

**ENTREPRENEURSHIP AND ENTREPRENEURSHIP
TRAININGS: EXAMINING SHORT- AND LONG-TERM
EFFECTS**

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CHAPTER 1

General introduction to a psychological perspective on entrepreneurship and entrepreneurship trainings

1.1 Entrepreneurship and Entrepreneurship trainings

In this dissertation I will investigate success factors in the field of entrepreneurship, especially entrepreneurship training, from a psychological perspective. In particular, I argue that the identification of certain psychological aspects helps to better understand the underlying mechanisms for successful entrepreneurship trainings and thus, enables successful entrepreneurship. Entrepreneurship is defined as the process of discovering, evaluating, and exploiting business opportunities to create goods or services (Shane & Venkataraman, 2000).

Investigating success factors in entrepreneurship is important for several reasons.

Scholars have noted in different reviews of research on the impact of entrepreneurship on the economy, that entrepreneurship is highly beneficial for the economic development on a macro as well as on a micro level (Carree & Thurik, 2003; van Praag, Versloot, Praag, & Versloot, 2007): In particular, entrepreneurship has a positive impact on productivity growth and employment creation (Thurik, Carree, van Stel, & Audretsch, 2008; van Praag et al., 2007). Additionally, findings show that entrepreneurship also has an impact on people's personal development. For example, research provides evidence that entrepreneurship has a positive effect on people's life satisfaction (Andersson, 2008; Benz & Frey, 2008; Blanchflower, 2004; Bruce C. Martin, McNally, & Kay, 2013). Thus, it seems worthwhile to promote entrepreneurship through education and trainings. Especially in the context of developing countries, promoting entrepreneurship is an effective strategy to meet the needs of weak labor markets and to reduce poverty (Bischoff, Gielnik, & Frese, 2014; Gielnik & Frese, 2013). Martin, McNally and Kay (2013) provided meta-analytical

proof for the fact, that entrepreneurship programs are effective in promoting entrepreneurial skills, intentions, start-up, and performance (Bruce C. Martin et al., 2013). Furthermore, there is evidence, that skills and knowledge are particularly important in developing countries for successful entrepreneurship (Unger, Rauch, Frese, & Rosenbusch, 2011). Thus, it is not surprising that in the last years, the number and diversity of entrepreneurship education and training programs has substantially increased in many developing countries (Kabongo & Okpara, 2010; Klandt, 2004; Solomon, 2007).

With the importance of entrepreneurship trainings in developing countries as the background for this dissertation, I will examine some of the driving forces that lead to success in entrepreneurship in general as well as in entrepreneurship trainings.

1.2 Entrepreneurship trainings: Research gaps

Although the literature on entrepreneurship trainings is growing (e.g. Kuratko, 2005), there are still several gaps in the research on entrepreneurship trainings.

First, meta-analytical findings conclude that studies evaluating entrepreneurship trainings lack proper theoretical grounding (Martin et al., 2013). Furthermore, there are several methodological problems that these studies suffer from, such as a lack of basic controls in the form of pre-post-testing, a lack of longitudinal measurements, and a lack of randomized control groups (Glaub & Frese, 2012; Henry, 2004; Honig, 2004; Mckenzie & Woodruff, 2012; McMullen & Shepherd, 2006; Souitaris, Zerbinati, & Al-Laham, 2007; von Graevenitz, Harhoff, & Weber, 2010).

Second, the examination of short- and long-term effects of trainings is often neglected when it comes to the evaluation of entrepreneurship training outcomes (Martin et al., 2013; Mckenzie & Woodruff, 2012). The evaluation of short- and long term effects are especially important because there are factors that are enhanced during or shortly after the training. There are also other factors that need time to unfold or develop over time (Mckenzie & Woodruff, 2012). All these drawbacks preclude an unambiguous interpretation of the results and the development of proper theoretical models to explain the effects of entrepreneurship trainings.

Third, with regard to the content of the research focus, scholars have stated that the investigation of training outcomes should go beyond the traditional performance constructs and examine more philanthropic outcomes, such as subjective well-being (Shepherd & Haynie, 2009). Additionally, recent studies demand, that researchers focus more on relational and affective aspects of the learning process within the training (Rangel et al., 2015; Towler, Arman, Quesnell, & Hoffman, 2014).

Thus, the evaluation of entrepreneurship trainings needs an elaborated examination of short- and long term effects, as well as a thematic extension towards more unconventional perspectives.

1.3 The Conception of the Dissertation

The conception of this dissertation is structured in the following way.

In the second chapter¹ I theoretically examined planning as a fundamental action an entrepreneur has to undertake in order to succeed. Scholars of the action theory argue, that entrepreneurial intentions are necessary to start a business, but the decisive action an entrepreneur has to undertake is to formulate these intentions into concrete plans (Frese & Zapf, 1994; Gollwitzer, 1999; Heckhausen & Gollwitzer, 1987). Meta-analytical findings on the factors of successful entrepreneurship reveal that planning is crucial to the process of starting a business (Brinckmann, Grichnik, & Kapsa, 2010). Nonetheless, scholars are in disagreement about it (Brinckmann et al., 2010; Honig, 2004). In the second chapter I provide a comprehensive overview of the advantages and disadvantages of planning in entrepreneurship from a psychological perspective. I explain negative aspects (e.g., lack of knowledge, difficulty to predict the future, and inflexibility) as well as positive aspects (e.g., legitimating, action-regulatory, and learning function) about planning in entrepreneurship. Furthermore, I develop a theoretical model that combines both the positive and negative aspects of planning in entrepreneurship. With this theoretical model, I integrate different types of planning (e.g., formal and informal plans) as well as positive and negative functions of planning

¹ This chapter was co-authored by Michael Frese (National University of Singapore) Michael M. Gielnik

(e.g., learning or stickiness, inflexibility) to provide a first approximation for a theory of entrepreneurial planning.

In the third chapter, to focus on the field of entrepreneurial trainings, I empirically examine the under-researched field of the relation between trainer and trainee. Entrepreneurship educations and trainings have been mostly researched with the focus on outcome variables and transfer (e.g. Salas & Cannon-Bowers, 2001). However, the fact that entrepreneurship training is a learning situation, where knowledge is transferred from the trainer to the trainee, has been mostly neglected (Bell, Towler, & Fisher, 2011; Harris, Chung, Hutchins, & Chiaburu, 2014; Towler et al., 2014; Towler & Dipboye, 2001; Varela, Cater III, & Michel, 2011). I use the transformational leadership theory (Bass, 1985) and a theory of learning outcome (Kraiger, Ford, & Salas, 1993), to hypothesize that the trainers' charisma has a positive effect on the trainees' entrepreneurial self-efficacy. Additionally, I search for possible moderators for the hypothesized trainer-trainee-relationship in an explorative manner, using insight from different research areas (e.g., pedagogy, philosophy). To test the hypotheses, I conducted a 12-week entrepreneurship training by which I had 12 measurement waves across four classes with 116 students and 9 trainers, which lead to 919 observations.

In the fourth chapter, to broaden the perspective on the mechanisms within entrepreneurship training, which lead to a successful outcome, I empirically examined the short- and long-term effects of entrepreneurship training on life satisfaction. To do so, I developed a theoretical model based on theories of life satisfaction, that explain the underlying mechanisms of the short- and long-term effects of the entrepreneurship training on life satisfaction. With this model I hypothesize, that entrepreneurship training has a positive short- effect on life satisfaction, which is mediated through entrepreneurial self-efficacy. I furthermore hypothesize, that the long-term effect of the entrepreneurship training is mediated through self-employment. The short term-effect acts like a boost and vanishes over time, whereas the long-term effect holds in the long run. To test these hypotheses, I conducted entrepreneurship training as part of a randomized controlled field experiment with five measurement waves over a total period of 2.5 years. Using discontinuous growth modeling to take into account the

temporality of our hypothesized effects we statistically analyzed the 1,092 observations from 312 students.

Chapter 5 concludes this dissertation with general discussion of the three chapters.

CHAPTER 2

Planning and Entrepreneurship

2.1 Abstract

Planning is a topic that has been controversially discussed in entrepreneurship literature. While some scholars have suggested that planning is detrimental for successful entrepreneurship, other scholars have suggested that planning is a main driver of success. In this chapter, we provide a comprehensive overview of the advantages and disadvantages of planning in entrepreneurship. We present arguments against planning (e.g., lack of knowledge, difficulty to predict the future, and inflexibility) and discuss the different positive functions of planning for entrepreneurship (e.g., legitimating, action-regulatory, and learning function). Based on our discussion, we develop a theoretical model of planning in entrepreneurship integrating both the positive and negative aspects of planning. This model provides a starting point for future research seeking to take a more fine-grained perspective on the beneficial and detrimental effects of planning in entrepreneurship.

2.2 Planning and Entrepreneurship

Entrepreneurship is defined as detecting and pursuing future opportunities (Shane & Venkataraman, 2000). Future opportunities are usually developed in the context of high uncertainty and complexity. Because of the uncertainty and complexity inherent in entrepreneurship, there has been a high skepticism towards planning in entrepreneurship. As a matter of fact, one could even talk of a common stereotype that both researchers of entrepreneurship and entrepreneurs themselves perceive planning to be not helpful for entrepreneurs and that it may even backfire (Baker, Miner, & Eesley, 2003; Honig & Karlsson, 2004; Sarasvathy, 2001). We think that this stereotype exists because it is easy to misunderstand the multifactorial functions of planning for entrepreneurship. Planning has multifactorial functions because planning can be done for different levels (i.e., the individual, the team, or the organization) and planning can be formal and informal. Formal planning can be in the form of a business plan (often done by one entrepreneur) or in the form of a strategic plan (often developed as a longer exercise of bottom-up and top-down planning by a strategic department as a staff function for the CEO). Informal plans are usually in the head of the planner(s) and they are usually more concerned with detailing specific actions relevant for goal accomplishment. The various functions of planning may have advantages and disadvantages for entrepreneurship. Therefore, a comprehensive perspective on planning in entrepreneurship is necessary. In this chapter, we seek to present such a comprehensive perspective. First we discuss the potential disadvantages and advantages of planning. We emphasize that it is important to consider the different levels and the different degrees of formality to better understand the positive and negative effects of planning discussed in the literature. We then present a theory of planning that helps to better understand planning in entrepreneurship. In our discussion, we focus on the individual entrepreneur (or a small group of entrepreneurs) because entrepreneurial firms are often highly affected by an individual and the process of starting a firm and growing it is highly dependent upon the lead entrepreneur. Thus, the following discussion is mainly around the entrepreneur or a small group of founders or top managers of a firm (if not otherwise noted).

