

*UNCOVER SUCCESSFUL
ENTREPRENEURSHIP*

by
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Abstract

This research paper investigates what promising learning activities and processes are with regard to successful entrepreneurs. Knowing how successful entrepreneurs learn can help supporting entrepreneurs in their start-up period, in order to decrease the high failure rate. Digital diaries are, therefore, analysed qualitatively. Results show that successful entrepreneurs interact with others, take advantage of learning outcomes, create learning opportunities, react to cues in order to anticipate the future of their venture, take actions through their working life and exploit learning opportunities.

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2nd mentor: Gabi Kaffka

Preface

This paper is the second part of my Bachelor thesis. Prior to this research paper a systematic review and a research proposal were created. Even if this is a paper concerning entrepreneurship, it is written from an educational point of view and might include concepts that are not known in other fields of study. Start of the idea for this paper was the data that was made available by Gabi Kaffka, who I would like to thank for the data and for the pleasant time exploring the data. Next to Gabi I would like to thank Nelleke Belo who was assisting me in a way that was new to me. Every time we had a meeting, Nelleke knew how to put MY thoughts on paper. This was very refreshing and helped me a lot. Also I would like to thank Gerwin, who was patiently and thoroughly checked the report for spelling, language and thinking errors over and over again.

Another aspect of my life also made this report special to me. I grew up in a family business, though my father is an entrepreneur, now for 26 years. That means that when I was born my father was still a start-up. What sometimes made me smile during the work on this research was that all the concepts that are scientifically proven on what entrepreneurs are and how they work, I recognize in the work of my father, for the during of my whole life.

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1. Introduction

The expected failure rate of new ventures is higher than 80% (Sarasvathy, 2001) and the biggest fear of start-up entrepreneurs is the possibility to go bankrupt (EUCommission, 2011). In the economy entrepreneurs have an important function as in free-market capitalism, entrepreneurship influences job creation and incomes (Sarasvathy, 2001). Entrepreneurial activity contributes to health and employment, increases competition and evokes the personal development (of the entrepreneur) (Hegarty, 2006). That is why the failure rate must decrease.

Why do ventures fail? Cardon, Stevens and Potter (2011) describe that failure occurs whether by individual or environmental factors. For example, an individual factor is mistakes of entrepreneurs, e.g. in decision making or the entrepreneur “pursued a reactive, rather than detailed, long-term, planning strategy” (Cordon et al., 2011). Other failure reasons can be submissive goal-setting or a low degree of human capital or generally formulated, lacking skills (Cordon et al., 2011). Environmental factors like the inappropriate financial, legal, political or economic environment also can be a reason for failure (Carter & Wilton, 2006 in Cordon et al., 2011).

Adapting to the changing, complex and competitive business environment of a young firm is a challenging task (Van Gelderen, van de Sluis & Jansen, 2005). To this environment the entrepreneur must respond dynamically (Deakins & Freel, 1998). Also, becoming an entrepreneur means risk and uncertainty for the future (McGrath, 1999) and “risk can become manifested in failure” (Miller & Reuer, 1996 in McGrath, 1999).

It is necessary to identify how to become successful, so at the end of the day, entrepreneurs can be supported in their start-up period to decrease failure. Most start-up companies have to develop starting from point zero. Crucial to the growth process is the ability of the entrepreneur to learn (Deakins & Freel, 1998). In order to find out about successful entrepreneurship, identifying how successful entrepreneurs have learned to do so, is crucial (Rae & Carswell, 2000). Rae and Carswell (2000) argue that without the skill to learn from experience the functional business knowledge is unlikely to lead to success. Learning experiences in the first few years are expected to be generally relevant (Van Gelderen et al., 2005).

In this research starting entrepreneurs are accompanied for one year to investigate how they learn to run a successful business. The aim is to identify a best practice example on how to become a successful entrepreneur, so educators will be able to support the learning process of young entrepreneurs optimally. Knowing what learning processes lead to success, it will be possible to filter crucial tools. The purpose of this study is to investigate what learning activities support entrepreneurial success. After studying the literature on this topic, a qualitative data-set will be inspected.

2. Theoretical Framework

In order to answer the research question we need to get insights in the different fields that are concerned in the question, entrepreneurs and their learning process. The prior literature about successful entrepreneurship will be investigated. After that, a connection is made between successful entrepreneurship and learning. It will be explained what role learning has in this context. Additionally entrepreneurial learning theories are considered and a definition of entrepreneurial learning is provided. Subsequently the process of learning in successful entrepreneurship is described in more detail and the previous literature on learning activities and outcomes are leading towards a conceptual model which this research will investigate.

2.1 Successful entrepreneurship

This paragraph will start with an introduction into the field of entrepreneurship. Starting with the identification of the process to create a new venture and followed by the credentials of personality characteristics of entrepreneurs that support the creation and success of new ventures are explored. After that, the question what is understood as success in this research paper is treated. Then the relation between success and learning is pointed out.

Shane and Venkatarman (2000) argue that engaging in entrepreneurial behaviour or not depends on the “tendency of certain people to respond to the situational cues of opportunities” (p. 219). Social relations might influence the identification of entrepreneurial opportunities (Hytti, Stenholm, Heinonen, and Seikkula-Leino, 2010). Opportunity recognition can be seen as a prerequisite for entrepreneurship, it is the first step of new venture creation (Bhave, 1994, Gartner, 1985). The second step is to exploit the opportunity and introduce the business idea to the market (Bhave, 1994, Gartner, 1985). In this phase there are two important factors to the success of the entrepreneur, first the influences of the environment which sometimes can be unstable and unpredictable and second the feedback from the market.

“Successful entrepreneurs are defined as those whose enterprises have survived some period of time, perhaps two years” (Carland, Hoy, Boulton & Carland, 1984). In the research of Bosma, van Praag and de Wit (2000) the mean duration of survival in month is 33.6, equivalent to 2.8 years. Next to duration Bosma et al. (2000) adds two more variables indicating success: profit and employment. In this paper, we adopt the mean duration of survival by Bosma et al. (2000) as successful entrepreneurship. We assume that if an entrepreneur passes the mean survival time of about 3 years, he is successful. Left behind will be the variables profit and employment because those variables would indicate growth, which is irrelevant to this study.

Prior research has demonstrated that successful entrepreneurs have inherent personality characteristics (e.g. Deakins & Freel, 1998). The most commonly understood characteristics are taking risks and readiness to take tough decisions, optimism, self-confidence with a locus of control, autonomy and independence, achievement needing, pro-active, able to value and trust others, informal, not per se high educated, but skilled in learning from experience (Bush, 1992 in Fenwick, 2003, Deakins & Freel, 1998, Gartner, 1985, Gibb, 2009, Pittaway, Missing, Hudson, & Maragh, 2009, Rae & Carswell, 2000, Shane & Venkatarman, 2001, van Praag, 1999 in Bosma et al., 2000).

2.2 Entrepreneurial learning

Learning is important to entrepreneurial practice. This is what literature commonly agrees on (Deakins & Freel, 1998, Higgins & Elliot, 2011, Rae & Carswell, 2000, van Gelderen et al., 2005). Capabilities that are needed for the process of identifying opportunities and forming ventures need to be learned (Rae & Carswell, 2000). “Learning and the opportunities to learn are at the centre of entrepreneurial practice” (Higgins & Elliott, 2011, p. 345). Learning is so important to entrepreneurship because it has positive effects on business performance (van Gelderen et al., 2005, Rae & Carswell, 2000). The growth process of a company is influenced by the ability to learn (Deakins & Freel, 1998). According to van Gelderen et al. (2005) learning not only increases the current and the future performance of a business and also serves the function of improvement of individual competences.

2.2.1 Entrepreneurial learning theories

In the field of entrepreneurship there are different learning theories. In order to inventory what is already known about entrepreneurial learning, the three most accepted theories in the field, experiential, social and action learning theory are being integrated.

