijke vereiste voor de para-docent was de oriëntatie op de leerling. Hoofdstuk 2 bevat de resultaten van deze analyse. Daaruit kwamen enkele punten naar voren, die de kwaliteit van het lessen negatief beïnvloedden: gebrek aan didactische basisvaardigheden bij de para-docenten; heterogene klassen met kinderen van pre-school niveau tot niveau van groep 7; lesgeven aan 2-3 klassen per dag; het innen van het schoolgeld; de schoolleider die alleen als administrator optreedt; druk van ouders om kinderen op een hoger niveau les te geven dan de kinderen aankunnen; en instroom van kinderen gedurende het trimester hetgeen onrust veroorzaakt.

Vervolgens is een literatuuronderzoek uitgevoerd, beschreven in hoofdstuk 3, waarmee de conceptuele basis is gelegd voor een samenhangend geheel van kritische kenmerken voor de professionele ontwikkeling, zoals een situatiegebonden didactiek, gericht op zelf-regulatie, en op samenwerking. Voorts geeft het model de wetenschappelijke stand van zaken weer op het terrein van professionele ontwikkeling mede ter bepaling van activiteiten voor professionele ontwikkeling die aangepast zijn aan de onderwijskundige, culturele en organisatie context van de NGO.
Het model legt de nadruk op de ontwikkeling en de voortgang van drie essentiële cyclische onderdelen van het dagelijks werk van de para-docenten: de planning van de les, de uitvoering van de les, en de reflectie op de les. De werking van deze onderdelen, die ook onderdeel uitmaakt van het model, is het beste gebaat bij activiteiten zoals workshops, micro-teaching, en coaching binnen de context van de NGO en ook in de voorbereiding en uitvoering ondersteund door de NGO. Dit laatste houdt onder andere in dat er tijd wordt vrijgemaakt voor deze belangrijke activiteiten en dat deze niet overschaduwd

worden door andere vaak administratieve bijzaken (het innen van het lesgeld, het aantrekken van leerlingen, en bijhouden van de administratie, etc.), die met het lesgeven weinig te maken hebben. Voor deze praktische consequenties van een adequate professionele ontwikkeling is in het model ook plaats ingeruimd.

Na de behoefteanalyse en de ontwikkeling van het conceptuele model voor professionele ontwikkeling is een pilot-programma ontworpen, uitgevoerd, en formatief geëvalueerd. Hoofdstuk 4 beschrijft deze onderdelen. Het programma, ondersteund door de onderzoeker, voorzag in de ondersteuning van de para-docenten bij het dagelijks plannen van de lessen, bij de uitvoering, en bij de reflectie achteraf, door het gebruik van aangepaste schema's en van voorbeelden voor lesplannen en reflectie. Het pilot-programma werd uitgevoerd in de zomervakantie ter voorbereiding op het schooljaar, en had een aan de situatie en tijd aangepast inhoudelijk onderdeel. De formatieve evaluatie van het programma van een maand was erop gericht na te gaan of de para-docenten die geen voorkennis hadden in het plannen van lessen, in staat waren gestructureerde lesplannen te maken met inbegrip van leerling-georiënteerde strategieën. Met deze formatieve studie werd ook onderzocht wat hun eerste ervaringen waren met het programma voor professionele ontwikkeling en met de uitvoering van de nieuw ontworpen lessen. Van de 30 deelnemers, waren negen para-docenten, drie van elk van de drie clusters, de respondenten. De conclusie was dat de para-docenten positieve ervaringen hadden met het programma voor professionele ontwikkeling, die vooral kunnen worden toegeschreven aan de demonstraties en micro-teaching, gezamenlijke planning en reflectie, en de directe beschikbaarheid van ondersteuning tijdens planning en reflectie. De studie toonde ook aan dat zij kennis en vaardigheden hadden ontwikkeld in systematische lesplanning waarin leerling-georiënteerde strategieën opgenomen waren. Ook konden veranderingen in de uitvoering van de lessen worden geconstateerd. Het enige probleem vormde de planning en uitvoering van strategieën gericht op disciplinering. De succesvolle implementatie van het pilot-programma baande de weg voor de tweede fase van professionele ontwikkelingsactiviteiten.

Na het succes van het pilot-programma in termen van succesvolle verwerving van systematische en leerling-georienteerde lesplanning, had de tweede fase tot doel om de cyclus uit het conceptuele model te institutionaliseren en zijn waarde te onderzoeken tijdens het reguliere schooljaar. Hoofdstuk 5 beschrijft hoe de

agenda voor de institutionalisering bepaalde veranderingen in organisatorische voorwaarden vergde om de uitvoering van de kernactiviteiten en ondersteunende activiteiten mogelijk te maken. Dit geschiedde door een uitgebreide workshop die geleid werd door de clusterhoofden en gefaciliteerd door de onderzoeker. Beleid werd bijgesteld gericht op veranderingen in maatregelen die de onderwijskwaliteit in de centra zouden kunnen beïnvloeden, zoals het innen van het lesgeld, en tools voor planning en reflectie werden bijgesteld. Ook de kernactiviteiten uit het conceptuele model en de ondersteunende activiteiten werden aangepast. Uit de formatieve evaluatie van deze institutionalisering, uitgevoerd met dezelfde negen para-docenten, bleek dat het programma kon leiden tot een succesvolle adoptie tijdens het schooljaar van de systematische planning, uitvoering en reflectie. Ook individuele competenties die uitstijgen boven het onderwijsleerproces, zoals samenwerking en eigenaarschap, bleken te zijn verworven. De organisatieveranderingen die waren doorgevoerd zorgden voor een goede uitvoering van de kernactiviteiten en de ondersteunende activiteiten, en voor een positieve persoonlijke ontwikkeling bij de clusterhoofden in het coachen van de para-docenten.