2.3 Disadvantages of Planning

Mintzberg (2000) sees three problems in planning: (a) The planner has insufficient knowledge on how to do business planning, (b) the unpredictability of the future, and (c) there may be negative side effects of planning. Although Mintzberg (2000) was referring to organizations, we think that his framework also helps to structure the discussion about the disadvantages of planning in entrepreneurship on the individual level.

2.3.1 Insufficient knowledge on business planning

Many entrepreneurs lack basic knowledge and skills in developing a business plan (Bewayo, 2010). In fact, lack of knowledge and lack of skills to prepare business plans are the main reasons for not writing a business plan (along with not needing a business plan and the inconvenience of preparing one) (Bewayo, 2010). Entrepreneurs are usually not experts in business administration or business planning but in the domain in which they intend to start their business. For example, Baker et al. (2003) have described several cases of entrepreneurs deciding to start a business in their job domain but with no or only little knowledge on how to do formal business planning. Some scholars have argued that this approach may be functional. Learning to write a business plan and preparing a business plan may be too time consuming. Instead, entrepreneurs should jump into the entrepreneurial process and engage in the necessary start-up activities to establish business structures (Carter, Gartner, & Reynolds, 1996).

In addition to lack of knowledge specifically related to business planning, Dörner and Schaub (1994, p. 448) identified four general cognitive problems in people's planning: "(1) the restricted capacity of human conscious thinking, (2) the tendency of humans to guard their feeling of competence and efficacy, (3) the weight of the actual problem, and (4) forgetting". All four factors lead to frequent mistakes in planning or at least they tie up resources, thus restricting attention to important things outside the planning process. Even more problems in planning occur when people display low cognitive effort in planning (Josephs & Hahn, 1995) or when general mental ability or general schooling is low (Frese et al., 2007). Errors in planning can also be based on the wrong choice of information. Once plans are based on inappropriate information and

knowledge, corrections take time and can create additional costs (Mumford, Schultz, & Van Doorn, 2001).

The above arguments against planning tell us that inexperienced young entrepreneurs may not be able to write a good business plan. Moreover, writing a business plan may take too much cognitive capacity and thus produce a distraction from entrepreneurial actions and creative thinking. However, as business plans often have to be written for banks and for reasons of legitimacy and there may be a certain amount of learning taking place in developing a plan, business schools (and other learning institutions) should teach how to do good business planning. So, there remains the problem about the inability to predict the future and the negative side effects of planning.

2.3.2 Lack of knowledge about the future

Planning implies making forecasts based on assumptions about the future. Both Sarasvathy (2001) and Mintzberg (1994) have criticized the theoretical foundation of planning because in most entrepreneurial situations, it is not possible to predict the future. Accordingly, Sarasvathy (2001) suggested to use effectuation instead of planning. Effectuation is defined as taking the existing means as a starting point for one's actions and then selecting between possible effects that can be achieved with the available means (Sarasvathy, 2001). Effectuation is thus means-oriented (Sarasvathy, 2001). Effectuation is conceptualized to contrast with causation (which implies planning). Causation is defined as taking a particular effect as the starting point and selecting between different means to create this effect (Sarasvathy, 2001). This means that in causation, people form a goal (e.g., to start a new venture) and then do the planning in assembling the necessary resources (the means) to accomplish the goal. Causation is thus a goal- and plan-oriented approach. According to Sarasvathy et al. (2008), causation corresponds to the planned strategy approaches towards entrepreneurship. Entrepreneurs using causation envision their business, define the goals and plans to implement the vision, and direct their efforts at achieving the pre- envisioned venture (Chandler, DeTienne, McKelvie, & Mumford, 2011). They thus follow a systematic plan that has been determined up front.

Sarasvathy and colleagues (2008; 2001) have noted that planning and effectuation are two opposing approaches because the logic underlying the two approaches is fundamentally different. In planning (or causation), the logic is to predict the future (what will happen and how can I prepare for it). Typical predictive tools are market surveys, financial projections with calculations of risk-adjusted expected returns, or competitors' retaliation strategies (Wiltbank, Stuart, Dew, & Sarasvathy, 2009). Causation is most commonly used in approaches towards entrepreneurship that are built around the development of formal business plans (e.g., entrepreneurship courses). In contrast, the effectuation logic is to control the future (what can I make happen). Sarasvathy et al. (2008) have argued that the future is uncertain (probabilities for future consequences cannot be calculated), there is ambiguity regarding the preferences of other stakeholders, and there is ambiguity regarding relevant information. This means that effectuation (i.e., non-planning) is the more promising approach because it does not rely on predicting or adapting to the future environment. The “future is contingent upon actions by willful agents intersubjectively seeking to reshape the world and fabricate new ones” (Sarasvathy et al., 2008, p. 339). According to the logic of effectuation, we do not have to predict the future (which is impossible to predict anyway) if we can control the future by our own actions. Entrepreneurs should thus consider making more use of non-predictive strategies, such as focusing on the available means, and seeking to control the future (Wiltbank et al., 2009).

Similar to effectuation, the concepts of improvisation and bricolage also do not rely on the prediction of the future. Improvisation and bricolage are two different concepts and we will therefore discuss the two concepts separately (Baker et al., 2003). Improvisation means that the design and execution of actions converge (Baker et al., 2003). When entrepreneurs improvise, it is not necessary that entrepreneurs know a lot about the future because they design and execute their actions at the same time. In contrast, in the design-precedes-execution approach, entrepreneurs plan their activities and then work on their entrepreneurial tasks according to this plan. Baker et al. (2003) found empirically both types of entrepreneurs – improvising and planning entrepreneurs. Planning entrepreneurs used a design-precedes-execution approach, meaning that new venture creation was preceded by a plan. In this approach, the

creation of a new venture was a planned and well-structured process. Improvising entrepreneurs usually started with a rough idea (e.g., a preliminary testing device) and the process of creating the new venture unfolded during ongoing interactions with other stakeholders. In this case, design or planning did not precede action but the entrepreneurs “just started moving” and designed their actions along the process of creating the new venture (Baker et al., 2003).

Bricolage is related but conceptually a slightly different construct. Bricolage means that entrepreneurs ‘make do’ by recombining readily available resources for new purposes (Baker et al., 2003; Baker & Nelson, 2005). ‘Making do’ means that entrepreneurs exploit opportunities or solve problems. ‘Recombining resources for new purposes’ means that entrepreneurs creatively use resources for new purposes that have not been originally associated with these resources. ‘Readily available’ means that entrepreneurs use resources which are available in their direct environment or are cheap and easy to get. Bricolage can be used in all areas, such as financing, supply, premises, equipment, and customers (Baker & Nelson, 2005). Bricolage may be particularly useful in environments which require entrepreneurs to quickly take action to exploit opportunities and in environments which provide only few resources (Baker & Nelson, 2005). When entrepreneurs use bricolage, they draw on the resources that are readily available which means that they do not usually plan in advance for specific resources. Furthermore, when entrepreneurs use improvisation, they do not have the possibility to plan for the resources they need but they have to make do with the resources at hand at the moment of execution. Any form of improvisation thus implies bricolage. However, bricolage does not always imply improvisation. Bricolage can also occur in the implementation of pre-determined plans (Baker et al., 2003). It is possible that entrepreneurs have a pre-existing plan that specifies the use bricolage to accomplish the goal. In this case, behavior following a design-precedes-execution (planning) approach includes the strategy of bricolage. Baker et al. (2003) provides the example of planning to go on a hiking trip and intending to make a campfire with whatever materials are at hand at the camp.

In conclusion, scholars have argued that planning implies some knowledge of the future but that it is impossible to predict the future and therefore planning for the future

may be a waste of effort and resources (e.g., Sarasvathy, 2001). Instead, other approaches, such as effectuation (Sarasvathy, 2001), improvisation, or bricolage (Baker et al., 2003; Baker & Nelson, 2005) may be better for entrepreneurs. We note that this perspective might not give full consideration to the complexity of people's ability to make forecasts. There is some evidence that in more uncertain environments (and thus environments which are more difficult to predict), entrepreneurs put less emphasis on the development of sophisticated plans (Matthews & Schott, 1995). However, there is also research showing that people are accurate in their forecasts if they have expertise and a mindset of wanting to implement the idea (Dailey & Mumford, 2006). This means that entrepreneurs who have better knowledge of the business environment (expert or repeat entrepreneurs) will probably be better able to plan because they can predict more accurately future trends. In contrast, because of their lower knowledge of the turbulences of the environment, novice entrepreneurs are less likely to be served well by extensive planning (Brinckmann, Grichnik, & Kapsa, 2010; Miller & Cardinal, 1994). In conclusion, not being able to forecast may only hold for some entrepreneurs (e.g., novice entrepreneurs in uncertain environments) but not for others (e.g., expert entrepreneurs).