Action and experience are the most important factors in the different theories. Learning “is the process whereby knowledge is created through the transformation of experience” (Kolb 1984, p.38). Experiential learning is based on the belief that entrepreneurs learn from past experiences (Gibb, 2009). Similar to experiential learning is action learning. Action learning is situated in the system of on-going practice, rooted in a context of social interaction and is acquired through participation (Higgins & Elliot, 2011). “Learning can only take place through the attempt to solve a problem (however mundane) and, therefore, only takes place during activity” (Arrow 1962, p.155). Critical events are crucial for experiential learning (Higgins & Elliot, 2011).

The social aspect of action learning is the guideline for the social learning theory. “Entrepreneurial practice operates within a social reality [that] is constructed and shaped by their actions and that of others in response to their actions” (Higgins & Elliott, 2011, p. 347). Support and frequent involvement with external parties have a positive effect on small business success (van Gelderen et al., 2005, Gibb, 2009). Action learning “is not solely concerned with learning by doing or learning by participation and peer exchange but with leading the learner towards reflection, the acquisition of new knowledge and, most importantly, the conceptualisation of experience” (Gibb, 2009, p. 223). In this research entrepreneurial learning is defined as process where learning outcomes derive from (informal) learning activities.

2.2.2 Learning activities and outcomes

According to the learning theories, learning is the outcome of activity. Some examples are being examined in this paragraph. In the theories described above different learning activities can be identified: experience, action, critical events, interaction and reflection.

Learning activities

There is a predominant opinion in the entrepreneurship literature that an entrepreneur learns from *experience*: Entrepreneurs’ thinking is directed to believe in what worked in the past (Gibb, 2009). Related to experience are the concepts of *action* and *critical event*. Arrow (1992) argues that “learning can only take place [...] during activity” (p.155). Pittaway et al. (2009) meanwhile argue that the learning process of an entrepreneur starts with an uncertain or ambiguous situation. Experience is gained by carry out actions and dealing with critical events. Though experience is the sum of more than one activity.

“Due to the dynamic nature of the entrepreneurial process the entrepreneur’s stock of experience changes constantly and, thus, to learn, they must take time to *reflect*” (Pittaway et al., 2009, p.267). Reflection is a cognitive activity that translates an experience into learning. Learning also derives from *interacting* with the physical and social environment (Donald, 1991 in Higgins & Elliot 2011). Meirink (2007) distinguishes between learning from others and learning with others.

Learning outcomes

In this part of the paper we will explore what learning outcomes are discovered in prior research. For that reason the literature on entrepreneurship and in the field of educational science is considered.

“Traditionally, learning is an important variable in entrepreneurship, representing the acquisition or alteration of skills, knowledge, habits and attitudes necessary to deal with all aspects of running a business” (Gibb, 1997 in van Gelderen et al., 2005, p. 98). The acquisition or alteration of skills, knowledge, habits and attitudes necessary to deal with all aspects of running a business” (Gibb, 1997 in van Gelderen et al., 2005, p. 98).

In educational science it is distinguished between knowledge, skills and insights (van Berkel & Bax, 2006). Endedijk (2010) researching self-regulated learning distinguishes between rule of thumb (heuristics), knowing that (knowledge), knowing how (skills), knowing about myself (change in identity) and knowing why (insights). In the entrepreneur literature one more variable appear as learning outcomes,

next to the educational outcomes: changed behaviour. Harkema and Schout (2008) argue that changed behaviour is the manifestation of learning outcomes. From an educational theoretical point of view this variable is not a learning outcome, but an indication for the learning to be effective.

2.3 Relations and patterns

In prior research on entrepreneurial learning different relations between learning activities and outcomes are explored. In this paragraph these relations are revealed and translated into the variables as explained above. According to these relations, propositions are prepared to introduce the variables and express concrete possible relations.

In the literature three different relations are identified leading to knowledge and insights. Kolb (1984), Higgins and Elliot (2011) state that knowledge can be gained through the transformation of experience (relation 1: experience leads to knowledge). Donald (1991 in Higgins & Elliot 2011) describes that knowledge derives directly from learning by doing, which can be defined as the interaction with the physical and social environment (relation 2: action and interaction lead to experience). Corbett (2005) also includes insights in his concepts, he argues that entrepreneurs gain knowledge through a combination of experience and prior knowledge and insight (relation 3: experience, insights and knowledge lead to new knowledge and insights). In all three relations a standard pattern can be identified, where a learning activity leads to a learning outcome.

Proposition 1: experience, action and interaction lead to knowledge.

Proposition 2: experience, insights and knowledge lead to new knowledge and insights

Meaning oriented learning, as reflections on experience promote skill development according to van Gelderen et al., (2005). This is the first relation that can be identified: experience – reflection leads to skills. Deakins and Freel (1998) argue that by reacting to events the entrepreneur learns specific skills like managing information, adjusting strategy and taking decisions. Thus, in the second relation no reflection is involved, rather Deakins and Freel (1998) say that just by reacting to a specific event one can acquire skills (event – action - skill).

Proposition 3: experience leads to skills via reflection.

Proposition 4: skills are enabled by reacting to critical events.

Rae & Carswell (2000) are the only mentioning personal theory, they argue that social influences can lead towards the adjustment of the personal theory. Translated to the variables it means that leads to heuristics.

Proposition 5: interaction leads to heuristics.

Change in behaviour has various explored relations. Deakins and Freel (1998) explain that entrepreneurs change behaviour because of critical incidents (relation 1: critical event - behaviour). Deakins and Freel (1998) also argue that the start-up entrepreneur is altering behaviour through experience with dealing with bank managers or other sponsors (relation 2: interaction - behaviour). Harkema and Schout (2008) argue that behaviour change is a result of experience or practice (relation 3: action or experience lead to behaviour). In this case, two different learning activities are unrelated and both are expected to lead to a behaviour change. Pittaway et al. (2009) claims that by sharing problems with the community one can reflect together, during and after actions, which can lead to generative learning on issues as personal, emotional or business, leading to strategy adjustments (relation 4: action – interaction/reflection - behaviour).

Proposition 6: critical event, action, interaction or experience lead to behaviour change

Proposition 7: behaviour is adjusted after collective reflection on actions.

Another view is provided by Gondim and Mutti (2011); they investigated emotion and cognition that are influenced by interaction, which as a result lead to the transformation of the individual (relation 1: interaction - transformation) Cope (2003) identified that through reflection a discontinuous event has personal consequences (relation 2: critical event – reflection - transformation). Gilbert (2012) argues that

through new knowledge and skills an entrepreneur gets more self-confident and develops greater self-efficacy (relation 3: knowledge/skills - transformation).

Proposition 8: interaction leads to transformation

Proposition 9: by reflecting on a critical event the entrepreneur transforms identity

Proposition 10: new knowledge and skills lead to transformation

Cope (2003) observes an adjustment/ change of behaviour that was triggered by a new self-awareness that evolved through the reflection on an experience (relation 1: experience – reflection – transformation - behaviour). “We can [...] see entrepreneurial learning as a continuing social process of individuals learning from their own and others' experiences, developing their own personal theories, and having been successful in applying these theories, enabling others to adapt and learn from them” (Rae & Carswell, 2000; p. 224; relation 2: experience - interaction – heuristics – behaviour).

Proposition 11: by reflecting on experience one transforms identity and as a result changes behaviour

Proposition 12: own and experiences of others lead to new heuristics, which result in changed behaviour.

The different propositions can be split up in different pattern if we reduce them to whether being a learning activity or a learning outcome. The following patterns can be expected:

- a. One learning activity leads to one learning outcome (LA -> LO)
- b. Different learning activities can lead to one learning outcome (2LA -> LO)
- c. Learning outcome is attained by a learning activity and a mediating learning activity (LA -> LM -> LO), a mediating activity can be either a LA or a LO.
- d. learning outcome is attained by a learning activity and two mediating learning activity (LA -> LM -> LM -> LO)
- e. learning outcomes is triggered by a learning outcome (LO -> LO)

2.4 Research question

A lot of variables that influence learning (outcomes) have been researched in the past. But a general conclusion has not been made yet on this variety of the variables and more importantly what are the most crucial learning activities and processes concerning successful entrepreneurship. Therefore, the following research question was constructed.