Hoofdstuk 6 beschrijft de summatieve studie van het professionaliserings-programma waarvan de implementatie en uitvoering van de belangrijkste onderdelen waren overgenomen door de clusterhoofden en de para-docenten en waarvan de centrale facilitering en ondersteuning eveneens was afgenomen. Het belangrijkste doel van de summatieve studie was na te gaan in hoeverre het professionaliseringsprogramma dezelfde positieve resultaten zou opleveren zonder de centrale facilitering en ondersteuning en ook of de deelnemers het hoge professionele niveau zouden kunnen handhaven. Daartoe behoorde ook het afnemen van toetsen bij de leerlingen. Dezelfde negen para-docenten fungeerden als deelnemer aan deze studie. De resultaten van de leerlingen van deze negen para-docenten en van de overige para-docenten die hetzelfde professionaliseringsprogramma doorliepen, werden verzameld en benut voor de analyse. De resultaten laten verdere verbeteringen in planning, uitvoering en reflectie zien wat tot de conclusie leidde dat de para-docenten ook zonder de centrale sturing en ondersteuning in staat waren een hoog professioneel niveau te behalen en te behouden. De resultaten bij de leerlingen laten via overtuigende effectgroottes zien dat ook zij profiteerden van de professionalisering van de para-docenten. Dat gold zowel voor leerlingen van de negen para-docenten als de leerlingen van de andere para-docenten. De summatieve studie toonde

daarmee aan dat het professionaliseringsprogramma een duidelijk positief effect had op de competenties van de para-docenten en op de resultaten van de leerlingen. Tevens werd aangetoond dat de organisatieveranderingen die tot een grotere zelfstandigheid van professionalisering, facilitering en ondersteuning op een lager niveau in de organisatie hadden geleid, en daarmee een *on-the-job* programma mogelijk maakten, effectief bleken te zijn.

Twee jaar na de summatieve studie van het professionaliseringsprogramma is een impactstudie uitgevoerd. Hoofdstuk 7 beschrijft deze studie. Nagegaan werd welke professionaliseringsactiviteiten nog steeds werden uitgevoerd na twee jaar, wat de kwaliteit van het onderwijsleerproces was, wat de leeruitkomsten van de leerlingen waren, en hoe de organisatie zich had ontwikkeld om de voorwaarden te creëren voor succesvolle professionalisering. De volgende conclusies konden worden getrokken na bestudering van de resultaten van de impactstudie. Ten eerste bleken de mogelijkheden voor professionalisering nog volop aanwezig en werden de routines gericht op dagelijks plannen, uitvoeren en reflecteren nog steeds gevolgd. Ten tweede bleek dat hoewel de uitvoering van het onderwijs een gemengde benadering (zowel leerlinggeoriënteerd als docentgeoriënteerd) liet zien, de leerling-georienteerde activiteiten op dezelfde wijze werden uitgevoerd als in de summatieve studie. Ten derde was na twee jaar de uitval van leerlingen bijzonder laag en het niveau van de leerlingen belangrijk toegenomen, zoals bleek uit de significante effectgroottes. Ten vierde waren belangrijke organisatie-veranderingen doorgezet en geïnstitutionaliseerd die betrekking hadden op geringere hiërarchie in de ondersteuning van de para-docenten, gedeeld leiderschap, groter vertrouwen en bereidheid tot samenwerking tussen de stafmedewerkers, toename in initiatief bij de para-docenten en clusterhoofden, en verbeteringen in datagestuurde beslissingen.

Naar aanleiding van deze studie kan een aantal reflecties worden genoteerd.
Samenwerking is een belangrijke voorwaarde voor het welslagen van de ontwerpgerichte aanpak. In diverse fasen en onderdelen van de studie is duidelijk geworden dat samenwerking via empathie, vertrouwen en het delen van de doelen, een positief effect heeft op de professionele ontwikkeling en op de effecten van de leerlinggerichte aanpak. Ook het bewust organiseren en structuren van de samenwerking droeg in belangrijke mate aan het positieve effect.

Samenwerking in het ontwerpproces heeft zoals blijkt uit de formatieve studie een effect op het eindresultaat maar evenzeer een belangrijk effect op de organisatie waarbinnen de samenwerking plaatsvindt. Door samenwerking en participatie van de deelnemers aan het ontwerpproces ontstaat een leerresultaat dat een verrijking voor de organisatie en aldus een effectieve vorm van *capacity building* betekent. Aangezien ontwerpgericht onderzoek het meeste effectief is in een authentieke situatie, en deze vaak instabiel van karakter is, kan het wel eens zo zijn, gemeten naar de resultaten van deze studie, dat een ontwerpgerichte aanpak geschikt is voor de uitdagingen van dit type situatie. In deze studie komt ook duidelijk het tweezijdige effect van ontwerpgericht onderzoek naar voren: ten eerste is er de concretisering van het programma, via *planning*, *enactment* en *reflection*, voor professionele ontwikkeling en de condities die het programma ondersteunen, en ten tweede, levert deze studie theoretisch gebaseerde ontwerpprincipes.

De ontwerpactiviteiten kunnen interfereren met de onderzoeksactiviteiten wanneer deze in de tijd een zekere synchroniciteit kennen. In de huidige studie leverde dat een grotere interferentie op aangezien de onderzoeker ook betrokken was bij het ontwerpproces en bij de ondersteunende activiteiten. Over de rol van onderzoeker als betrekkelijke buitenstaander, participatie in een gemeenschap die sociaal-cultureel duidelijk verschilt van de eigen cultuur, kan worden opgemerkt dat de subtiliteit en terughoudendheid vereist is in het participeren in de gemeenschap. Dataverzameling door middel van videoregistratie bleek achteraf een obstakel vanwege het oncomfortabele karakter voor de vrouwelijke para-docenten. De tevoren bepaalde back-up functie van de videoregistratie bleek een juiste beslissing.