2.3.3 The negative side effects of planning: Lack of time and stickiness of plans

Scholars have argued that planning is time consuming and leads to rigidity and escalation of commitment (Dörner & Schaub, 1994). Instead of working on business plans, the time could be invested in practical actions (Carter et al., 1996). Furthermore, entrepreneurs may perceive the entrepreneurial process as more difficult when they plan extensively. Pascha et al. (2001) showed an increase in perceived task-difficulty when the planning scope was increased. The more activities people had to plan for, the more time they needed to complete a given task and the more they perceived the task as difficult. Also, greater difficulties in planning lead people to use not just mental processes but also external planning tools (e.g. notes, drafts), which may consume even more time (Pascha et al., 2001). Additionally, planning may not only consume time but also lead to more time pressure afterwards. People often underestimate the time to

complete tasks in planning processes (Hayes-Roth & Hayes-Roth, 1979). Possibly, they model their timing on idealized cases that simplify the tasks (Mumford et al., 2001).

Planning may lead to rigidity and inflexibility. Mintzberg (1994) has argued that the concept of strategic planning actually hinders the manager from strategic thinking. Referring to the structure of planning as a fixed destination of the joint entrepreneurship journey of management and employees, he criticizes that planning stands for a “calculating style of management” and not for a committed style (Mintzberg, 1994, p. 109). In this debate, Jack Welch, former CEO of General Electric, is often cited because he saw in the strategic planning departments of large companies tendencies towards top down authoritarianism and bureaucracy. Rigid organizational planning creates a bureaucratic atmosphere that hinders the cultivation of a nimble entrepreneurial atmosphere. Moreover, Welch saw the strategic planning departments as nitpickers who would destroy good ideas by worrying about potential failures (Welch & Welch, 2005). Both Mintzberg and Welch regarded centralized strategic planning departments as counterforces towards becoming learning organizations. Honig (2004) has argued that planning is often the opposite of creative approaches to entrepreneurs’ problems. Planning limits the range of creative activities in a dynamic environment. A resulting disadvantage is the inability of firms to react flexibly to shifts in the market. They seem to adhere too often to a given plan. Planning can inhibit the entrepreneur from reacting quickly and spontaneously to meet business opportunities (Bewayo, 2010). Findings by Slotegraaf and Dickson (2004) further underline this line of reasoning. Although marketing plans were positively related to firm performance, strong marketing plans were related to a lower degree of improvisation (Slotegraaf & Dickson, 2004). Moreover, there was a curvilinear relationship with performance. Companies with very high marketing planning showed actually lower performance than those with average marketing planning.

Another form of the stickiness of plans is escalation of commitment (Staw & Ross, 1987). Escalation of commitment is related to the investments made (and planning is obviously such an investment) and to the feeling of responsibility (Staw & Ross, 1987). Planning is a psychological investment of time and effort and such investments often contribute to sticking to a plan. The reluctance to deviate from a plan

can be an example of escalation of commitment which can enhance inflexibility (Rauch, Frese, & Sonnentag, 2000); Wiltbank et al., 2006). Entrepreneurs make an investment in plans, they receive negative feedback (because of some error in their plan which happens invariably) and they feel personally responsible for the course of action. Escalation of commitment results in pressure to continue and to justify the investments. To counter escalation of commitment and rigidity, Wiltbank et al. (2006) have suggested adaptive planning approaches that do not invest time in detection or prediction of future events but trains organizations in situational flexibility to be able to quickly adapt to changes in environment and learn from environmental feedback. However, it is important to note that escalation of commitment also has positive consequences – entrepreneurs do not give up too easily and, therefore, they resist and are even motivated by negative event (Gollwitzer, 1996).

What follows from the above: The higher the investment, the stronger the negative effects of planning may be. This speaks for a low degree of planning. Moreover, it may pay off to teach a planning style that increases flexibility within the planning process (Frese, van Gelderen, & Ombach, 2000); Wiltbank et al., 2006). We do not know yet when escalation of commitment has positive or negative consequences in entrepreneurship. Not giving up in spite of a difficult environment may be a prerequisite of any form of entrepreneurship; throwing good money after bad in a losing course of action is certainly a negative consequence of escalation of commitment. However, it is unclear whether a strategy is part of a losing course of action. Four de-escalation strategies may be useful: “(a) making negative outcomes less threatening, (b) setting minimum target levels that, if not achieved, would lead to a change in policy, (c) evaluating decision makers on the basis of their decision process rather than outcome” (Simonson & Staw, 1992, p. 419), and (d) setting milestones.

2.4 The Advantages of Planning

2.4.1 Empirical answer: Meta-analyses of planning show positive relationship to success

In a way, an easy response to some of these common stereotypes would be to refer to the meta-analyses that demonstrated planning to have positive consequences: The more entrepreneurs (Brinckmann et al., 2010) and organizations (Schwenk & Shrader, 1993) plan, the higher is their success. However, there are two problems with such an answer. First, there are contradictions in these meta-analyses (and unfortunately the authors do not comment on them or resolve them although there is an overlap of authors). Brinckmann et al.'s (2010) effect size was based on a “d” and the average effect size was .20. In another study with overlapping authors (Mayer-Haug, Read, Brinckmann, Dew, & Grichnik, 2013) the effect size for planning was about $r=.19$. These two effects sizes look alike but they are not – when r is converted into d , the d is most likely to be about double as big as the r (Hunter & Schmidt, 2004). Calculating the d for the r of .19 of Mayer-Haug et al. (2013) leads to $d=.39$, which is about twice the effect size reported in Brinckmann et al. (2010). The meta-analysis by Schwenk and Shrader (1993) was done much earlier and concentrated on formal planning in small firms; it is based on fewer studies with an effect size of $d=.40$ which is roughly the same as in Mayer-Haug et al. (2013) and double of the effect size reported by Brinckmann et al. (2010). Thus, at the very least, there are incompatible results and unresolved issues in these published meta-analyses (cf. also chapter by Cardinal, Miller, Kreutzer, and TenBrink in the publication).

Second, the effects of the studies analyzed in the meta-analyses are not homogeneous. This means that effects sizes differ widely between studies. This is not a problem of these meta-analyses – as a matter of fact, it is precisely one of the advantages of meta-analyses, that they can give an empirical answer to the issue of whether the reported relationships are hetero- or homogeneous. Therefore, in the case of planning, there are positive relationships between planning and entrepreneurial success; however, some studies only find weak relationships, and some even a negative relationship (Carland et al., 1989; Honig & Karlsson, 2004; Robinson & Pearce, 1983;

Sexton & Auken, 1985). The above-mentioned meta-analyses found some moderators of the relationships between planning and entrepreneurial success. They found that the relationships are moderated by firm factors (such as newness) or by cultural environment. This means that planning is beneficial for some firms or environments but less so for others. For example, planning at an early stage of business formation may lead to negative outcomes for business performance (Boyd, 1991; Carter et al., 1996; Honig & Karlsson, 2004); Keeley & Kapp, 1994; Lumpkin, Schrader & Hills, 1998; Robinson & Pearce, 1983). However, given the empirical literature on planning in entrepreneurship, the meta-analyses were not able to fully determine which moderators lead to homogeneous relationships. Again, this is not surprising and it is true of most meta-analyses in the area of entrepreneurship (Frese, Bausch, Schmidt, Rauch, & Kabst, 2012). We assume that many studies up to this point have not been differentiated enough for a full understanding of the processes and outcomes of planning. The next part of our research attempts to provide a comprehensive overview on the processes and outcomes relevant for the positive functions of planning.

2.4.2 Action-regulatory function of planning

Planning regulates action and entrepreneurship requires entrepreneurial action (Baron, 2007; Frese, 2009; McMullen & Shepherd, 2006). Entrepreneurs have to take action to develop an initial business idea into a viable and feasible business concept. They have to take action to assemble the necessary resources and equipment to establish business structures, and they have to take action to manage the business and ensure its sustainability (Delmar & Shane, 2004; Dimov, 2007; Gartner, 1985). According to action regulation theory (Frese & Zapf, 1994; Frese, 2009), entrepreneurs have to form some type of action plans to successfully initiate and maintain action. As long as there is no goal, and as long as one does not know how to achieve the goal, there is no action. From this perspective Sarasvathy's (2001) concept of effectuation in its radical form without goals and without any plans, leads to lack of action and at best to some form of

reaction². If there is one consistent finding in entrepreneurship – it is the fact that reactive forms of behaviors – the opposite of proactive planning – are highly correlated with failure and predictive of entrepreneurial bankruptcy (Frese et al., 2000; Hiemstra, van der Kooy, & Frese, 2006; van Gelderen, Frese, & Thurik, 2000); Keyser, De Kruif, & Frese, 2000; van Steekelenburg, Lauw, & Frese, 2000). Moreover, when confronted with errors and problem situations, a reactive form of trial and error leads to negative effects in performance (Rooks, Sserwanga, & Frese, 2012; van der Linden, Sonnentag, Frese, & van Dyck, 2001; van Gelder, de Vries, Frese, & Goutbeek, 2007). In contrast, psychological action planning measured, as elaborated, and proactive informal planning is, indeed related to entrepreneurial success even in difficult environments (Frese et al., 2007).

One of the best theories to explain the function of planning is the theory by Gollwitzer (1996). Gollwitzer (1996) differentiates between goal intentions – intentions in the sense of Ajzen (1991), which have only small relationships to actions – and implementation intentions, which combine a goal intention with a plan of action. Gollwitzer (1999) defines plans as simple if-then programs (“if it is Dec 25th, I shall do the following...” or “if I see person X, I am going to ask him to invest some money in my firm”). Gollwitzer (1999) states that goal intentions alone are not sufficient to initiate action. Goal intentions only capture the motivation and amount of effort people are willing to invest (Ajzen, 1991). Goal intentions must be complemented with action plans (Gielnik et al., in press a). Once a plan of action is in place, the implementation intentions regulate actions (Gielnik et al., in press a). Action plans thus bridge the gap between goal intentions and actions by specifying the operational steps that lead to goal accomplishment (Brandstatter, Heimbeck, Malzacher, & Frese, 2003). Specifying the operational steps in the form of what, how, when, and where to do something increases the likelihood of initiating goal-oriented behavior (Brandstatter, Lengfelder, & Gollwitzer, 2001; Gollwitzer & Sheeran, 2006; Gollwitzer, 1999; Johnson, Chang, &

² Of course, Sarasvathy (2001) does not really advocate such a radical position although at times her writings may sound like this (e.g., when she contrasts strongly two logics – one being goal oriented, the other one being means oriented). Rather, she argues that people should be open to feedback from the environment, should experiment, be flexible, and take careful affordable loss positions, and that they should not just follow blindly one idea but change ideas depending upon the reaction of stakeholders – a position we agree with (Cha, Ruan, & Frese, 2013).