“What are promising learning activities and processes with regard to successful entrepreneurs?” To answer this research question sub questions were composed:

1. *Which learning activities and learning outcomes are there?*
2. *What relations and patterns can be identified between learning activities and learning outcomes?*

3. Method

In this study it will be investigated what is the relation between learning activities and learning outcomes in the context of successful nascent entrepreneurs by analysing qualitative data. In this paragraph the method that was used in order to answer the research question will be explained. It will be described how the sample was chosen, how data is collected and analysed. Furthermore, it is described how the validity, reliability are controlled and inter-rater agreement will be discussed.

3.1 Sample and data collection

In order to answer the research question, it is chosen to investigate nascent entrepreneurs with a high-tech profession. They usually know a lot about the technology they would like to introduce to the market, but often do not know how to run a business. High techs thus need to learn how to be an entrepreneur and how to sell an idea or a product to the market. This gives us the opportunity to look at the learning's that are directed to becoming an entrepreneur, while in other professions it is more likely that learning about the product or service are present frequently. For this reason, high techs are the population that makes unobtrusive measurement (Baarda, De Goede & Teunissen, 2005) possible.

The present study is situated in the context of a one-year “business development program for technology-based start-ups, as well as a business growth accelerator for well-established high-tech companies” (Handbook VLT, 2012, p. 3). The training program of Venture Lab Twente (VLT) consists of educating elements like workshops, competence development planning and expert panel presentations (every four month). More individual assistance is provided by the training program by mentoring (1x per week) and peer-coaching.

The subjective thoughts about experiences of entrepreneurs, reported in their words and embedded in their life story, has a fundamental function in exploring learning processes (Rae & Carswell, 2000). That is why in this research the approach of qualitative diary analysis had been selected. The qualitative data is collected from participants during one year of the training program. In order to take advantage of discount privileges the participants had to keep a weekly digital diary. Using digital diaries as a data source is accepted in the field of educational science. “A digital diary is a suitable instrument to collect different kinds of learning experiences” (Endedijk, 2010). Zwart et al. (2007) and Meirink (2007) also use digital diaries to analyse learning patterns.

The raw diary is categorized into four parts. The first is called ‘Learnings’ where the entrepreneurs are supposed to write what they learned in the past week. The second variable is ‘Results’, the entrepreneurs are supposed to explain what they achieved the last week, third what ‘Issues’ they encounter and forth, what their ‘Next steps’ will be. The data used in this research was part of another research, investigating the “effect of intensive mentoring and feedback on co-evolution of cognitive entrepreneurial cognition and of their venture” (Kaffka & Krueger, 2012, p.1).

The sample for this research is selected based on a purposeful multi-stage sample. That means that the sample was selected on a couple of characteristics. First, the sample is limited to entrepreneurs participating in the training program. Second, just the respondents with a high-tech profession were chosen. Third, respondents got selected based on their experience: entrepreneurs that are coming into existence (nascent). Finally, the amount of data was a criterion. To being able to analyse the meaning, it is important to have a comprehensive writing style. That is why the quantity of words in the diaries was fixed on min 2000 or the quantity of min 15 entries. The analysed diaries ranged from 14 to 52 entries per participant (table 1).

Finally, five nascent entrepreneurs with high-tech professions that are participating in the program were selected. The participants vary in entrepreneurial characteristics such as experience, education, age and gender. A background variable of this research is whether the participants are still running their venture, in order to identify successful learning behaviour. Also, this information might lead to the function of a best practice example and makes it possible to compare successful and unsuccessful behaviour. In table 1 an overview of the sample information is presented. For confidentiality reasons pseudonyms were assigned as names.

Table 1

Information about sample, names altered to keep business and persons unrecognized.

No	Name	Industry	Years of experience (since)	Still in business	Entries	Words
1	Andrew	High-tech product	2010	Yes	14	2248
2	Paul	High-tech product	2010	Yes	15	3533
3	George	High-tech product	2010	Yes	23	1797
4	Heather	High-tech product	2010	Yes	31	2022
5	Holden	High-tech product	2010	Yes	52	3092

Hytti et al. (2010) found that intrinsic motivation has a negative effect on learning outcomes and extrinsic motivation a positive. In this research it is assumed that all entrepreneurs from the sample have a high extrinsic motivation because “business assets are family assets [...] that puts family security and future at risk” (Gibb, 2009; p. 213).

3.2 Data analysis

Qualitative in-depth analysis is used, instead of quantitative analysis. Working with qualitative data gives the opportunity to identify activities the participants find useful. The reasoning of the participant is reliable by using qualitative data because there are no questions involved which might direct the participant into answering what the researcher asked for. “In terms of learning, it is important that the outcomes of interventions in the activities of the entrepreneur can be documented in order to know not only what has being learnt, but also how, what and why learning has taken place” (Higgins & Elliot, 2011). In such a diary, used in this research, the participants are able to express their thoughts about what they learned and how they think they learned it.

This methodology can be labelled as (1) descriptive research because we are identifying what there is and how it fits together, how something is put together; (2) developmental design research: Data is collected at different points in time of the program and the idea is to find developmental stages of entrepreneurial learning through time (the first year). (3) phenomenographic methodology because different ways of how people think within their world is being studied. It is studied how entrepreneurs experience learning.

To analyse the diaries the qualitative analysis program atlas.ti 7.0.89 was used. A code list has been developed (appendix 1). The code list shows the different codes that are investigated in this and other research. The codes were described, defined and examples were given on how the code can be recognized in the text. The ontological point of departure is Levi-Strauss & Saussure’s linguistics; semantics, the study of signal words conveying meaning, expressing socio-cultural processes (structures, functions).

The codes were assigned to quotations. Per quotation different codes can be assigned and one quotation can contain the same code twice. For example, if in one quotation two action were executed by the entrepreneur it is assigned twice to be able to count the times a possible learning activity was executed. Quotations have been selected by topic. Every topic in the diary was marked as a different quotation; sentences can be grouped together if there is a compounding word present. For example: The tree is 100 years old. *It* was planted by my grandfather. The ‘it’ would be the compounding word. This way of quotation separation gives us the possibility to catch cognitive processes, story-lines and the line of reasoning. This way of coding is called axial coding. If a code is too broad, unclear or reports just one learning activity, it is removed from the investigation, e.g. “Last two months I have learned a lot” (12:10). Unrelated learning activities are removed because every activity the entrepreneur executes could be a learning activity, investigating those does not help answering the research question. After removing there are 144 from 208 quotations left. The quotations used to report about the results are modified concerning spelling and confidential information.

To test the conceptual model in the data we look at different combinations of variables. We reduce the original coded data (the diaries) to the code we are interested in: Learning. This code contains ideas about what activities contribute to entrepreneurial learning and what the results of learning are (compare paragraph 2 & appendix 1). In this first part, learning is coded in general. In the second part of the analysis the code 'learning' was divided into the variables from the theoretical framework (paragraph 2.2.2). The code-book that was established is presented in table 2. In order to be conscious about the effects of the training program, three extra codes were established: panel – feedback, training and coach. Table 2 displays the names of the codes, a description on how they can be found in the text and an example from an actual quotation. According to this codebook (table 2) the remaining quotations are coded and all citations were added to an analysis table, which is presented in appendix 2. To investigate further details the variables, an analysis table (appendix 2) was created. Also, the analysis table was controlled for the distribution of quotes and codes per person, so that if there are more quotes with the same code they are not all from the same person. It appeared that there is no problem concerning this.