Een interessant gegeven voor verder onderzoek betreft de incorporatie en uitvoering van de leerlinggerichte benadering. De succesvolle adoptie van deze aanpak is gebaat bij een geleidelijke ontwikkeling waarbij (1) de leerlinggerichte vaardigheden stapsgewijs, met toenemende complexiteit, verworven worden, en (2) er rekening gehouden wordt met de '*teacher-oriented*' achtergrond van de betroken para-docent. Deze geleidelijkheid wordt treffend getypeerd als 'zone of feasible innovation' en het positieve effect ervan werd duidelijk in de impactstudie. De inbreng van de para-docenten in deze in de tijd gecombineerde (leerlinggericht en docentgericht) aanpak was groot. Zij ontwikkelden alternatieven voor een docentgerichte aanpak zonder af te wijken van het bereiken van het uiteindelijke doel, hetgeen een duidelijke expressie is van de ontwikkeling die zij zelf doormaken. Ook op metacognitief niveau, vooral in het

reguleren van de eigen ontwikkeling en het daarmee gepaard gaande versterken van het zelfvertrouwen, bleken de para-docenten een belangrijke ontwikkeling doorgemaakt te hebben. De ondersteuning door de organisatie in directe zin door geleide planning en reflectie, en in indirecte zin door het creëren van positieve omstandigheden, was een effectieve factor in deze professionele ontwikkeling. Echter, er viel niet alleen een effect van de organisatie condities te bespeuren, de professionele ontwikkeling van de para-docenten en de wijze waarop de organisatie daarin bijdroge, had ook een positief effect op de organisatie, in de zin van het versterken van haar lerend vermogen.

Op grond van deze studie kan een aantal aanbevelingen worden gedaan.
Deze studie toont duidelijk aan, en de ontwerpgerichte aanpak getuigt daar ook van, dat een effectieve professionele ontwikkeling op in ieder geval twee niveaus moet worden georganiseerd en dat bij het ontwerpen van een professionaliseringstraject met deze twee niveaus moet worden rekening gehouden: het individueel niveau, in de vorm van aandacht voor de individuele kenmerken van in dit geval de para-docenten en voor de leeractiviteiten; en het organisatieniveau, met inbegrip van de leeromgeving en het curriculum, dat een direct effect heeft op de uitvoering van het werk (*enactment*). Wil professionele ontwikkeling effectief zijn dan moet er primair aandacht zijn voor het leerproces en de leeromgeving.
Professionele ontwikkeling is gebaat bij een realistische en geleidelijke ontwikkeling (stapsgewijs rekening houden met fasen tussen het begin- en eindniveau) en bij specifieke aandacht voor de achtergrond van de deelnemer, de para-docent, zoals uitgedrukt in de 'zone of feasible innovation.'
Deze studie wijst ook uit dat er een aantal belangrijke eigenschappen zijn die professionele ontwikkelingstrajecten succesvol maken en bijdragen aan een effectieve ontwikkeling: meervoudige aanpak, onmiddellijke feedback en ondersteuning, ontwerpen als leeractiviteit voor zowel de docenten als hun begeleiders en leidinggevenden (teacher leaders), *tools* die het leerproces effectief ondersteunen, toenemende moeilijkheidsgraad van de leeractiviteiten, en aandacht voor (voortdurende) implementatie. Over de *tools* kan naar aanleiding van deze studie worden opgemerkt dat de workshops vooral ervaringsleren moeten bevorderen, wat duur betreft aangepast moeten zijn aan de capaciteiten van de deelnemers, met ondersteuning van experts, en dat de *templates* de structuur en inhoud van lesplanning en reflectie moeten bevatten, en dat ook de

duur en de keuze van onderwerpen moeten worden aangepast aan de cognitieve capaciteiten van de deelnemers.

De toegevoegde waarde van deze studie komt ten eerste tot uitdrukking door het feit dat zeer weinig bekend was over het leren van para-docenten. Bovendien draagt deze studie bij aan het professionaliseren van para-docenten door er, vanuit zowel een praktisch als wetenschappelijk perspectief, aandacht aan te besteden. Alhoewel het een eerste stap is, benadrukt deze studie ook de belang voor de cruciale rol van de para-opleiders op het gebied van onderwijs in ontwikkelingslanden. Verdere onderzoeks- en ontwikkelingsactiviteiten zijn noodzakelijk om deze essentiële deelnemers beter te kunnen bedienen, en daardoor ook een belangrijke bijdrage te leveren aan het geven van goed onderwijs aan ieder kind.

APPENDIX A
Interview questions for field portrait

1. Name of para-educator
2. Age:
3. Educational Qualification:
4. Teaching experience: a) At Maitri - b) Elsewhere (if applicable)
5. What are your current responsibilities? a) teaching b) non-teaching
6. What are your reasons for working as a para-educator in Maitri?
7. What are the aspects that you like about a) your teaching tasks b) your work environment?
8. What are the aspects that you find difficult about a) your teaching tasks b) your work environment?
9. What are the aspects in which you require professional support?

1. Name of cluster-head
2. Age:
3. Educational Qualification:
4. Teaching experience: a) at Maitri - b) Elsewhere (if applicable)
5. What according to you is the main focus of work in the community learning centers currently?
6. What are your current responsibilities as head of the cluster?
7. What kind of activities do you / management undertake to support the Para-educators in their work?
8. What are your perceptions about how para-educators experience their work?