Lord, 2006). Moreover, there is a certain degree of automaticity once an implementation intention is formed on the basis of an if-then plan. People automatically pay attention to the situation specified in this plan (Brandstatter et al., 2001). Plans thus help to focus the attention on relevant information cues for taking action. This is particularly important in entrepreneurship where information cues may be a signal for taking action to exploit business opportunities (Gielnik et al., in press b). This is in line with research showing that forming action plans increases the likelihood of recognizing an opportunity to take action at a later point in time (Patalano & Seifert, 1997).

Action plans function to initiate and direct entrepreneurs' efforts. Furthermore, action plans increase persistence and structure the process of goal accomplishment which, in turn contributes to maintaining action once it has been initiated (Frese & Zapf, 1994; Locke & Latham, 2002; Tripoli, 1998). Action plans provide markers people can use to stay on track when they are facing distractions. These markers are also useful to monitor the process of goal accomplishment and evaluate the progress. Monitoring and evaluating the progress is an important regulatory factor to make necessary corrections or to speed-up the process (Frese & Zapf, 1994; Locke & Latham, 2002) Action plans also help people to focus their efforts on key activities. Prioritizing activities helps to avoid spending time on unnecessary activities or completing activities in an ineffective sequence (Castrogiovanni, 1996; Delmar & Shane, 2003). Research provides evidence for the regulatory function of plans showing that nascent entrepreneurs are more likely to implement their entrepreneurial goal intentions (Gielnik et al., in press a) and to be more persistent in pursuing their goal of starting a new venture (Delmar & Shane, 2003; Liao & Gartner, 2006; Shane & Delmar, 2004).

2.4.3 Planning as communication

There is no question that any organization and team requires some degree of alignment of goals to be effective (Katz & Kahn, 1978). Goals, sub-goal setting, and planning facilitate the process of alignment because there is an explicit communication of what needs to be achieved and which methods are or are not legitimate. Strategic plans often have the function of communicating these issues. Therefore, most firms have some kind of strategic plan and most firms draw goals for individuals from this

plan and provide guidance with a sub-goal process. Developing sub-goals and planning are related. Therefore, there is little question in theory and in practice that goal setting helps, and that these goals need to be connected in some way (which constitutes a plan). It is obvious, that for this purpose there is no need for extremely specific plans. Moreover, there is good reason to assume that people should be involved in such planning. Team research has shown that shared leadership in terms of shared planning helps in the process of efficient teams (Hackman, 1990). Indeed, formal planning does not just help with such common goal specification and individual strategy formulation, but also reduces conflict, helps teams to agree with one another, and increases motivation to pursue common goals (Mathieu & Schulze, 2006).

2.4.3 Learning function of planning

Castrogiovanni (1996) describes planning as a method of learning. Developing plans may include practices, such as environmental scanning, business feasibility analyses, and/or computer simulations. Through these practices entrepreneurs gain new information and can acquire knowledge about the environment and causal relationships in this environment. Having more knowledge about the environment and the causal relationships effective in this environment should reduce the uncertainty entrepreneurs may experience when they make decisions (Castrogiovanni, 1996). Furthermore, by forming plans, entrepreneurs develop a set of ideas and expectations of what will happen and what the future will look like. When entrepreneurs have pre-set expectations or criteria, they can conduct a realistic analysis to compare the projected with the actual state. This analysis allows entrepreneurs to understand where the actual environment is different from the expected environment. By figuring out reasons why the projected and actual states are different, entrepreneurs develop a better understanding of causal mechanisms and factors that have an influence in their business environment. Plans allow the development of criteria to better interpret the feedback entrepreneurs get. As a matter of fact, a number of theories assume, and have shown, that without goals and some type of plan, feedback cannot be interpreted (goals are criteria and planning helps in the development of such criteria)(Ashford & Tsui, 1991; Carver & Scheier, 1982; Frese & Zapf, 1994; Locke & Latham, 2002).

2.4.3 The function of planning in non-planning approaches: Towards an integration of foes and friends of planning

In this section, we describe the important function of planning in effectuation and improvisation/bricolage. As described above, Sarasvathy (2001) and Baker et al. (2003) have suggested to use the approaches of effectuation or improvisation and bricolage as alternatives to planning. Effectuation and improvisation/bricolage seem to place planning at the opposite end of effectuation and improvisation/bricolage. It appears to be difficult to integrate these seemingly opposing concepts. With a somewhat martial touch, Chandler et al. (2011) have noted that there is a “dichotomous war between the need to ‘develop a full-blown business and marketing plan’ and the need to ‘just get started’” (p. 376). We argue that the concepts of effectuation and improvisation/bricolage are not opposite to planning and, moreover, that even these concepts require some degree of planning. To better understand the role of planning in effectuation and improvisation/bricolage, it is important to have a finer grained perspective on planning.

There are at least two different conceptual approaches towards planning. First, a strategic approach which describes planning as a formal process of establishing goals and developing operational plans to achieve those goals; strategic planning includes collecting data, forecasting, and modeling future scenarios (Boyd, 1991). In entrepreneurship, strategic planning usually manifests itself in a business plan. The second approach is a psychological perspective on planning. The psychological perspective defines planning as mental simulations of actions specifying the sub-steps and operational details leading to goal accomplishment (Frese & Zapf, 1994; Mumford et al., 2001); see also Mumford, Mecca, & Watts in the publication). Planning may be a long time prior to action or it may be intertwined with action – as in the case of improvisation. It may also become formal and be written down, but most likely it is not a written record.

So far, entrepreneurship literature has not made a clear distinction between these two perspectives on planning (see Brinckmann et al., 2010). These two different approaches may have different functions in entrepreneurship. For example, strategic planning (i.e., business planning) may primarily have a strong legitimating and

communication function and only a limited action-regulatory function. In contrast, psychological planning (i.e., action planning) may have a strong action-regulatory function helping to initiate and maintain action but only a limited legitimating function (Gielnik et al., in press a; (Frese, 2009; Frese et al., 2007). The learning function may be important for both types of plans. This advantage of planning may be more important in chaotic environments for which it is important to know alternative plans in case a specific plan does not work out.

When effectuation and improvisation/bricolage were introduced as being opposite to planning, the authors had most likely the strategic perspective of planning in mind. With regard to the strategic perspective on planning, the line of reasoning it is well possible that planning can be easily overdone within this approach. Thus, potential detrimental effects of planning might be valid with regard to strategic planning (Sarasvathy et al., 2008; Sarasvathy, 2001). It is important to note, however, that the overall relationship to success is positive and significant as described by Schwenk and Shrader (1993).

With regard to the psychological and action-regulatory perspective on planning, it is important to have a more integrative view. The action-regulatory function of planning is relevant in all approaches towards action: causation, effectuation, and improvisation/bricolage. For example, Dew et al. (2009) note that expert entrepreneurs are more likely to use an effectuation approach compared to novice entrepreneurs. The authors then describe what the effectuation approach among expert entrepreneurs looks like. They describe how the expert entrepreneurs planned to sell their products/services to various segments, for example through personal contacts or through a sales force (Dew et al., 2009). This shows that independent of the strategic approach (effectuation or causation), some form of (action) planning is necessary within each approach. Similarly, although Sarasvathy notes that planning is antithetical to effectuation, she provides the following example of Gillette when discussing effectuation: the founder “had to develop a cheap, effective removable-blade razor, generate an adequate initial market, and so on, always modifying his plans as he gained new knowledge and new stakeholders from his initial efforts” (Sarasvathy, 2003, p. 207). This means that the founder had (action) plans how to proceed. These action plans were clearly variable

plans as he constantly changed them according to the feedback he received from the environment. This corresponds to the learning function of planning. Planning provides a starting point for interpreting new information and for modifying and improving the business concept (Castrogiovanni, 1996). Finally, Read et al. (2009) discussed leveraging contingencies as an important aspect of effectuation and noted that having a business plan does not mean that entrepreneurs cannot leverage contingency – the important point is to flexibly change or modify the plan when receiving new information about the business environment. Thus, planning can work alongside an effectual approach instead of being antithetical to it (Read et al., 2009). The same is true for improvisation/bricolage. As noted above, in improvisation, planning and execution converge which means that a long-term (strategic) planning is absent but not a short-term (action) planning that specifies how, when, and where to execute the actions. Improvisation is described as the temporal overlap between planning and acting. Nonetheless, plans are still necessary to put goals into action – albeit that these action plans are developed during the action process. Similarly, for bricolage action planning is needed as well. Bricolage implies ‘making do’ which means that people take action (Baker & Nelson, 2005). The actions may not have a long-term, strategic orientation (thus, there is a lack of strategic planning) but to initiate and maintain the actions to ‘make do’, action planning is necessary (Frese, 2009). Particularly in entrepreneurship, as it is a complex task involving many different steps and sub-steps, (action) planning should be important because in the case of complex and non-routine tasks, the positive effects of plans are even stronger (Gollwitzer & Brandstatter, 1997). Furthermore, both bricolage and effectuation imply some degree of experimenting. Without thinking of their potential outcomes of experiments, experiments are not useful. Thinking about these potential outcomes is, of course, planning. Moreover any experimentation without thought and meta-cognitive thinking is pure trial and error – and that is clearly a non-efficient way of learning as shown in experimental studies (Keith & Frese, 2005); van der Linden et al., 2001).