Table 2

Code-book of learning activities and learning outcomes in entrepreneurial learning process

LEARNING ACTIVITIES	Code	Definition	Coding examples and quotes
	Experience	The sum of multiple situations that affect the entrepreneur and leads towards learning.	Generally approaching something, or telling about the past: “one always has”, “people can have...”, “several times... happened”; “I am <i>more and more convinced</i> that [...]” (11:8).
	Critical event	A critical event is a triggering / discontinuous occasion, an incident or a response to an acute, serious, vital or crucial situation.	Issues: “I am struggling”, “how to” do something as a question; “We found out that <i>our job description was a bit off</i> . We got a lot candidates with too much focus on financial management, and no project management [...]” (27:9).
	Action	Any act, deed, exploit and activity that is executed by the entrepreneur and leads towards learning.	“I did ...”, “I need to do...”, visiting a conference, being busy with..., exercise, etc.; “ <i>During work for customer projects [...]</i> ” (27.1).
	Interaction	Interaction is the active encounter, contact or communication with an external party or a network.	discussing, conversing, feedback (only if not from panel presentation), spoke with..., having a meeting ~Difference between action and interaction: interaction is an encounter where two or more parties adopt an active role; “This week I had interesting <i>discussions with</i> a member of the staff [...]” (113:1).
	Panel - Feedback	If a participant gave a panel presentation and received feedback from peers, coaches and trainers.	“feedback from panel presentation”; “Had a panel presentation with <i>triggering feedback</i> ” (53:1).
	Training	If a participant took part in one of the trainings.	“participated in VLT training”; “[...] <i>Triggered by VLT course</i> “ (44:1).
	Coach	The assigned coach from the training program is involved in a situation.	Coach session, “learned from my coach”; “Learned about leadership and different leadership styles <i>in coaching session</i> ” (65:1).
	Reflection	Mediating and cognitive activity that establishes reasons for experiences, evaluates consequences and leads to learning outcomes.	“I was looking for a solution”, “thinking about”, reflective thoughts or questions; “[...] In some cases a small financial difference in job offering can determine the choice of candidate. <i>Does someone like that fit our company?</i> ” (77:1).

Table 2 (Continued)

LEARNING OUTCOMES	Knowledge	Something that is assumed to be true accepted in a certain group of people and has adequate evidence (Hilpinen, 1970).	“this fact is crucial/ important”. ”learned about...”, “getting more background”, also: useful tips, facts, etc.; “learned some (technical) details about customer processes” (16:7).
	Heuristics	Knowledge that is transformed into guidelines that are used to make decisions.	general formulated learning?, always do this, adjusting or expanding personal theories, in case of this do that; “ <i>Strategy: think about plan B if plan A should fail, products new to the world need time, build in steps and look for problems now to build up your business case</i> ” (101:8).
	Skills	Doing something with hands, not with your mind (Kraiger, Ford & Salas, 1993).	Learned about “verb”, learned how to...; “ <i>learned how to present [my company] to new potential customers</i> ” (16:8).
	Insight	Cambridge dictionary defines insights: “a clear, deep, and sometimes sudden understanding of a complicated problem or situation”.	Got new insight into..., placing knowledge in a broader context, became aware of something, finding something new. How to... (not as a question), eye opener; “I am <i>getting more insight</i> in the business aspects of technology enterprises and also in the way others look at my own company” (106:1). “[...] <i>We noticed</i> we are the only company offering this technology. [...]” (92:8).
	Transformation	Any change in personality, identity, attitude or self-awareness.	Look at something from a different perspective. How to behave, “self-discipline”; change of attitude; “ <i>Progressive change of attitude</i> towards business” (135:1).
	Behaviour	Response to a situation the entrepreneur chooses a different approach, and as a result behaves in another way than before.	“We are working on this issue”, “we fixed it”; “We found out that our job description was a bit off. We got a lot candidates with too much focus on financial management, and no project management. <i>We fixed this now</i> ” (27:9).
	Action – behaviour	Decision making.	“I decided”; “ <i>Decision</i> to strengthen efforts in marketing” (109:4).

3.3 Reliability, validity and interrater-agreement

As qualitative research is especially vulnerable for critique. In this research has been taken care about some quality requirements in order to increase the reliability and validity of this research. Which criteria in particular were devoted is explained below.

First of all, data source triangulation (Baarda et al., 2005) was used. Instead of just one case study, five cases (respondents) are analysed and combined to an investigation that is capable of saying something about the population. Secondly, interpretative awareness (Baarda et al., 2005) was applied. The researcher is aware of the subjectivity while interpreting the data and also worked with an open mind for interpretation options. The codes that were established at the beginning of the investigation, were not considered complete or correct and as new combinations or different interpretation were possible the researcher discussed with peers about the meaning, new codes and new definitions were created that reflect the situation more accurately. There has been no contact between the researcher and the participants that is why the researcher has no subjective emotions towards the data, which can indicate objectiveness.

To analyse the data researcher triangulation was practiced. This peer debriefing (Baarda et al., 2005) has been applied to increase the dialogic reliability. Dialogic reliability decreases possible misunderstandings with others about the encoding of the qualitative data. Together with two colleagues the code-book has been adjusted to develop an objective meaning. After analysing the first diary (93 quotes) a meeting was organized to discuss the coding, with the goal to adjust and fine-tune the codebook. Then, the second diary was analysed half (89/147 quotes) and again is reviewed and discussed. After that two more diaries (408 quotes) were coded and then taken into account for the interrater-reliability (Baarda et al., 2005). Decisions concerning different coding were made on mutual agreement, mostly based on the definition in the code-book and if there was no plausible explanation yet, a definition was added to the code-book. The interrater-reliability analysis on basis of Cohen's kappa (interrater-reliability) was calculated: The observed percentage agreement is (.71). The Cohen's kappa was calculated with a value of 0.1 as probability of random agreement because there are ten main categories as explained in the codebook that were strictly assigned to the quotations. The Cohen's kappa was 0.68, which is substantial (Landis & Koch, 1977).

4. Results

In this section of the research paper the results are presented. First, all reported learning activities and outcomes are presented (4.1). Then, these are further analysed regarding their relations to each other in paragraph 4.2. In order to increase the readability, spelling and simple grammatical adjustments were made the quotations from the diaries; without falsifying the meaning.

4.1 Reported learning activities and outcomes

All expected learning activities and outcomes were reported in the diaries. Investigated are 152 reported learning outcomes (LOs). As displayed in table 4, reported were 57 times knowledge, 30 insights, 29 skills, 12 heuristics, 12 transformations and 12 behaviours. Only 93 of the 152 learning outcomes were explicitly related to a learning activity. The other 59 learning outcomes were not explicitly related to a learning activity in the diaries.

Next to the learning outcomes 100 learning activities (LAs) were detected: 31 actions, 22 interactions, 15 events, 14 trainings, 6 reflections, 6 panel – feedback, 4 coaches and only 2 experience codes were identified (table 3). In our sample 53% of the 100 activities are explained by 53% action and interaction, 24% is ascribed to the participation in the training (training, panel – feedback, coach), and 23% are explained by critical events, reflections and experience.

Table 3

Amount of reported learning activities

Learning activity	amount / %
Action	31
Interaction	22
Critical event	15
Training	14
Reflection	6
Panel – feedback	6
Coach	4
Experience	2
TOTAL	100

Table 4

Amount of reported learning outcomes

Learning outcome	amount	Related to LA
Knowledge	57	40
Insight	30	19
Skill	29	16
Behaviour	12	10
Heuristic	12	4
Transformation	12	4

4.2 Relations between learning activities and learning outcomes

As pointed out above the learning activities are related to 93 of the learning outcomes. How the learning activities are related to the learning outcomes is explored in this paragraph. Numerous relations are detected in the data. It was found that a learning outcome can also function as a learning activity, as in some cases a LO can lead to another LO or even to a LA. In figure 1, the different relations are displayed. In this research not all learning outcomes were related to a learning activity.