APPENDIX B
Classroom observation for field portrait

Classroom Observation:

Name of the para-educator
Time: Beginning End of class
Ending time of the class
Subject being taught
Number of pupils in the class
Age/grade of pupils

Curricular Components	*Observations*	*Comments*
Topic		
- What topic(s) is being taught ?		
- Are all the pupils learning the same topic or different topics?		
- On what basis is/are the topic(s) chosen		
- Other observations		
Learning objective of the day / lesson / module		
- Is there a planned objective for the day ?		
- Is the teacher aware about the broader and specific objectives of the class and designing her class room activities accordingly?		
Learning activity going on in class		
- Is there a planned activity going on ?		
- Is it consistent with the learning objective?		
- What is the teaching method being used in the class – lecture, heuristics, activity based, questions and answer etc?		
Materials being used		
What kind of material / teaching aids is being used?		
Is the material being used appropriate for the activity ?		
I s there enough material for all pupils		
Teacher's role / actions		
Is the teacher well prepared and organized for the class?		
How is the teacher's attitude towards the pupils?		
What kind of reinforcements does the teacher use – cues, questions in order to facilitate learning in the class?		
Is the teacher able to maintain a disciplined environment? What kind of disciplining strategies does she employ?		

Curricular Components	*Observations*	*Comments*
Grouping of pupils		
Are the pupils learning individually / in groups or in a whole class?		
If there are groups, how many groups are there and what is the basis in which the children are grouped?		
Pupils' role /actions		
Are pupils' involved in learning?		
Are pupils maintaining discipline?		
Concluding activity		
Is there a recapitulation of the days learning? How?		
Does the teacher assess what the pupils have learnt at the end of the class? In what way?		

General observations :

……

……

……

APPENDIX C

Perceptions and first experience of professional development program and perceptions about changes in enactment (pilot study)

Para teachers
What aspects were difficult for you?
What aspects were easy for you?
How do you think you have benefited from the professional development program?
What do you think are some dis-benefits of the program?
Do you think your enactment practices have changed? What are some of the changes?

Cluster heads
Do you think your enactment practices have changed? If yes, what are some of the changes?

APPENDIX D
Coding scheme for document review of lesson plans

Document analysis coding			**Example from completed lesson plan**
Para-meters	**Indicators**	**Code given**	**How will you review what the group has learnt (at the end of the activity? (for the learning objective: help pupils understand different properties of solids liquids and gases)**
Completeness	Logical beginning and end to the answer; each question answered	y	*Ask the group the following questions :* *Name five things around you right now that you would call solid. Why?* *Name five things around you right now that you would call liquid. Why?*
Accuracy	Question understood correctly	y	
Appropriateness (subject matter and/or learner-centered orientation)	Activity / question framed are: i) clear (e.g. Questions asked are concrete and not ambiguous), ii) authentic (no cued responses that hint towards an answer). If the question is too broad, it should be specified how the teacher will assess pupil learning related to the concept	y	
Detail	Answer in detail , making each step possible transparent	y	
Internal consistency	Is consistent with the learning objective and activity	Y	
New ideas	Has ideas other than those mentioned in the teacher guide.	Y	

APPENDIX E
Classroom observation tool

	DESCRIPTION OF THE CLASS	YES	NO	NA	COM-MENTS
	Preparation of the class (time :)				
15.	The Para-educator arrived on time				
16.	There is a monthly and weekly target calendar in the class available				
17.	Relevant tests have been completed				
18.	Broad groups have been formed (based on the grouping in the register)				
19.	70 percent children are present				
20.	Para-educator and children have an open discussion about issues errant behaviors proactively like absent and late arrivals				
	Introduction of the main lesson (time :)				
21.	Provides a link with the previous day				
22.	Children are able to recollect the activities and the content of the previous day				
23.	Has introduced the concept through relevant examples/ activities				
24.	Reviews as much as possible every explanation she provides through appropriate questions				
25.	Encourages shy/diffident children				
26.	Makes sure absent children are updated with the activities				
27.	Para-educator clarifies if she gets wrong responses				
	Lesson Body : Para-educator's role in facilitating the Group activity (time :)				
28.	Has grouped children as per learning levels within the concept				
29.	Para-educator has allocated each group with an appropriate activity				
30.	Para-educator has tried to use as much experiential / applied activity as possible				
31.	Para-educator explains the aim of the activity to each group				

DESCRIPTION OF THE CLASS	YES	NO	NA	COM-MENTS
32. Para-educator has provided appropriate instructions for the children				
33. Para-educator has Explained how to use the material				
34. Has addressed how to co operate in groups				
35. Para-educator attends all groups as far as possible				
36. Appropriate interventions with questions / clarifications – guides with questions but does not give direct solutions				
37. Encouraged and Discouraged relevant behaviors				
38. Maintains firm but affectionate stance				
Lesson Body : pupil's role during group activity (time:)				
39. Children are maintaining their groups while the activity is going on				
40. Children share and discuss with each other rather than doing individual activity within a group				
41. Children are enthusiastic about making a good presentation or product				
42. Children are involved in the group activity				
43. Children are clear about the task				
44. Whenever the group does not understand something it approaches the Para-educator clarification for the process of the group activity.				
45. Questions are being raised by children regarding content				
46. Children are cooperating in the group				
47. Children take initiative within groups to maintain order				
48. Children do not disrupt when another group or child is sharing its learnings				
Conclusion of the lesson (time :)				
49. Different groups are brought together to share their discussion with each other				
50. Para-educator scaffolds with appropriate intervention for left out insights				
51. Para-educator assists in synthesizing the discussion and links it to the learning objective				
52. Presentation includes sharing of the process and the content				
53. Activity happened in the given time				

APPENDIX F

Interview questions for assessing the role of organizational changes in influencing professional development (institutionalization phase)

Interview with cluster heads

Do you think there are organizational changes? What are some of those in your opinion?