2.4.3 Advantages of planning: Conclusions

While there are slightly different results in the meta-analyses on planning and entrepreneurship, all of them agree that there is a positive relationship between planning and performance (Brinckmann et al., 2010). Planning has several positive functions: planning regulates actions, provides legitimacy, increases communication, and promotes learning. The positive effects of planning hold for formal business plans (Delmar & Shane, 2003; Liao & Gartner, 2006; Shane & Delmar, 2004) and for action plans (Frese et al., 2007, 2000); Gielnik et al., in press a). There are studies providing evidence that the proposed negative effects of planning, such as rigidity or reduced creativity may not hold across all situations. Osburn and Mumford (2006) have shown that as a consequence of planning, creative problem solving and divergent thinking was improved. Furthermore, planning may compensate for low cognitive abilities. Escher et al. (2002) have found that entrepreneurs with low general mental ability could achieve high success by developing detailed plans. Nevertheless, we acknowledge that the positive effects of planning are not homogeneous across studies. There are factors moderating the effect (Brinckmann et al., 2010). Scholars have argued that planning is more beneficial in some contexts than in others (Miller & Cardinal, 1994). In the following section, we illustrate this by discussing culture as a contextual factor moderating the positive effect of planning on performance.

2.5 Cultural Differences of Planning Requirements

Some cultures may reinforce and demand planning more than others. The most important variable here is most likely the cultural dimension of uncertainty avoidance. A high degree of uncertainty avoidance implies that the culture is uncomfortable with unclear or uncertain situations. The best way to reduce the feelings of discomfort is to plan well because it decreases uncertainty (Hofstede, 2001). It is useful to think of culture to constitute norms of behavior. Thus, uncertainty avoidance demands that members of this culture plan well to cope with the worries that uncertainty produces. Such a normative view is useful because it produces an understanding that cultures with a high degree of uncertainty avoidance should demand more planning while cultures with a low degree of uncertainty avoidance demand more flexibility and would not

demand planning. Indeed, Rauch et al. (2000) have shown that entrepreneurial planning was positively related to success only in a culture with a high degree of uncertainty avoidance. They present the argument small businesses customers in Ireland (a low uncertainty culture) demand flexibility even if this means that one arrives too late for a customer planned in later in day. This stands in contrast to Germany (a high uncertainty avoidance culture) where customers demand that small business does things on time.

At first sight, surprisingly, Brinckmann et al. (2010) appear to get the opposite results. In their meta-analysis a high degree of uncertainty avoidance leads to lower relationship between planning and entrepreneurial success. A more precise discussion of cross-cultural measurement issues may explain these results. Brinckmann et al. (2010) used the old and imprecise measure of uncertainty avoidance by Hofstede (2001), instead of the more precise measurement of the GLOBE study (House, Hanges, Javidan, Dorfman, & Gupta, 2004). While there is no doubt that Hofstede has been the most important cross-cultural psychologist and developed this area in the first place, his measures were not specifically developed for cross-cultural purposes. Therefore, the more recent developments of scales by GLOBE render better measures of cultural dimensions (Hanges & Dickson, 2004; Hanges & Dickson, 2006) and, they are also more specifically related to norms (Shteynberg, Gelfand, & Kim, 2009). It happens that uncertainty avoidance, as measured by Hofstede (2001), is highly but negatively correlated with the norm (practice) measure of uncertainty avoidance by GLOBE. In other words, Hofstede has inadvertently measured only an individual trait without actually examining a cultural dimension (Hanges & Dickson, 2006). Thus, in reality high and low needs to be reversed in the meta-analysis by Brinckmann et al. (2010) and, thus, the correlation is most likely higher for high uncertainty avoidance countries – thus, the articles by Rauch et al. (2000) and Brinckmann et al. (2010) agree with each other.

2.6 Towards a Theory of Entrepreneurial Planning

Table 1 presents a first cut of a theory of entrepreneurial planning. We are well aware that this theoretical sketch is a first approximation for a theory of entrepreneurial planning. The major thrust of our model is that planning can have positive and negative

consequences and that it depends on how the planning is done whether or not it leads to positive or negative consequences. Moreover, it is important to differentiate formal planning (e.g., in the sense of business planning) and informal planning. It is the latter we concentrate on in this chapter and which relates to the rest of Table 1.

Table 1. The Framework for a Theory of Entrepreneurial Planning

Positive and Negative Functions of Planning							
Type of Planning	Learning	Legitimacy	Communication	Implementation – action initiation	Over-motivation (escalation of commitment)	Stickiness, Inflexibility	Prerequisites of planning: predictability & knowledge
A. Formal Plans (Business Plans)	Only if done by entrepreneur or by top management team	Positive effect even if done by outside consultants; moderator: how important is legitimacy for this kind of business	Positive function; this function is the higher the larger the organization	-- (no effect, if this is not translated into individual or small group plans)	Can lead to inflexible use; the more inflexible, the less escalation of commitment because no perception of responsibility for plan in organization	Stickiness to plan is low and plan will be flexibly adjusted but goal will likely not be given up	Problem of plan's misfit with reality; in bureaucratized structures, negative effects; negative effects in unpredictable environment
B. Informal Planning	High learning, but see B1, B2, B3, B4	Low legitimacy because no document can be shown	Communication effect can be high if informal planning done in discussion groups or work-outs of larger units	Highly important function – a small if-then plan helps entrepreneurs to become active	Escalation of commitment can have positive or negative effects; but see B2, B3, B4	People committed to the plan; thus stickiness may be high; but see B2, B3, B4	Less problem of non-predictability of environment; knowledge issues important
B.1. Long vs. Short Term Planning	Learning with long term planning;	Informal legitimacy is answer to long term questions	Stronger effect for long term than short term	equal	Long term plans more over-commitment	Equal stickiness and inflexibility to short and long term plans	Long term plans more affected by unpredictability and lack of knowledge than short term plans

B.2. Comprehensiveness of Planning	More learning with more comprehensive plan because more thoughtful and mindful	Informal legitimacy when things have been thought through because better answers to questions	Stronger effect for more comprehensive	equal	Highly comprehensive plans, more over-commitment	More stickiness and inflexibility with highly comprehensive plans	Comprehensive plans are more affected by unpredictability and lack of knowledge than non-comprehensive plans
B.3. Planning for Flexibility	More learning with more flexibility, because of Plan B;	--	--	equal	Planning for flexibility reduces wrong over-commitment	Less stickiness and inflexibility with critical point planning and option planning	Explicit acknowledgment of lack of predictability and high attention to feedback
B.4. Preplanning vs. Planning While Acting (Improvisation)	More learning with more preplanning	Informal legitimacy when things have been thought through in preplanning	Stronger effect for preplanning	Preplanning allows better implementation than improvisation – however, curvilinear effects possible	Over-commitment only a problem when preplanning	Stickiness and inflexibility only a problem for preplanning	Improvisation reduces the need for predictability and knowledge – therefore, often a preferred mode of planning for entrepreneurs
C. Milestones Developed as Subgoals	---	--	--	Important to stop being overcommitted	Milestones every few months important to stop being overcommitted	Milestones every few months important to stop being overcommitted	Entrepreneurs are better able to deal with low predictability and knowledge when they set milestones

The major point of our table is that the various functions of planning may well be countering each other and it depends on the specifics of the planning process and the specifics of the environment, whether the positive or the negative functions prevail. Thus, we suggest that science should search for moderator functions for the effect of planning, as well as curvilinear relationships with success.

We now walk across the area A in Table 1 discussing the positive and negative functions of planning. Developing formal plans (business plans) (area A in Table 1) can lead to learning. However, this learning function is comparatively weak, if the plan is developed by outside consultants or if outsiders have a large impact on the plan. While some learning may take place even under these circumstances, more learning occurs because one is actively involved in developing a business plan. On the other hand, the legitimacy is high in either case. Whether or not legitimacy itself is important is another question – usually it is important for investment and credit decisions. Business plans might be important for banks or venture capitalists but investments by friends and relatives may be little affected by the legitimacy derived from having a business plan.

The positive function of formal planning for communication exists in all those situations, where there is little face-to-face communication, for example, in somewhat larger companies or in virtual groups or organizations. Thus, the larger and more virtual an organization, the more important is it to have formal business plans. Note, however, that communication advantages were shown even in small groups (Brodbeck, 2001; Mathieu & Schulze, 2006).

We postulate a very small effect of formal strategies or business planning for implementation intentions. As a matter fact, if anything, we see a slight disadvantage in this area. As small plans are important for putting intentions into actions (by producing an implementation intention) and as this is primarily a within-person cognitive process, the extra effort and extra time for making the plan formal may actually hinder other goal intentions to be translated into implementation intentions (an issue that figures high in Sarasvathy's work).

Escalation of commitment and inflexibility can result from a formal plan. There may be two different reasons for being over-motivated to stick to a plan. First,

entrepreneurs (or a team of entrepreneurs) invest effort and develop a feeling of responsibility, which may result in an escalation of commitment. Entrepreneurial units may escalate their commitment because they most likely participated in the development of the strategy. Second, larger organizations with a top-down plan may persist in pursuing a certain goal. However, that is probably less due to over-commitment, but to power issues and dysfunctional routines and too little overall commitment due to lack of feelings of responsibility. Formal plans may imply a formal application process in which things are not thought through and in which they are not adapted to changing circumstances. Therefore, there may be a high recourse to formal strategic plans in highly bureaucratic organization. This was the point that Welch made at GE. We also want to discuss two things which may reduce the likelihood of escalation of commitment and inflexibility: First, whenever something is seen as a bureaucratic outside plan that is presented to organization members without any input from the organization, escalation of commitment is less of a problem. Second, in organizations in which decision making is distributed, people may not stick to the plan, rather change it if it seems necessary. People will stick to the goal and adjust the plan to changing circumstances.