The numerous relations can be assigned to 11 different patterns (figure 1). In these 11 different patterns 145 relations can be allocated. The different patterns, displayed in figure 1, were identified in the data: they can be classified as direct and mediating influences. Influences

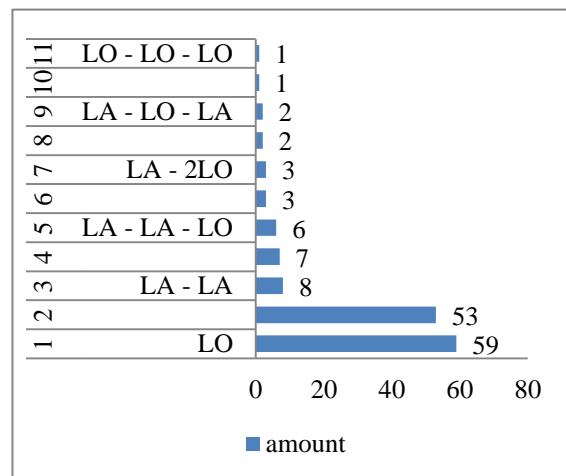


Figure 1: Learning patterns found in the data

are characterized as direct if the first and the last variable led to each other. Direct influences are pattern 2, 3, 6, 7, 8 and 10. Within these patterns there is a discrepancy in the amount of learning activities and learning outcomes, e.g. in pattern 7 one learning activity leads to two learning outcomes and in pattern 10, three different learning activities lead to one learning outcome. Mediating influences, thus relations where the first and last variable are connected via another variable (the mediating variable.) Those are found in pattern 4, 5, 9 and 11. Different constellations of learning activities and learning outcomes were reported. Pattern 4, 9 and 11 have a learning outcome as mediating variable whereas pattern 5 has a learning activity as mediating activity. Pattern 6, 8 and 11 are different as they do not start with a learning activity, but with a learning outcome.

The different patterns can be classified in different relations as there are 8 different learning activities and 6 different learning outcomes. The most occurring results of all patterns are discussed below.

Pattern 1: LO

The most occurring pattern is the reported learning outcome without a relation to a learning activity. The distribution of the variables is demonstrated in figure 2. It is noticeable that the most reported LOs were knowledge, then skills and insights. Less often reported were heuristics, transformation and behaviour. If a learning outcome is unrelated to a learning activity, it can still be assumed that it might be based on experience or training program, like in the examples below:

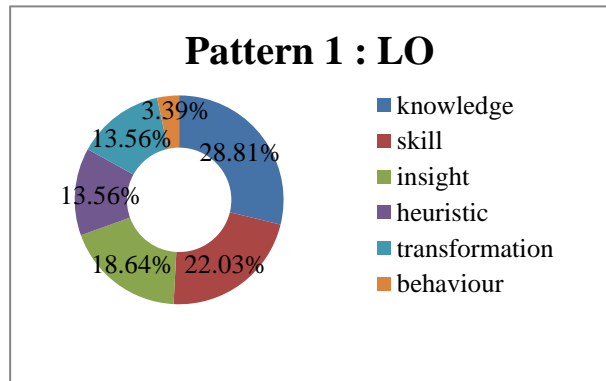


Figure 2: distribution of codes in pattern 1

“Learned more about advantages/ disadvantages of the different technologies” (18.2).

“Learned about different methods of business valuation and the way VC look and negotiate about the interest used in business valuation” (62.1).

Pattern 2: LA - LO

In total 56 relations of this pattern were identified in the data. The distribution of the variables is presented in table 5. The most learning outcomes derive from action (17) and interaction (15), followed by critical events (8), and training (6). The variables that least explain learning outcomes are experience (2) and coach (3). Below, the function of the most occurring variables is discussed.

Table 5

Results LA to LO, excluding panel – feedback (treated like LA - LA)

	Knowledge	Insight	Skill	Heuristic	Transformation	Behaviour	Total
Action	4	4	5			4	17
Critical event	4		3		1		8
Experience	1		1				2
Interaction	10	2	3				15
Reflection		2					2
Training	3		1	2			6
Coach	2	1					3
Total	24	11	13	2	2	4	56

Action seems important because it leads to many different learning outcomes. As only variable, action leads to four different learning outcomes. These are skills (5/17; example 1), knowledge (4/17; example 2), insights (4/17; example 3) and behaviour (4/17; example 4). Examples:

- (1) “Lead-user method is something we applied but I got more insight in how lead-user studies can be organised” (52.1).

- (2) “some technical developments in the field of nanotechnology; learned at the micronano conference (22.1)”.
- (3) “Visited a conference with all (top) players in our business in Germany: insight into technology development of ultra-short pulsed lasers (37.1).
- (4) “Decision to strengthen efforts in marketing” (109.4).

Interaction leads to knowledge in most cases (10/15). Interaction can also lead to insight (2/15) and skills (3/15). The most important function of interaction is getting information that lacked before, details an entrepreneur was not aware of before. Most of the time knowledge derives during conversation:

“This week I had interesting discussions with a member of the staff [...] on the way venture capitalists look at the business propositions of start-ups. We received valuable feedback regarding our current business plan as well as advice on how to approach investors” (113.1).

Critical events can lead to knowledge (4/8), skills (3/8) and transformation (1/8). Critical events have an important role regarding knowledge, gaining new skills and transformation. Through critical events the awareness of how to handle situations and the working life are increased:

“Learning on negotiation, a supplier delivered very late. After short negotiation we came to half the agreed price with good mutual feeling” (45.1).

Training leads to knowledge (3/6), skills (1/6) and heuristics (2/6). The training usually teaches about different subjects within the field of entrepreneurship, management, finances, etc. In most cases the entrepreneurs get to know facts, theories and experiences of others:

“I could attend the training given by Prof. [Smith]. This training was very valuable and great learning experience. I could learn a lot about reputation management, handling difficult situations in organisation, selecting partners for the venture. Certificate distribution of a venture than total share. Last but not least, how to find suitable employee for the venture” (14.4).

The only variable in this pattern that leads to heuristics is training. This emphasizes that training has an important function to entrepreneurs in our sample. Training can instruct and advise the entrepreneur about practical and helpful procedures and principles.

“A business model is a living model. Needs to be reviewed regularly. Triggered by VLT course” (41.1).

Pattern 3: LA – LA

This pattern occurs way less than the first two patterns, just 8 out of the total (154). In figure 3 the distribution is displayed. It attracts attention that 75% of this pattern starts with a critical event. If a critical event is given, most of the time, it leads to an action. It can also lead to an interaction and sometimes an entrepreneur reflects on the critical event. If a critical event is not the triggering learning activity; it is either training or coach. This means that either a critical event (example 1) or the training program (example 2) triggers the entrepreneur to deal with a problematic subject:

- (1) “The biggest issue at such time is how to give sufficient time for my own venture while working for others? I am getting very good support from my coach in this regards” (12.4).
- (2) “Triggered by a VLT course on bookkeeping, I have been trying to acquire more knowledge in business finances” (130.1).

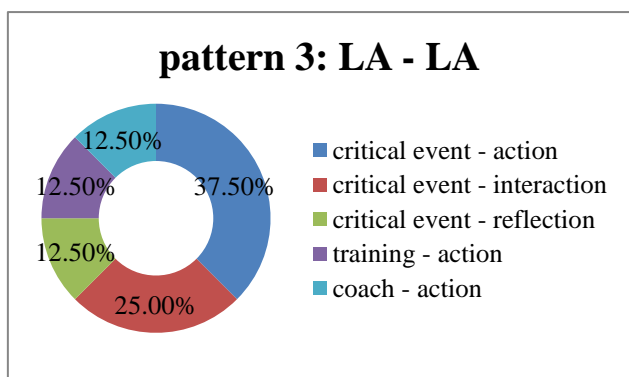


Figure 3: distribution of codes in pattern 3

Pattern 4: LA – LO – LO

This pattern occurs seven times out of the total amount of identified patterns (154). This is the most occurring pattern with three variables involved. In this pattern the first learning outcome becomes a mediating activity and all relations just appear once (figure 4).

In five of the seven relations training is the triggering learning activity. Four of the five times (where training is triggering) knowledge is the mediating variable. The mediating variable is in all cases either knowledge (5/7) or insight (2/7).