What do you think of those organizational changes?

Have they played any role in influencing your work positively or negatively? Describe some of these.

APPENDIX G

Para-teacher designed test papers
Environmental science

TIME: 45 minutes
MARKS: 25

Q.1. Fill in the blanks.

Fill in the Blanks (**4 marks)**

1. Food is transformed in to small pieces by …….
2. I am mixed with the food so that it becomes soft ……
3. I digest the food in the body ……
4. Undigested food from the stomach enters in to me …….

Q.2 Please circle the natural sources of water.(4 marks)

1. Food should be covered because….
2. Give four ways to make water useful drinking.
3. If water is stored surrounding our homes, then it should be removed because..
4. Fruits and vegetables should be properly cleaned before eating because …

Q.3 Please circle the natural sources of water (4marks)

Pond, bucket, tap, water fall, water tank, lake, river, hand pump, tube well, well

Q.4 Write the following questions (3marks)

1. Write two reasons for water pollution?
2. Write two reasons for air pollution?
3. Write the two activities showing the importance of water?

Q.5 True or false (3 marks)

1. Sun is a star.
2. Sun is a planet.
3. Moon has its own light.
4. In winter days are longer.
5. Earth is slightly tilted on its own axis.
6. Earthquake happens only in winter.

Q.6 Answer the following questions (6 marks)

1. Write six names of natural disasters.

Sr.No	Nature Disasters	Where it happens
1		
2		
3		
4		
5		
6		

2. _____ revolves around the sun **(0.5 mark)**

3. _____ revolves around the earth**(0.5 mark)**

APPENDIX H
Interview questions to assess Maitri's capacity for organizational learning in supporting para-educators

Interview questions

Interview questions for Management Members:

Perceptions about organizational changes and support:

What is your main focus while implementing the urban learning centers. Has this changed recently or is it continuing in the same manner as before?

Have there been changes in the organizational structure or manner of working? If yes, what are they?

What is the purpose of these changes?

In what manner or through what processes have they been introduced?

What type of changes do you see in the para teachers' skills and attitude?

How do you compare the developments you have discussed to the pre professional development period?

APPENDIX I
Classroom observation tool (Curriculum Profile)

Curriculum profile	Yes	No	NA
BEGINNING: Time			
Basic teaching skills			
7. The teacher and majority of the pupils arrive on time			
8. The teacher has a planned teaching agenda for the day			
9. The teacher appears organized and ready to start			
10. The teacher and pupils appear at ease with each other			
Learner Centered orientation			
11. The teacher starts the day with a general conversation			
12. The pupils get organized for the class work on their own			
13. The pupils appear motivated for the class			
INTRODUCTION OF THE LESSON: Time			
Basic teaching skills			
14. Teacher introduces lesson topic/objective effectively			
15. Teacher recapitulates the previous lessons			
16. Teacher makes use of classroom aids (blackboard, material etc)			
17. Teacher ensures that children absent in the previous lessons are briefed			
18. Teacher ensures attention of all pupils			
19. Teacher is able to maintain a smooth flow and minimize chaos/ disruptive behavior in the class.			
20. Teacher summarizes the lesson			
Learner centered orientation			
Teacher role			
21. Teacher asks questions about previous lessons to establish a link and refresh prior learning			
22. Teacher involves learners through examples/questions/ activities during introduction of lesson			
23. Teacher involves peers of previous absentees while briefing them			
24. Teacher clarifies wrong responses, by prompting, getting other pupils to explain or by providing elaborations herself			
25. Teacher gives opportunity to different pupils to participate in the discussion			
26. Teacher incorporates learner's ideas, responses and questions in the discussion			

Curriculum profile	Yes	No	NA
27. Teacher guides learners to conclusions			
28. Teacher reviews pupils' understanding as much as possible (by asking questions)			
29. Teacher does not leave out shy pupils			
30. Teacher helps pupils in being disciplined by reminding them of previously established classroom norms or evolving new ones with them			
31. Teacher does not use forceful behavior while in regulating pupils' behavior			
Pupil role			
32. Pupils can recollect activities and content of the previous lesson			
33. Pupils enthusiastically participate in the discussion			
34. Pupils do not			
35. Pupils are not embarrassed when they do not understand but readily ask for further clarification			
36. Pupils are friendly and helpful in their interaction towards each other			
37. Pupils are able to behave in a manner that allows a productive flow with no or minimal prompting by the teacher			
LESSON BODY: Time :			
Basic teaching skills			
38. Teacher introduces the activity			
39. Teacher has essential materials ready and organized			
40. Teacher explains the objective of the activity			
41. Teacher makes sure that materials are easily accessible to learners			
42. Teacher explains how to use materials/equipment			
43. Teacher moves around classroom			
44. Teacher maintains a positive learning environment during activity			
45. Teacher effectively handles discipline problems			
46. Teacher effectively handles timing difficulties			
Learner centered orientation			
Teacher role			
47. Teacher groups pupils for the activities			
48. Teacher has allocated each group with an appropriate activity			
49. Teacher has tried to use experiential / applied activity			
50. Teacher explains the aim of the activity to each group			
51. Teacher has provided appropriate instructions for the children			
52. Teacher has explained how to use the material			
53. Has addressed how to co operate in groups			
54. Teacher attends all groups as far as possible			
55. Teacher makes sure activity goes on accurately			
56. Appropriate interventions with questions / clarifications – guides with questions but does not give direct solutions			
57. Encouraged and Discouraged relevant behaviors			