Whenever a plan is formalized, it becomes exterior. Thus, it is not internalized but seen as an external power over the processes in an organization. This may allow a high degree of misfit to reality (because nobody assumes responsibility to adapt the plan). Furthermore, it may be very difficult to change the plan (because of power and habit issues) once it is formalized (e.g., in the form of a three-year plan), particularly in highly bureaucratic organization. However, this is again less of a problem in non-bureaucratic entrepreneurial environments.

Informal planning (the next row B in Table 1) allows participating people to learn. Therefore, it is a good instrument to develop more knowledge for entrepreneurs. However, this effect is stronger if the plan is long term, because then entrepreneurs take a more proactive stance that allows them to develop a better knowledge of long-term opportunities and problems (Frese, 2009). This, in turn, allows them to develop preparatory plans for taking advantage of those opportunities (Shane, 2000) and to develop coping strategies for potential future problems. A similar argument holds for

the comprehensiveness of planning. As it turns out the time-horizon and comprehensiveness of plans are highly correlated so that they were collapsed in some studies (Frese et al., 2007).

Legitimacy is higher for formal planning than for informal planning. However, a certain degree of legitimacy also follows from people who have better ideas about what can occur as potential outcomes and who foresee the problems better. This is a result of stronger informal planning, particularly long term planning and high comprehensiveness of planning. Thus, legitimacy may follow from these factors.

The communication function is probably stronger for formal plans and the communication function of formal plans is more important in larger organizations. Informal plans can be used in smaller organizations. However, the communication function is probably more important for long term plans, more comprehensive plans, and pre-planning than for short term plans, low comprehensiveness of plans, and improvisation.

Implementation intention is most likely affected by any kind of plan. However, it is enough to have some small plans and therefore, for the issue of getting people to act, it does not matter whether one has a long or short term plan, a comprehensive or non-comprehensive plan. The only difference appears for pre-planning vs. improvisation. Improvisation does not help to get people to start acting to achieve a goal. If improvisation is included into a general plan of action, then it is unproblematic, because the action has already started. As a matter of fact, Gollwitzer (1996, 1999) shows that once people have started to act, problems (such as insufficient resources, bad tools, or insufficient skills and knowledge) will actually enhance the motivation to still achieve the goal. Thus, improvisation tendencies will be enhanced. But to produce an action as a result of an intention requires pre-planning of some sorts (this may be a highly abstract type of pre-planning of the type “whenever I can make a fast buck, I do it” are then displayed in very different environments).

Over-motivation to the plan (escalation) is a function of when problems occur. When they occur in the stage of developing an intention, problems are usually dealt with in a straightforward and realistic fashion and may well lead to giving up an

intention. In contrast, when the difficulties appear at a later stage of the action process, i.e., after an action plan has led to an implementation intention, then problems in action actually lead to higher motivation (Gollwitzer, 1993; Gollwitzer, Heckhausen, & Ratajczak, 1990; Gollwitzer, Heckhausen, & Steller, 1990). Thus, at this later stage the problem of over-motivation through escalation of commitment is particularly high. However, it needs to be recognized that there are many case studies of entrepreneurs who actually were over-motivated and whom in spite of it all, persisted in an idea that was originally seen to be unrealistic but turned out to be highly useful. Escalation of commitment can be explained by Gollwitzer's theory. Escalation is highest, when people feel responsible for a negative outcome – this is precisely the situation described above of an entrepreneur who is in the midst of difficulties but still does not give up. A higher amount of investment increases escalation of commitment. Therefore, more investment in planning (such a long term planning and high comprehensiveness) also leads to higher escalation of commitment. One important consequence is to build milestones into the system. Gollwitzer explains that people are open to rationally process feedback again (in the sense of being able to give up a course of actions) when they have achieved a goal. Milestones have the function to mimic in-between achievements of goals. If a milestone is achieved, then a (sub-)goal is achieved and it is easier to ask the question of whether one should stop a course of actions.

Dealing with stickiness and inflexibility can be built into a plan. One of the problems in articles on planning in entrepreneurship is that they do not take notice of different forms of plans, for example, an approach to planning that explicitly builds flexibility into plans. Flexible plans make it easier to change the plan once negative feedback suggests that the original plan does not work. The most obvious example for flexibility in plans is to have another plan available once one plan does not work. This is the example of having a 'Plan B' available. Another example is critical point planning which "concentrates on the most difficult, most unclear and most important point first (Zempel, 1994). Only after solving the first critical point are further steps planned. This approach constitutes an iterative problem solving strategy" (Frese et al, 2000, p.2). And, indeed, critical point planning has clear relationships with entrepreneurial success, as shown in some studies (Frese, 2000; van Steekelenburg, Lauw, & Frese, 2000). A

second form of planning that builds flexibility into the plan is planning for options that optimize future options. The argument is that because the future is not completely predictable, the optimal plans first attempt to find action paths that leave the highest amount of options open for future actions; however the general direction is achieving one's goals. Thus, in-between goals are optimized to allow the optimal number of options to advance in the future and at the same time improve the chances of getting nearer to the goal (Resch & Oesterreich, 1987).

Informal planning is by its very nature less binding and allows more input from feedback than formal planning – which tends to have a life of its own after it has been written down. Thus, there is less of a problem when unpredictable events occur. When there is less stickiness of the plan, there is also a higher reactivity towards changing circumstances. However, learning and knowledge is as important a prerequisite as it is for formal plans. Thus, the plans may be wrong or misapplied to the situation or follow the wrong idea or model of reality or, may not be well enough adapted to the important issues of the environment. Lack of knowledge/expertise may be a particular problem for novice entrepreneurs (Baron & Ensley, 2006) because they may concentrate on the wrong issues. Informal planning can be more adaptive to unpredictable events and less of a problem if there is lack of knowledge. Long-term and comprehensive planning have a particularly strong negative effect in case of low predictability and lack of knowledge. Therefore, novice entrepreneurs may well have lower performance when they plan too far into the future or in too much detail. In contrast, those entrepreneurs can deal with the problem of low predictability and lack of knowledge, when they set milestones and when they develop flexible plans –all forms of flexible planning can address the problem of low predictability and lack of knowledge. Of course, improvisation is least affected by these issues.

In short, what this conceptual framework of entrepreneurial planning suggests is that there are, indeed, negative as well as positive effects of planning. However, this theory also suggests that without a plan, there is no action – thus, planning in one form or another is necessary to be able to put ideas and intentions into actions.

2.6.1 Future Research

We think that there are several interesting avenues for future research on planning in entrepreneurship. Future research could use the theoretical framework developed in this chapter to investigate and integrate the positive and negative functions of planning for entrepreneurship. Future research could also integrate the strategic and psychological approaches towards planning in entrepreneurship. We discussed the different functions of formal and action planning. Formal business planning might have a stronger legitimating function (Honig & Karlsson, 2004) while action planning might have a stronger action-regulatory function (Frese, 2009). Previous research assumed that business plans also have a regulatory function (Delmar & Shane, 2003; Shane & Delmar, 2004) while other scholars argued that writing a business plan is only an academic exercise with no positive effects on initiating and maintaining action (Honig, 2004). Integrating the strategic and psychological approach towards planning would help to better understand whether, and under which conditions formal business plans have a (stronger) action-regulatory function. Research on the strength of the action-regulatory function of formal business plans would also complement existing research, which attempted to examine whether business plans have a stronger learning or legitimating function. In their meta-analysis, Brinckmann et al. (2010) examined whether the process versus the outcome of business planning was a moderating factor influencing the strength of the relationship between planning and performance. They argued that a sophisticated process of writing a business plan should lead to learning while a sophisticated outcome should provide legitimacy (it is not necessarily the case that a sophisticated process leads to a sophisticated outcome). They did not find a significant difference indicating that both functions are similarly important for performance. Similarly, Mayer-Haug et al. (2013) examined the effect of planning on different performance measures (e.g., growth, size, sales, profit, and other more qualitative performance measures). They found that planning is more strongly related to growth, size, and sales, than to profit. However, they did not differentiate between different functions of planning. Future research could disentangle the different strategic and psychological functions of planning and relate them to different performance measures. Such research would provide a more comprehensive and fine-grained

theoretical model of the planning-performance relationship with multiple mediating mechanisms and performance outcomes.

We also hope that Table 1 can help to develop hypotheses on differentiated positive and negative effects of planning and how the more negative issues can be avoided and the more positive issues enhanced. Future research could investigate context factors moderating the effect of planning on performance. Previous research provided some insights into moderating factors, such as culture (Brinckmann et al., 2010; Rauch et al., 2000) and stage of firm development (Brinckmann et al., 2010), which showed that planning has stronger effects in uncertainty avoidant cultures and for older firms. It is further possible to argue that strategic planning plays a less important role in resource-constrained environments (in contrast to environments providing plenty resources). Scholars have argued that effectuation and bricolage may be particularly useful in environments presenting constantly new opportunities but only little resources (Baker & Nelson, 2005; Sarasvathy, 2001). Entrepreneurs may use bricolage or effectuation instead of causation to successfully deal with adverse business environments by recombining and using the resources that serendipitously occur (Edelman & Yli-Renko, 2010; Mair & Marti, 2009). Research investigating moderators of the planning-performance relationship, such as availability of resources, could further contribute to a comprehensive theoretical model of planning in entrepreneurship by revealing boundary conditions and curvilinear effects in the planning-performance relationship (see also Miller & Cardinal, 1994) (cf. also the chapter by Cardinal, Miller, Kreutzer, and TenBrink in this volume on strategic planning).