In this pattern the entrepreneur is reacting to what he has learned and uses this new knowledge or insight to improve proceedings in the venture:

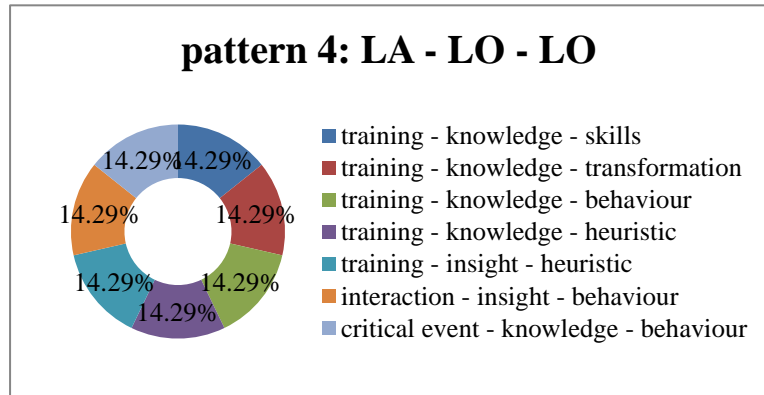


Figure 4: distribution of codes in pattern 4

- (1) “Attended the lecture of [Mr Jones] about learning. My main learning is that entrepreneurs tend not to look back and analyse what happened for learning. It is important to plan "moments to look back" to enhance the already great learning trajet of being and entrepreneur” (46.1).
- (2) “We contacted leading innovators in material processing. We noticed we are the only company offering this technology. We changed our approach. We defined a virtual product based on the most promising industry. This helped to speed up our sales process and product development by selling the prototype and offer a lead user scenario in order to develop the product which has the best fit for use” (92.8).

Pattern 5: LA – LA – LO

This is the second most occurring pattern with three variables involved. The distribution of codes in this pattern is displayed in figure 5. In this pattern the second learning activity becomes a mediating variable. Mediating variables are feedback, interaction and reflection. These mediating variables are either stimulated by the training program or an action. It leads to knowledge, insights or transformation. This pattern was identified six times. In three of the six times the first and second learning activities are panel – feedback. The combination of panel and feedback has a crucial function as feedback from others can attend the entrepreneur of mistakes or advise a better approach:

“Had a panel presentation with triggering feedback. How to approach the telecom market: it might not be good to approach the big companies first” (53.1).

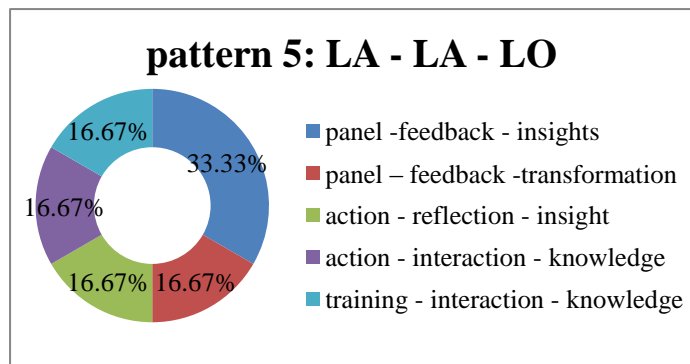


Figure 5: distribution of codes in pattern 5

Pattern 6: LO – LO

This pattern only occurs three times out of 154. In this pattern a learning outcome transforms in a learning activity. The distribution is that only once the acquisition of new knowledge leads to insight and twice insight leads to a change in behaviour. The function of this pattern is that if new knowledge is gained, the entrepreneur recognizes that he needs react:

“We are aware that we need to strengthen the marketing and sales front. We are working and it” (113.3);

Pattern 7: LA – 2LO

Like pattern 6 this pattern occurs three times out of 154. Only one learning activity leads to different learning outcomes, this is an efficient way to increase learning outcomes. Distribution: twice an action leads to both knowledge and skills and once an interaction leads to both new knowledge and a transformation. Conversing with other people increases the knowledge or can trigger transformation:

Last week I spoke to an investor which gave some useful tips and made me look at our value proposition in a different way” (100.1).

The next example shows that through interest in a certain subject the entrepreneur makes a visit that is how and why the entrepreneur gains new skills and knowledge:

“We visited Silicon Valley and have been (trained in) pitching, top 10 start-up mistakes, provisional patents (and the difference with NL)” (103.1).

Pattern 8: LO – LA

This pattern was found twice in the data. Like in pattern 6 in this pattern a learning outcome becomes a learning activity, but different from pattern 6. Here the learning outcome does not directly lead to another learning outcome, but it leads to an activity. Based on acquired knowledge or new insight the entrepreneur takes a step forward in anticipating the company’s future:

- (1) “Not everybody negotiates. In some cases a small financial difference in job offering can determine the choice of candidate. Does someone like that fit our company?” (77.1).
- (2) “Also important is your US IP, which is much different from the Dutch. In NL there is a detailed look into the technology where US is looking at this from a marketing perspective. (Provisional) patents describe a segmented solution. We will get a US IP workshop in December so we can file different provisional patents so we can move forward” (103.5).

Pattern 9: LA – LO – LA

This pattern also occurs twice in the data. In this pattern the learning outcome is the mediating variable between two learning activities. The two relations both start with an action, one mediating variable is knowledge and the other is insight. The knowledge leads to action, the insight to reflection. The learning outcome stimulates the entrepreneur to act and to think, the entrepreneur reacts to a new learning; similar to pattern 6 and 8.

“Reading creativity book. Understanding how the mind works and why standard/known solutions are the first to think of. Selected some exercises to train creativity“(51.1)

Pattern 10: 3LA – LO

This pattern appears merely once in the sample. The combination of action, training and interaction helps the entrepreneur to understand better about a specific subject. Through taking initiative by himself (action), participating in the lecture (training) and getting help from peers (interaction) make the entrepreneur understand better about tax issues. The entrepreneur gets more familiar with the subject and becomes able to handle it by dealing with this complicated issue in different ways.

“[...] in last 2 weeks I mainly dealt with Tax issues. It was also valid because I have to do BTW for 4th Quarter in 2009 and also because we had a dedicated lecture on Tax issues at VLT on 22nd Jan 2010. Tax issues always use to scare me, mainly because of its complicated laws and owing to language issue. I must admit that I am getting much familiar with Tax issues for starting entrepreneurs like me. My fellow VLT mates also helped me lot to understand about this subject” (4.8).

Pattern 11: LO – LO – LO

This is a special case that only appeared once in the data. A learning outcome leads to learning outcome and triggers a learning outcome, more detailed: knowledge leads to a change in behaviour, which is the reason for gaining new knowledge. Thus the change in behaviour can be seen as a learning outcome in the first place, but in the second place it is a learning activity that stimulates knowledge acquisition. The learning transforms continuously from learning to action to learning. Like in pattern 6, 8, and 9 the entrepreneur does something with the new gained learning. Learning stimulates the entrepreneur to explore.

“What we learned is that sales [help] by specif[ying] products or services. We started by searching for applications to define common specifications in different industries. This makes the sales process more difficult and takes a lot of time” (92.1).

5. Conclusion and discussion

The present study was designed to determine *what promising learning activities and processes are with regard to successful entrepreneurs?* Therefore, the learning processes of successful entrepreneurs were interpreted. In this paragraph, conclusions will be drawn (5.1) and theoretical and practical implications are determined (5.2). Also, the strength and weakness of this research are being discussed and advice is given for future research (5.3).