Curriculum profile	Yes	No	NA
58. Maintains firm but affectionate stance			
Pupil role			
59. Children are maintaining their groups while the activity is going on			
60. Children share and discuss with each other rather than doing individual activity within a group			
61. Children are enthusiastic about making a good presentation or product			
62. Children are involved in the group activity			
63. Children are clear about the task			
64. Whenever the group does not understand something it approaches the teacher clarification for the process of the group activity			
65. Questions are being raised by children regarding content			
66. Children are cooperating in the group			
67. Children take initiative within groups to maintain order			
68. Pupils are able to behave in a manner that allows a productive flow with no or minimal prompting by the teacher			
CONCLUSION OF THE LESSON: Time			
Basic teaching			
69. Conclusions are drawn from activity			
70. Teacher summarizes the findings of the activity			
71. Teacher asks learners questions about what they have learnt			
72. Teacher spends time discussing activity afterward			
Learner centered orientation			
Teacher role			
73. Different groups are brought together to share their discussion with each other			
74. Teacher asks questions to assess what pupils have learnt			
75. Teacher clarifies incorrect response			
76. Teacher scaffolds with appropriate intervention for left out insights			
77. Teacher links it to the learning objective			
Pupil role			
78. Pupils are keen on presenting their results/ outputs			
79. Pupils listen to what other groups found and do not disrupt			
80. Pupils ask questions to different groups about their work			
81. Pupils' presentation / work reflect learning of new information			
82. Pupils ask questions for things they have not understood			

APPENDIX J
Para-educator designed tests

Grade 1:

Name:
Standard:
Time:
Subject: Language
Date:

Q1. Write by following example (Level 1)

B – Ball

(1) G
(2) M
(3) S
(4) K
(5) N

Q2. Order the given words and make sentences (Level 2)

Example: Is green parrot
Parrot is green.

(1) Shine starts night at
(2) Bird is the in flying sky
(3) Giving is cow milk
(4) Book reading is Sonu
(5) School beautiful is my

Q3. Make paragraph by using the following word (Level 3)

Elephant

Q4. Read the following story and answers the questions (Level 4)

There was a village. Two farmers were staying in that village. Once name was Jiva and another name was Shiva. Both farms were nearby. Both farming was good. Crop has grown same in both Jiva and Shiva's farm. Harvesting was also done same time in both farms. The grain heap stored in sack, both grain has gone to the city for selling. They both earned so well from that and both started to live happily.

(1) How many farmers were staying in the village?
(2) What were the names of the farmers?
(3) Where the grain heap was stored?
(4) Where the grain of both farmers has taken for sold?
(5) How both farmers started living?

Grade 1:

Name:
Standard:
Time:
Subject: Math
Date:

Q1. Identify following numbers (Any Eight) (Level 1)

45, 67, 76, 93, 82
89, 95, 66, 78, 57

Q2. Put a circle around smallest digit and square around biggest digit (Level 2)

(1) 28, 27, 32
(2) 56, 76, 66
(3) 62, 89, 79
(4) 32, 22, 42

(2) Write before after digit

……..32 ……..28
……..42 ……89

Q2. Show place value of following digits (Level 3)

(1) 4̲5 (2) 5̲7 (3)8̲9 (4)6̲0

Q3. Addition (Level 3)

76	47
+18	+23

Subtraction

54	67
-26	-39

Grade 2:

Name:
Standard:
Time:
Subject: Language
Date:

Marks-50

Q1. Dictation (5 lines) **(5)**

Note: Children write as teacher says

(1) ……
(2) ……
(3) ……
(4)……
(5)……

Q2. Read the paragraph and answer the questions. **(10)**

It was a cloudy evening. Sun was filled with different colors and was spreading its rays on the clouds to look colorful. The grain farms were seen from the sky above. The butterflies are moving on the flowers. One butterflies looked up on the sky and the clouds and said, it looks like fairies are dancing in the sky. Butterflies started talking to clouds and slowly the sun started to set down and the colour of the cloud became dim and slowly disappeared.

(1) Who was flying in the sky?

…….

(2) What was the sun doing?

…….

(3) What was seen down from the sky?

…….

(4) What were the butterflies saying after looking towards the sky?

…….

(5) What happens during the sunset?

…….

Q3. See the picture and write the answers **(5)**

(1) How many steps does the house have?

……..

(2) How many bars have the window?

……..

(3) Where is the peacock seating?

……..

(4) What is on peacocks head?

……..

(5) What is near by the house?

……..

Q4. (a) Make word out of below given alphabets **(5)**

(1) yks = ----------
(2) jiuec = ----------
(3) rian = ----------
(4) snu = ----------
(5) chasmrist = ----------

(b) Make sentence out of below given words: **(5)**

(1) Flower is rose beautiful…….
(2) Fly colourful sky in the kites…….
(3) Green is parrot……
(4) Like I study to……..
(5) Wedding my is uncle…….

Q5. (a) Synonyms **(5)**

(1) Water = ----------
(2) Sky = ----------
(3) Land = ----------
(4) School = ----------
(5) Moon = ----------

(b) Anonyms **(5)**

(1) Cool = ----------
(2) Bitter = ----------
(3) Light = ----------
(4) Day = ----------
(5) Under = ----------

(c) Change in to plural **(5)**

(1) Girl = ----------
(2) Man = ----------
(3) River = ----------
(4) Sparrow= ----------
(5) Flower = ----------

Q6. Re- write (Make the children write the below given paragraph in good hand writings.) **(5)**

Jatin says, seeing red and fresh fruit, what is this, Grand father? Grand father says, "This is banyans tree's fruit. Jatin sat on grandfather's shoulder and start picking the leaves. The banyan tree has big leaves. The leaves are very green. Jatin tries to hug the trunk of the banyan tree but could not hug and then said, Oh! The trunk of the banyan tree is very thick.