We believe that future research should adopt a more dynamic perspective on planning. With regard to the strategic approach, Honig (2004) suggested to adopt a contingency-based approach towards business planning. Business planning should not be a convergent process leading to a pre-determined solution but it should be regarded as a divergent process in which the outcomes are more open. In this divergent process, plans do not only change quantitatively but also qualitatively. Based on the changing requirements of the environment, entrepreneurs may modify and adjust their plans in real time. Entrepreneurs repeatedly and incrementally acquire new information and knowledge and they should adapt their plans accordingly. Business planning should

thus become an iterative process of integrating new information (Honig, 2004). Future research could investigate whether entrepreneurs who dynamically adapt their business plans according to the information they receive from the environment are more successful in starting and managing a new venture.

Similarly, with regard to the psychological approach, future research could investigate how entrepreneurs dynamically change or maintain their action plans. Due to changing aspects in the environment or due to successes and setbacks, entrepreneurs may update their action plans. Recently, scholars have emphasized that much of the variability in motivational and action-regulatory factors is within-person variance (Lord, Diefendorff, Schmidt, & Hall, 2010). We assume that action planning is also a dynamic concept that changes within entrepreneurs over time. There is some preliminary evidence of a virtuous cycle with recursive effects of planning and success in entrepreneurship: more planning leads to more success and more success, in turn, leads to more planning (van Gelderen et al., 2000). Frese (2009) suggests that action plans should be flexibly adapted based on the feedback entrepreneurs receive from the environment when they start implementing their plans. In this case, changing the action plans is based on a process of acquiring and reflecting on information; entrepreneurs thus avoid engaging in a habitual or rigid implementation of their plans. However, research on this topic is not yet conclusive and it is necessary to develop theoretical models that explain why and under which conditions entrepreneurs may adapt, maintain, or increase their action planning.

2.6.2 Conclusion

In this chapter, we discussed the advantages and disadvantages of planning to develop a theoretical framework of entrepreneurial planning. Although meta-analytic evidence suggests that planning has a positive effect on performance (Brinckmann et al., 2010), this chapter shows that the planning-performance relationship is more complex than a purely linear relationship. For example, as discussed in this chapter, the cultural context in terms of uncertainty avoidance may be an important moderating factor reversing the positive effect of planning into a negative effect (Rauch et al., 2000). Our theoretical framework suggests to disentangle the positive and negative

effects of formal (strategic) and action planning, to better understand why and under which conditions planning promotes and/or hinders entrepreneurship.

CHAPTER 3

Leading and Loving: Exploring the role of the relationship between trainer and students in the context of entrepreneurship training

3.1 Abstract

Based on the Transformational Leadership Theory (Bass, 1985) and a theory of learning outcomes (Kraiger, Ford, & Salas, 1993), we hypothesize that the trainers' charisma has a positive effect on the trainees' entrepreneurial self-efficacy. Furthermore, we examine the trainer-trainee-relationship for aspects that enhance affective relationship in learning contexts in an explorative manner to identify possible moderators. We conducted a 12-week entrepreneurship training³. All together, we had 12 measurement waves across four classes with 116 students and 9 trainers, which lead to 919 observations. The results of our regression analysis support the hypothesis that the trainers' charisma leads to an increase in the trainees' entrepreneurial self-efficacy. The identified moderators did not show any significant results.

3.2 Introduction

Even in ancient times, Socrates already knew that the decisive aspect in education is the relationship between teacher and student. The Socratic learning relationship between teacher and student is characterized by “a mutual attraction or desirability, which provides the bedrock for learning “ (Mintz, 2007, p. 93).

In the context of entrepreneurship trainings, or trainings in general, the importance of this learning relationship seems to be forgotten: Even though the research

³ I led the study in Tansania at all times of measurement. Alana Kirschbacher and Sevenja Weckwert collected the quantitative data (T1, T2 weekly evaluations) and rated the video data used in this study. Jonas Thilemann additionally collected together with Caroline Schleifle the quantitative data at T3.

interest in entrepreneurship education is definitely increasing (Kuratko, 2005) and the general training related research has been exploding in the last decades (e.g. Salas & Cannon-Bowers, 2001). Although scholars keep arguing for the importance of the trainer-trainee relationship, the studies and meta-analyses in the field of trainer-trainee-relationship research are scant (Bell, Towler, & Fisher, 2011; Harris, Chung, Hutchins, & Chiaburu, 2014; Towler, Arman, Quesnell, & Hoffman, 2014; Towler & Dipboye, 2001; Varela, Cater III, & Michel, 2011). With this study we would like to contribute to filling this research gap. On basis of well-established theories we hypothesize, that the trainer's charisma has a positive effect on the trainee's entrepreneurial self-efficacy.

In line with Socrates' view on the teacher-student relationship, we argue that when examining the trainer-trainee-relationship means, we have to consider two relevant perspectives: (1) the trainers' perspective, focusing on the way of knowledge delivery and (2) the students' perspective focusing on learning outcome. In other words: There are (1) certain personal characteristics about the trainers, which (2) provoke an increase in the students' learning outcomes (e.g. student's entrepreneurial self-efficacy), which leads to further important learning outcomes (e.g. starting a business) (Mintz, 2007). To identify a crucial criterion that reflects the trainee's affective learning outcome, we use Kraiger, Ford and Salas' (1993) well-known theory of learning outcomes in training. The theory assumes three categories of learning outcomes: (1) cognitive, (2) skill based and (3) affective outcome. Under the category affective outcome the authors subsume the trainee's self-efficacy. Self-efficacy is defined as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (Bandura, 1994, p. 71). In the literature on training transfer and training effectiveness, the increase of the trainee's self-efficacy is a well-established indicator for the effectiveness of a training (Colquitt, LePine, & Noe, 2000; Frese & Gielnik, 2014). In the field of an entrepreneurship training it makes sense to adjust the training outcome, self-efficacy, to the context and assume, that the trainee's entrepreneurial self-efficacy will be increased during the training (McGee, Peterson, Mueller, & Sequeira, 2009).

On the trainer-side, some scholars have identified the trainers and their personal characteristics as crucial for the success of training (Bell et al., 2011; Burke & Hutchins, 2008; Holladay & Quiñones, 2008; Hutchins, 2009; Kopp, 2006; Rangel et al., 2015; Towler et al., 2014; Towler & Dipboye, 2001; Varela et al., 2011). In particular, Rangel et al. (2015), found in a recent study that the trainer's expressiveness has an impact on the trainee's transfer intention of the training. Furthermore, Towler et al. (2014) found that charismatic trainers influence the trainee's skill acquisition through boosting a positive affect. In line with his and other findings we regard the trainer as crucial for the success of the entrepreneurship training. We expect the trainer to inspire and motivate the trainees during the entrepreneurship training. Thus, we argue that, on basis of Bass' (1985) definition of charisma within his theory of transformational leadership (Avolio & Bass, 1991), that the trainer's charisma will increase the trainee's entrepreneurial self-efficacy.

Additionally, we will research for possible contingencies (moderators) for this relationship in an explorative manner. We will use insights of different fields of research such as, psychology, pedagogy, and philosophy.

This study contributes to the literature in the following three ways: First, as stated above, the research on trainer-trainee relationship in entrepreneurship is scant. Thus, our study contributes to filling the research gap in this area. By doing so, we will contribute to gain more insight into what enhances the knowledge transfer between trainer and trainee and thus, leads to a better outcome and more efficient training (Sitzmann, Brown, Casper, Ely, & Zimmerman, 2008).

Second, since our entrepreneurship training is implemented in Tanzania, our study is a contribution to the field of study of entrepreneurship trainings in developing countries. Reacting to McKenzey and Wodruff's (2012) recent call for more sophisticated measurements in studies on entrepreneurship trainings in developing countries, we employed in our statistical analysis calculations with 919 observations and controlled for changes in the trainee's entrepreneurial self-efficacy with

measurements of lagged-effects. Thus, we meet the required methodological standard of evaluation in the context of a developing country.

Third, by using an explorative approach to look for possible moderators for the effect of the trainer's charisma on the trainee's self-efficacy, we argumentatively open up and enrich our findings with the insights from different disciplines. We hope that the different perspectives will help us to better understand the contingencies of the relationship between trainer and student.

Finally, this study contributes to the examination of the development of self-efficacy in entrepreneurship. In their study, Gielnik et al. (2015) argued that action-oriented entrepreneurship training enhance entrepreneurial self-efficacy through mastery experiences. The trainees have a mastery experience because the trainees actually start their own business during the training. In the present study, we focus on the trainers' charisma as a factor that enhances trainees' entrepreneurial self-efficacy. Thus, whereas Gielnik et al. (2015) argued using mechanisms outside the training context (starting a business), we focus on processes that happen within the training context (trainers' charisma). These are two complementary perspectives. Thus, our study contributes to the literature by providing a new theoretical perspective on the development of self-efficacy in entrepreneurship trainings.

3.3 Theory

We hypothesize that the trainer's charisma has a positive effect on the students' entrepreneurial self-efficacy. We will first argue that entrepreneurial self-efficacy is an important training outcome and discuss how self-efficacy can be activated. We will then argue that the trainer's charisma is the most important personal characteristic for enhancing a student's entrepreneurial self-efficacy.

3.3.1 Entrepreneurial self-efficacy: The important training outcome

Several meta-analyses and hundreds of studies have shown that self-efficacy has a positive effect on performance (e.g. Machin & Fogarty, 2012; Pintrich & de Groot, 1990; Stajkovic & Luthans, 1998), training transfer and learning outcome (Colquitt et al., 2000; Salas & Cannon-Bowers, 2001). Kraiger, Ford and Salas (1993) provide the most common theory about learning outcomes. The authors classify learning outcomes in training context into three categories: (1) Cognitive outcomes, (2) skill-based outcomes and (3) affective outcomes. Self-efficacy is counted among the third category as a central affective learning outcome (Kraiger, Ford, et al., 1993). Since affect was found to be particularly important in the entrepreneurial context and in human interactions (Baron, 2008), we will focus on self-efficacy as an important learning outcome. Self-efficacy is defined as “people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave” (Bandura, 1994, p. 71).