5.1 Conclusions

It appears that the learning process of entrepreneurs can adopt different structures or patterns. Learning activities and learning outcomes of successful nascent entrepreneurs were explored and categorized into 11 different learning patterns. The 11 learning patterns consist of different combinations of the learning activities (action, critical event, experience, interaction, reflection) and learning outcomes (knowledge, skills, insights, heuristics, transformation of the individual and behaviour change). The different patterns can be divided into direct and mediating structures. Direct structures have a direct influence between a learning activity and a learning outcome. Mediating structures contain more than two variables where the mediating variable can be interaction, reflection, knowledge or insight. Reflection was earlier identified as mediating learning activity (Pittaway et al., 2009), but this research identifies additionally interaction, feedback, knowledge and insights. Reflection was not found to be as influential as pointed out in prior research, but the other mediating variables seem to adopt that function. Mediating variables are relevant to the successful entrepreneurial learning process because they support the learning process. The learning process expands, but through the mediating variable an activity comes to an outcome.

In interaction the entrepreneur gains important information and advice mostly through conversing. Interaction is not about observing the behaviour of others as Meirink (2007) states. It is more about taking advice and learn from active encounters like conversing and discussing. Valuable feedback and support help the entrepreneur more than reflection because in self-reflection one reflects from one point of view (the own), with a certain knowledge and experience to reflect from. Through interacting and reflecting together, knowledge and experience gets bundled and has positive influences on entrepreneur's performance (Hytti et al., 2010). For successful entrepreneurs knowledge and insight, gained through interactions, become a trigger to react, to do something with the knowledge and use it for their businesses advantage and anticipate the future. Also, to critical events entrepreneurs react. Entrepreneurs have to take initiative to become familiar with the discontinuous. This is important in order to adapt optimally to the environment, which has a major impact on the survival of a venture (Cordon et al., 2011).

Next to mediating variables and critical events also action has an important function to entrepreneurial learning. Action leads to many different learning outcomes, unlike the other learning activities. This is not surprising as the most accepted theories in the field (paragraph 2.2.1) already draw this conclusion. This research confirms Pittaway et al. (2009): action theory contributes to successful entrepreneurship.

That means the variables that seemed to be relevant in the literature were adopted: action, interaction and critical events (Cope, 2003, Higgins & Elliot, 2011, Pittaway et al., 2009, Rae & Carswell, 2000). The influences of reflection and experience in this sample were rather small and therefore insignificant. The inadequate influence of experience can be explained by the definition that was used in this research. If the definition of experience would be a specific situation or particular learning activity like an action or a critical event, experience could be added to the list of confirmed variables.

The minor influences of reflection can maybe be traced back to either the other mediating variables or the training program. The training program (trainings, coach and panel presentations) influenced about ¼ of all learning outcomes. The statement of stimulating ““real life” experience through formal modes of passive education and training are unlikely to have a strong influence or impact on the development of the entrepreneur as a practitioner” (p. 357) by Higgins and Elliot (2011) is, therefore, undermined. The training had especially influences in the mediating structures. Thus the program does not directly influence the success, but through the training program, successful entrepreneurs can translate learning

into outcomes that are beneficial for their business. As Deakins and Freel (1998) stated, it is crucial to have the know-how to take advantage of experience. This research also concludes that directed learning activities have an important function to entrepreneurial learning because it appeared that they can lead to more than one learning outcome, thus directed learning activities can be efficient. Directed learning activities usually are triggered by interest or need.

5.2 Practical and theoretical implications

In this paragraph the conclusions will be translated into practical and theoretical implications. In this investigation, the aim was to identify promising learning activities so entrepreneurs become successful.

Mediating variables support the sense making process of transforming learning activities into learning outcomes. Comparing reflection in the literature with the results achieved in this research, it can be suggested that interaction works better than reflection. Others helping the entrepreneur is a valuable activity leading to successful learning and thus to successful entrepreneurship.

Nevertheless, it can be distinguished between directed and incidental learning activities. Learning activities that occur during a working life (incidental translated into learning activities like action, interaction or critical event) can be an effective tool, but also directed learning activities like a training program are influencing the success of a venture. Entrepreneurs should not only take learning opportunities (incidental) but they should create learning opportunities (directed) because especially directed learning activities, like and similar to the training program, turned out to be efficient. In this matter this research supports Higgins and Elliott (2011), who say that “learning and the opportunities to learn are at the centre of entrepreneurial practice” (p.345).

To summarize promising learning activities and processes concerning successful entrepreneurs: Successful entrepreneurs...

- interact with others, mostly to gain information and tips,
- take advantage of learning outcomes (like accepting feedback) and
- create learning opportunities, e.g. in the form of trainings.
- react to cues in order to anticipate the future of their venture,
- take actions through their working life and exploit learning opportunities

5.3 Limitations and further research

Every research has strength and weaknesses. In this research it is important to be aware of the influences of the theory that is explored in the theoretical framework. The theory is used to analyse the data, which means that the perspective on this data is influenced by bias and it is possible that variables were overlooked. Looking at the data from the perspective of grounded theory could reduce this limitation. Not only is the theory biasing the view on the data, also the subjective view of the researcher while interpreting qualitative data has negative effects on reliability. The researcher tried to avoid a personal view, but it cannot be avoided completely.

Another possible bias is the data collection might be caused by the structure of the diaries. As mentioned in the method, the diaries were divided into four categories. Measurement bias is possible because of the structure of the diaries. The participants were not explicitly asked to report learning activities or learning outcomes, what could have had a clarifying role for interpreting the data, but entrepreneurs interpreted the structure differently. Also, the participants might write something different without structure or with another structure. Besides, it probably has influenced the coding: when a quotation was headed under learning, the possibility that it was coded learning is higher than the same quotation under a different header would be coded. Additionally, the diary is an instrument that is just a replication of what someone thinks and thus is just an indication of the total amount of what an entrepreneur has learned and how he learned because only the cognitive processes the entrepreneur is aware of are displayed. Furthermore, it is possible that because of e.g. workload or other possible incident the entrepreneur did not report everything. This could be one explanation for the fact that reflection was not found to be very influential in this sample. Another bias can emerge because the codes are

sometimes ambiguous, e.g. experience versus critical event and action versus interaction, knowledge versus insight or heuristic.

The sample in this research is very small, but relatively large for a qualitative case study. But, through analysing just a small sample it was possible to look at different cases. A lot of details and ideas about the behaviour of entrepreneurs in the investigated population can be said by integrating those cases. Moreover, it was possible to challenge theoretical assumptions from prior research. Unfortunately there is not a large population of nascent, successful entrepreneurs in the high tech industry available. To increase the reliability, in further research, it would be interesting to look at a larger sample or otherwise use more data sources (data triangulation) or compare different populations, for example this sample with not successful entrepreneurs, or experienced entrepreneurs. It is not possible to generalize from this sample to the whole population because the sample is chosen by purposeful and multi-stage sampling, not by random sampling and is limited to participants of the training program which eventually influences the outcome. However, the results give a theoretical implication on what to further expect by analysing similar populations. Because of the small sample it is needed to test the accuracy and completeness of the conclusion. Maybe it is possible to investigate this subject quantitatively.

In this research we did not look at the growth of the company, but for future research it is interesting to take this factor into account, in order to look what the perfect growth is for nascent entrepreneurs; what is possible to handle under which conditions and how it relates to learning behaviour. Then it actually can be concluded what needs to be learned in which phase of growth. This might help entrepreneurs to adjust their learning behaviour towards high growth without failure. Next to the growth factor it would be interesting to look at the development of the business and the entrepreneur in the second or further years: how success and learning relate in a later phase of start-up.

Grégoire et al. (2011) already advised to see learning in entrepreneurship more as a process. It is important to figure out the functions of the different components of the process, to understand better the way entrepreneurs learn, so one can stimulate the entrepreneur towards learning outcomes. Especially interesting would be to identify and compare the functions of interaction and reflection. Influences of mediating variables in general should be further explored.

Interesting is that not only in entrepreneurship the learning activities identified in this research are valid, but also in teacher learning. For example, Meirink (2007) identifies experimenting, reflecting, learning from others (without interaction) and learning from others as learning activities. Probably it is possible to not only look at entrepreneurship and management functions the same way, but broader, e.g. adult education. It would be interesting to compare and combine results from different fields.