Grade 2

Name:
Standard:
Time:
Subject: Math
Date:

Q1. Dictation **(10)**

(1)…….. (2)…….. (3)…….. (4)…….. (5)……..
(6)…….. (7)…….. (8)…….. (9)…….. (10)……..

Q2 (a) Write the below given numbers in the word. **(5)**

(1) 23_____
(2) 48_____
(3) 67_____
(4) 77_____
(5) 89_____

(b) Write the below given word in numbers. **(5)**

(1) Thirty two: _____
(2) Fifty seven: _____
(3) Sixty nine: _____
(4) Eighty five: _____
(5) Ninety seven: _____

Q3. (a) Encircle the small numbers 0 and put a ☐ around the greater numbers **(5)**

(1) 27, 45, 17
(2) 61, 33, 59
(3) 12, 72, 82
(4) 89, 69, 48
(5) 100, 98, 89

(b) Write before number, after number, and between numbers. **(5)**

(1) _____29_____
(2) 61_____59
(3) _____88_____
(4) 56_____58
(5) _____95_____

Q4. (s) Write the below given number in ascending order. **(2)**

(1) 17, 2, 34, 22, 48 :_____
(2) 67, 82, 54, 93, 77:_____

(b) Write the below given number in descending order. **(2)**

(1) 37, 29, 48, 7, 13_____
(2) 72, 91, 80, 65, 57 :_____

Q5. Write place value of under lined numbers. **(4)**

(1) 0<u>5</u>…… (2) <u>3</u>7…… (3) 5<u>4</u>…… (4) <u>4</u>4……
(5) <u>7</u>2…… (6) 8<u>0</u>…… (7) <u>0</u>9…… (8) 6<u>8</u>……

Q6. Add **(6)**

15	30	5
+ 27	+ 45	+ 60
+ 48	+ 04	+ 32

Q7. Substract **(6)**

62	70	100
- 39	- 53	- 88

Grade 3

Name:
Standard:
Time:
Subject: Math
Date:

Total marks 50

Q1. Do as directed.

1. From the following given number 24, 42,76,67,85. Write the greatest and smallest number. (2)
2. Fill in the blanks by writing before and after number. -----, 70 ------. (2)
3. Fill in the blanks (4)
4.

Numbers	Hundred	Tenth	Unit	Numbers in words
950				
				Twenty

5. 254 _____ 245. Indicate > or < (1)
6. Arrange in ascending and descending order. 99,9,199. (2)
7. Write odd and even number between 408 and 419. (2)

Q2. Do as directed.

1. 12+44+20= _____ (2)

2. Manu has 37 chocolates. Kanu 40 chocolates. Tanu has 2 chocolates. How many chocolates in total do all three have? (3)

3. Do addition (2)

   106
   +610

4. Do addition (2)

   20
   +567
   +211

5. Do addition
   632+29+9= (2)

6. Solve the problem sum
   One shopkeeper solved four-lined notebook 504, plain notebooks 260 and square notebooks 188. How many total books did he sell? (3)

Q3. Do as directed

a) Do subtraction (2)

1. 752
   -346

2. 903-615= _____ (2)

b) Solve the problem

1. Keshu bhai bought rice for 785 rupees from the market. He gave rupees 800 to the vendor. How much rupees will the vendor give to Keshubhai. (3)
2. There were 594 trees on the roadside. In order to widen the roads 286 trees were cut. Due to increase in pollution 325 trees were planted again. So find out the number of trees. (3)

Q4. a) Answer the following questions. (3)

1. How many hands do eight man have = _____
2. How many legs seven chairs have = _____
3. How many wheels does six legged five buses have= _____

b) Do multiplication

1. 365*9= _____ (2)

c) Do problem sums

1. In a school there are 356 children. For soldier's fund, each child is giving 5 rupees. So what is the total amount of the fund collected? (3)

Q5. a) Do division

1. 749/7= _____ (3)

b) Solve the problem sums.

1. If 96 rupees is divided between 6 children, then how many rupees each child will get? (2)

Grade 3

Name:
Standard:
Time:
Subject: EVS
Date:

Q1. a) Do as directed. **(4)**

1. The head of the village panchayat is known as _____
2. I deliver post and parcel _____
3. The management of nagar palika is done by _____
4. The justification of the court is given by _____

b) Answer the question **(6)**

1. What is the benefit to put money in the bank?
2. Where the ambulance does is used?
3. What is the work of a nagarpalika ? (Any two)

Q2. a) Identify the matter **(5)**

1. Chari=
2. Milk=
3. Smoke=
4. Kerosene=
5. Steam=

b) Write any two examples of the things you have seen in your surroundings. **(4)**

1. Rough substance = 1 _____ 2_____
2. Soft substance = 1 _____ 2 _____
3. Brittle substance = _____ 2 _____
4. Translucent substance = 1 _____ 2 _____

Q3. a) Answer the following questions **(2)**

1. Distinguish between living and Non-living.
   Dog, stone, tree, train, airplane, bird
2. Vegetation is living because of **(2)**
3. Difference between living and non-living **(4)**

Q4. a) Write any two animal, bird and insects you have seen **(3)**

1. Animal: ……, ……..
2. Bird: …….., ……..
3. Insect: …….., ……..

b) Write the difference between wild animal and domestic animal. **(4)**

c) Write the answers of following questions. **(6)**

1. Which are the non vegetarian animals? (Any three)
2. Which are the vegetarian animals? (Any three)
3. Write the names of animals that swallow their food.

Q5. a) Do as directed. **(3)**

1. Do the classification of following in tree, shrub and climbers.
   (Mango tree, Rose, Water melon, Brinjal, Banyan tree, tindora, Jasmine, periwinkle, vala bean)
2. How many organs plant has and which? **(2)**

b) Identify who I am and write my name. **(5)**

1. I absorb water and salts from soil.
2. I prepared food with the help of sunlight.
3. I make plant to stand straight.
4. By sowing me you will get another plant like me.
5. In various types of plants, my life span is the shortest.

APPENDIX K

1. Listing pupil's attainment levels for grouping

No	NAME	AGE	STD	Language level	Math level
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

2 **Group-wise list of children**

Group 1: Name of children at a basic level of Language skills and need support in learning to read (grade 1)	**Group 2: Name of children at an advanced level of Language skills and can be taught advanced language and EVS of grade 2**

Group 3: Name of children at a basic level of Math skills and need support in basic numeracy (grade 1)	**Group 4: Name of children who have mastered basic numeracy and can be taught advanced math of grade 2**

Group 5: Children who are have achieved grade 2 competencies and need support in grade 3 nd 4

Name	Age

Group 6: Preschool level

Name	Age

3. **Specifying learning targets (taking into account number of holidays and planned working hours)**

Grouping level	September monthly target	September weekly target			
		week 1	*week 2*	*week 3*	*week 4*
1					
2					
3					
4					
5					

4. Daily time table

	Days of the month					
	1	*2*	*3*	*4*	*5*	*6*
Planned activity						
Actual activity						
	8	9	10	11	12	13
Planned activity						
Actual activity						

5. Lesson planning

Name:………**……..**

Class Time:…… **Date:……**

Group the children in the class into foundation and advanced groups based on their baseline attainment in reading, writing and math. Write down the names of children who come in each of these groups.

Names of the children

Group (l2r(0,1,2), l2a 0,1,2), balwadi)	**Names of the children**		**Activities to be done with this group**	**Time for each of these activities**
Group 1	1	11		
	2	12		
	3	13		
	4	14		
	5	15		
	6	16		
	7	17		
	8	18		
	9	19		
	10	20		
Group 2	1	11		
	2	12		
	3	13		
	4	14		
	5	15		
	6	16		
	7	17		
	8	18		
	9	19		
	10	20		

Group 3	1	11		
	2	12		
	3	13		
	4	14		
	5	15		
	6	16		
	7	17		
	8	18		
	9	19		
	10	20		

2) For each of the activities are there any sub groups within the main groups.

Group (l2r(0,1,2), l2a 0,1,2), balwadi)	**Sub group 1 (write the names)**	**Sub group 2 (write the names)**
Group 1	1	11
	2	12
	3	13
	4	14
	5	15
	6	16
	7	17
	8	18
	9	19
	10	20
Group 2	1	11
	2	12
	3	13
	4	14
	5	15
	6	16
	7	17
	8	18
	9	19
	10	20
Group 3	1	11
	2	12
	3	13
	4	14
	5	15
	6	16
	7	17
	8	18
	9	19
	10	20

3. Write down the activity steps for each activity you are conducting for each of the group along with the material and time needed for each.

   Group 1: Activity steps-
   1.) ……
   2.) ……
   3.) ……
   4.) ……
   5.) ……
   6.) ……

   Group 2: Activity steps-
   1.) ……
   2.) ……
   3.) ……
   4.) ……
   5.) ……
   6.) ……

   Group 3: Activity steps-
   1.) ……
   2.) ……
   3.) ……
   4.) ……
   5.) ……
   6.) ……

4). You must explain the activity to the children in such a way that the children can carry out their task on their own in their group. Write down the specific steps / actions you will ask the children to do in detail in the right sequence while you are away.

   Group 1: Activity Steps-
   1.) ……
   2.) ……
   3.) ……
   4.) ……
   5.) ……
   6.) ……

   Group 2: Activity Steps-
   1.) ……
   2.) ……
   3.) ……
   4.) ……
   5.) ……
   6.) ……

Group 3: Activity Steps-
1.) ……
2.) ……
3.) ……
4.) ……
5.) ……
6.) ……

5) For each of the activities, at what point should you go back to review the progress and how will you do that?

Group	Review points	How will I do it
Group 1	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
Group 2	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
Group 3	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	

6) While doing the activities what are the disciplinary rules children should observe that you will discuss with them. What kind of reinforcements can you use to sustain them that you will discuss with the children?

	Norms	**Reinforcements**
Group 1		
Group 2		
	Norms	**Reinforcements**
Group 3		
	Norms	**Reinforcements**

7) How will you verify what each of the group has learnt?
How will you verify what each group has learnt?

Group 1:
1.) ……..
2.) ……..
3.) ……..
4.) ……..
5.) ……..

Group 2:
1.) ……..
2) ……..
3.) ……..
4.) ……..
5.) ……..

Group 3:
2.) ……..
2) ……..
3.) ……..
4.) ……..
5.) ……..

6. Lesson reflection

Name:

Class time:

Date:

Tick available options and write down reasons for it.

Questions	Yes	Why	No	Why
1) The class had a clear distinction of the different groups according to the levels				
2) Each main group was divided into subgroups when necessary.				
3) The time I had planned for each activity was sufficient.				
4) I was able to explain the activity and instructions clearly to enable to group to do it as intended.				
5) I was able to make appropriate interventions whenever the group had a difficulty and for regularly reviewing their activity .				
6) I was able to come to an agreement with the children on conduct to be observed by them through discussion.				
7) Whenever children observed agreed behaviour I provided an encouragement				
8) Whenever they violated an agreement, I made an intervention to discourage such behaviour.				
9) I was able to understand the children ‘s learning level by asking critical questions				