The entrepreneur gets aware of what he has learned by filling in the diaries. Entrepreneurs that do not report learning, probably are less aware of having learned something. Awareness can explain the high influence on learning outcomes that derived from the training program. This means that the conclusion on the efficiency of the training program can be biased. Further research is needed to explore why the program works for the participants in this sample and why it did not for participants of the same program. Also, the general effects of training programs in comparison to no training program can have value for the field of entrepreneurship. Maybe learning activities or outcomes in the working life are stimulated by a training program.

References

- Arrow, K. J. (1962). The economic implications of learning by doing. *The review of economic studies*, 29(3), 155-173.
- Baarda, D., De Goede, M., & Teunissen, J. (2005). *Basisboek kwalitatief onderzoek. Handleiding voor het opzetten en uitvoeren van kwalitatief onderzoek*. Groningen: Noordhoff.
- Bhave, M. P. (1994). A process model of entrepreneurial venture creation. *Journal of Business Venturing*, 9(3), 223-242. doi: 10.1016/0883-9026(94)90031-0
- Bosma, N., van Praag, M., & De Wit, G. (2000). Determinants of successful entrepreneurship. Zoetermeer: EIM Small Business Research and Consultancy.
- Cardon, M. S., Stevens, C. E., & Potter, D. R. (2011). Misfortunes or mistakes?: Cultural sensemaking of entrepreneurial failure. *Journal of Business Venturing*, 26(1), 79-92. doi: 10.1016/j.jbusvent.2009.06.004
- Carland, J. W., Hoy, F., Boulton, W. R., & Carland, J. A. C. (1984). Differentiating entrepreneurs from small business owners: A conceptualization. *Academy of Management Review*, 9(2), 354-359. doi: 10.5465/AMR.1984.4277721
- Cope, J. (2003). Entrepreneurial learning and critical reflection discontinuous events as triggers for 'higher-level' learning. *Management Learning*, 34(4), 429-450. doi: 10.1177/1350507603039067
- Corbett, A. C. (2005). Experiential learning within the process of opportunity identification and exploitation. *Entrepreneurship Theory and Practice*, 29(4), 473-491. doi: 10.1111/j.1540-6520.2005.00094.x
- Deakins, D., & Freel, M. (1998). Entrepreneurial Learning and the Growth Process in SMEs. *Learning Organization*, 5(3), 144-155. doi: 10.1108/09696479810223428
- Endedijk, M. D. (2010). *Student teachers' self-regulated learning*. (PhD), Utrecht University, Utrecht.
- European Commission. (2011). Business dynamics: start-ups, business transfers and bankruptcy. Retrieved from http://ec.europa.eu/enterprise/policies/sme/business-environment/files/business_dynamics_final_report_en.pdf
- Fenwick, T. (2003). Innovation: Examining Workplace Learning in New Enterprises. *Journal of Workplace Learning*, 15(3), 123-132. doi: 10.1108/13665620310468469
- Gartner, W. B. (1985). A conceptual framework for describing the phenomenon of new venture creation. *Academy of Management Review*, 696-706.
- Gibb, A. (2009). Meeting the Development Needs of Owner Managed Small Enterprise: A Discussion of the Centrality of Action Learning. *Action Learning: Research and Practice*, 6(3), 209-227. doi: 10.1080/14767330903299415
- Gilbert, D. H. (2012). From Chalk and Talk to Walking the Walk: Facilitating Dynamic Learning Contexts for Entrepreneurship Students in Fast-Tracking Innovations. *Education & Training*, 54(2-3), 152-166. doi: 10.1108/00400911211210260
- Gondim, S. M. G., & Mutti, C. (2011). Affections in Learning Situations: A Study of an Entrepreneurship Skills Development Course. *Journal of Workplace Learning*, 23(3), 195-208. doi: 10.1108/13665621111117224
- Grégoire, D. A., Corbett, A. C., & McMullen, J. S. (2011). The cognitive perspective in entrepreneurship: an agenda for future research. *Journal of Management Studies*, 48(6), 1443-1477. doi: 10.1111/j.1467-6486.2010.00922.x
- Handbook VLT. (2012). Enschede: Venture Lab Twente.
- Harkema, S. J. M., & Schout, H. (2008). Incorporating Student-Centred Learning in Innovation and Entrepreneurship Education. *European Journal of Education*, 43(4), 513-526. doi: 10.1111/j.1465-3435.2008.00372.x
- Hegarty, C. (2006). It's Not an Exact Science: Teaching Entrepreneurship in Northern Ireland. *Education & Training*, 48(5), 322-335. doi: 10.1108/00400910610677036

- Higgins, D., & Elliott, C. (2011). Learning to Make Sense: What Works in Entrepreneurial Education? *Journal of European Industrial Training*, 35(4), 345-367. doi: 10.1108/03090591111128324
- Hilpinen, R. (1970). Knowing that one knows and the classical definition of knowledge. *Synthese*, 21(2), 109-132.
- Hytti, U., Stenholm, P., Heinonen, J., & Seikkula-Leino, J. (2010). Perceived Learning Outcomes in Entrepreneurship Education: The Impact of Student Motivation and Team Behaviour. *Education & Training*, 52(8-9), 587-606. doi: 10.1108/00400911011088935
- Kaffka, G., & Krueger, N. F. (2012). From Grand Idea to Viable Execution: How Do Ventures and Entrepreneurs Co-Evolve? Available at SSRN 2098031. doi: 10.2139/ssrn.2098031
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development* (Vol. 1): Prentice-Hall Englewood Cliffs, NJ.
- Kraiger, K., Ford, J. K., & Salas, E. (1993). Application of cognitive, skill-based, and affective theories of learning outcomes to new methods of training evaluation. *Journal of applied psychology*, 78(2), 311. doi: 10.1037/0021-9010.78.2.311
- Landis, J.R. & Koch, G.G. (1977). "The measurement of observer agreement for categorical data". *Biometrics* 33 (1): 159-174. doi:10.2307/2529310.
- McGrath, R. G. (1999). Falling forward: real options reasoning and entrepreneurial failure. *Academy of Management Review*, 24(1), 13-30. doi: 10.2307/259034
- Meirink, J. (2007). *Individual teacher learning in a context of collaboration in teams*. (PhD), Leiden University, Leiden.
- Pittaway, L., Missing, C., Hudson, N., & Maragh, D. (2009). Entrepreneurial Learning through Action: A Case Study of the Six-Squared Program. *Action Learning: Research and Practice*, 6(3), 265-288. doi: 10.1080/14767330903299480
- Rae, D., & Carswell, M. (2000). Using a life-story approach in researching entrepreneurial learning: the development of a conceptual model and its implications in the design of learning experiences. *Education+ Training*, 42(4/5), 220-228. doi: 10.1108/00400910010373660
- Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 243-263. doi: 10.2307/259121
- Shane, S., & Venkatarman, S. (2000). The Promise of Entrepreneurship as a Field of Research. *Academy of Management Review*, 25(1), 217-226. doi: 10.2307/259271
- Shane, S., & Venkataraman, S. (2001). Entrepreneurship As a Field of Research: A Response to Zahra and Dess, Singh, and Erikson. *Academy of Management Review*, 26(1), 13-16. doi: 10.5465/AMR.2001.27879269
- Van Berkel, H., & Bax, A. (2006). *Toetsen in het hoger onderwijs*. Houten: Bohn Stafleu van Loghum.
- Van Gelderen, M., van de Sluis, L., & Jansen, P. (2005). Learning opportunities and learning behaviours of small business starters: relations with goal achievement, skill development and satisfaction. *Small Business Economics*, 25(1), 97-108. doi: 10.1007/s11187-005-4260-1
- Zwart, R., Wubbels, T., Bergen, T. C., & Bolhuis, S. (2007). Experienced teacher learning within the context of reciprocal peer coaching. *Teachers and Teaching: theory and practice*, 13(2), 165-187. doi: 10.1080/13540600601152520

Note: The entire research, including appendices can be retrieved (marinastroer@gmail.com).