People high in self-efficacy tend to learn more in trainings because their motivation to learn is higher compared to people with a lower level of self-efficacy (Colquitt et al., 2000). The higher motivation to learn results from the mechanism, that self-efficacy is highly related to goal setting:

Setting a goal creates a psychological discrepancy between the status quo and the desired achievement. Knowing what one is capable of eliminates this psychological discrepancy, because it provides the answer on how to achieve the desired goal. Thus, people show behaviors that help them to achieve the desired goal, e.g. a more intense learning behavior (Bandura, 1994; Locke & Latham, 2002; Sitzmann & Ely, 2011). In other words, people’s beliefs about their own capabilities motivate them to achieve more in a learning context.

In the context of entrepreneurship, Brandstätter (2011) summarized five meta-analyses that proved that self-efficacy is positively correlated to entrepreneurship and entrepreneurial success. Furthermore, the self-efficacy theory states, that the concept of

self-efficacy should be domain specific (Bandura, 1977; Wood & Bandura, 1989). Additionally, Frese & Gielnik (2014) point out, that in order to avoid measuring bias when investigate in personality aspects (like self-efficacy) in the field of entrepreneurship, it is particularly important to adjust the investigated personality aspects specifically to the tasks of an entrepreneur. Therefore, we employ the construct of entrepreneurial self-efficacy in our investigation. Entrepreneurial self-efficacy is defined as people's beliefs in their capabilities to successfully start a business (McGee et al., 2009). Even though, the examination of entrepreneurial self-efficacy has not been as extensive as the examination of the original construct, self-efficacy, the results are identical: entrepreneurial self-efficacy leads to productive outcomes in the field of entrepreneurship, meaning entrepreneurial intention and action (Bird, 1988; Boyd & Vozikis, 1994; Hechavarria, Renko, & Matthews, 2012; Unger, Rauch, Frese, & Rosenbusch, 2011; Zhao & Seibert, 2006).

In summary, entrepreneurial self-efficacy can be seen as an important training outcome.

Following on from this, we will argumentatively answer the question of what the mechanisms are that activate the trainee's entrepreneurial self-efficacy in a training context.

Bandura (1994) names four mechanisms as possible sources for self-efficacy. Among those four mechanisms, he names two, which are particularly relevant to this study: (1) Social persuasion and (2) vicarious experience. (1) Social persuasion refers to the fact that self-efficacy can be activated when people are verbally convinced by another person that they are capable of certain abilities. (2) The vicarious experience referrers to the fact that self-efficacy can be activated through social models:

“People seek proficient models who posses the competencies to which they aspire. Through their behavior and expressed ways of thinking, competent models transmit knowledge and teach observers effective skills and strategies for managing environmental demands. Acquisition of better means raises perceived self –efficacy (Bandura, 1994, p. 72).”

To summarize Bandura's (1994) line of reasoning, a possible way to activate self-efficacy is through human interaction. In the context of training, these theoretical

assumptions can be undergirded with the meta-analytical findings that instructional style and human interactions were the best predictors for trainee reactions. Trainee reactions in turn predicted changes in the level of self-efficacy (Sitzmann et al., 2008). More concrete findings show, that it is for example, the trainer's expressiveness (e.g., appropriate vocal intentions) that enhances the trainee's self-efficacy (Towler & Dipboye, 2001).

Gielnik et al. (2015) argued that the action orientation and the mastery experience of an action-oriented entrepreneurship training would enhance the trainee's entrepreneurial self-efficacy. The authors state that through trainees starting their own businesses alongside theoretical entrepreneurship input within the session, the trainees' self-efficacy will increase. In this study, we will examine the development of the trainee's entrepreneurial self-efficacy not in general, but with consideration of the interaction between trainer and trainee within every session of the training. Thus, it seems worthwhile to take a more sophisticated look into the trainer's role within the trainer-trainee-interaction and in particular the trainer's characteristics, to find out more about the interdependency between the trainers' charisma and the trainees' entrepreneurial self-efficacy.

3.3.2 Charisma: The important trainer characteristic

We argue that the trainer's charisma has a positive effect on the trainee's entrepreneurial self-efficacy. In our entrepreneurship training, the trainer's task is to motivate and to lead the students during the session and also to provide them with the feeling that they are able to start a business. These aspects of the trainer's task are represented in Bass' (1985) transformational leadership theory. The theory consists of the four Is: (1) Idealized influence means that the leader shows admirable behavior which emotionally attracts followers to identify with the leader. (2) Inspirational motivation means that the leader articulates his vision in a way, which is inspiring to the followers. (3) Individualized consideration means that the leader cares for the needs of

each of his followers and supports his followers emotionally. (4) Intellectual stimulation means that the leader stimulates the follower intellectually, by taking risks, questioning assumptions and demanding the follower's opinion on subjects. Even though by definition only idealized influence and inspirational motivation together build the construct of charisma, in line with Towler et al. (2014) we see all four aspects of transformational leadership as qualities that make a charismatic trainer (Harvey, Royal, & Stout, 2003; Towler et al., 2014). In the leadership research, the positive effect of transformational leadership on a higher employee performance is considered well established (e.g. Kirkpatrick & Locke, 1996; Shamir, House, & Arthur, 1993). For example, by using charismatic communication, leaders appear admirable and motivate their employees (Awamleh & Gardner, 1999; Frese, Beimeel, & Schoenborn, 2003; Kirkpatrick & Locke, 1996). Frese and Gienik (2014) summarized findings on the communication of vision (emotionally charged, ideal projected images of the future) that especially in an entrepreneurial context, communicating that a vision can lead to venture growth (Baum, Locke, & Kirkpatrick, 1998; Frese & Gielnik, 2014).

In the training context, recently, Towler et al. (2014) examined the influence of charismatic trainer behavior (visionary content, intellectual stimulation and individual attention) on the affective, cognitive and skill-based learning outcomes during a computer-based training. The results show that the charismatic trainer behavior leads to a positive affective trainee reaction, which in turn leads to a better learning outcome regarding the skill acquisition. Additionally, watching charismatic lecturers on video tape leads to a higher recall score in a trainee's declarative knowledge test (Towler, 2003).

In a more detailed consideration, verbal persuasion means convincing trainees communicatively that they are capable of performing the tasks. A particularly effective way of communicating is charismatic communication. Expressiveness, directiveness and immediacy have been identified as crucial communication strategies that lead to higher learning outcomes (Harris et al., 2014; Rangel et al., 2015; Sitzmann et al., 2008; Towler & Dipboye, 2001). Expressiveness is defined as the ability to use appropriate

enthusiastic vocal intonation and speak fluently (Rangel et al., 2015). In a recent study, results showed that trainees' perception of trainers' expressiveness predicted training transfer over and above the perceived trainers' competence (Rangel et al., 2015). Trainees perceive expressive trainers as admirable. Because of this admiration, trainees' are motivated (inspirational motivation) to follow their lead.

Directiveness refers to the trainers' directive behavior whereby the trainer outlines goals and gives feedback to the trainees (Harris et al., 2014). By outlining goals, trainees are inspired to achieve those goals (idealized influence). Providing feedback can be intellectually challenging for the trainees (intellectual stimulation). Immediacy describes the verbal ("using personal examples, humor, address students by name") and non-verbal ("eye-contact, smiling, relaxed posture") style of a trainer, that "reduces social and psychological distance between" trainer and trainees (Sitzmann et al., 2008, p. 281). Through experiencing a closer relationship with the trainer, trainees can feel that the trainer cares for them (individual consideration).

Communicating in a charismatic way leads to entrepreneurial self-efficacy because, as we stated earlier, self-efficacy can be activated through (1) social persuasion and through (2) vicarious experience (Bandura, 1994). Through charismatic communication trainers are perceived as admirable (e.g. effectiveness), directive (e.g. though directiveness) and closer to the trainees. Thus, the trainers' psychological influence on the trainees increases, thus, their power of persuasion to be capable of achieving goals and completing tasks (social persuasion), increases, therefore the trainees' believe in their own capabilities increases. Furthermore, through being perceived as admirable, directive and intellectually challenging, trainers become models to the trainees (vicarious experience), who they want to live up to, thus, they are motivated to believe in and increase their own capabilities.

To summarize the two chapters above, we showed that entrepreneurial self-efficacy is an important training outcome in the context of entrepreneurship training. Furthermore we identified, that self-efficacy can be activated through human interaction and specifically the trainer's style of communication. On the trainer's side, and in line

with the results of the leadership research, as well as findings from the training research, we showed that charisma is an important trainer characteristic, which leads to an increase in self-efficacy. Accordingly, we hypothesize the following:

Hypothesis 1: Trainers' charisma has a positive effect on students' entrepreneurial self-efficacy.

2.2.4 The trainer-trainee-relationship: Possible contingencies for Trainer's charisma enhance trainee's entrepreneurial-self-efficacy

For a better understanding of the mechanisms that enhance learning outcomes in training, the examination of the trainer-trainee-relationship is inevitable (Rangel et al., 2015; Sitzmann et al., 2008; Towler et al., 2014; Towler & Dipboye, 2001; Varela et al., 2011). Since we hypothesize that the trainer's charisma affects the trainee affectively we will examine this relationship for aspects that enhance affective relationship in learning contexts. To do so, we will use insights from different areas of research, like pedagogy and philosophy that have examined the relationship between teacher and learner for centuries. Therefore, we will use the terms of trainer, instructor and teacher as well as trainee, student and learner interchangeably.

In line with Towler (2014), we argue, that the charismatic trainer influences the trainees' entrepreneurial self-efficacy through "emotional contagion" (Towler et al., 2014, p. 223). This means, that the trainers 'infect' the trainees with their emotions (e.g. entrepreneurial spirit) so that the trainees feel in a similar way (e.g. higher entrepreneurial self-efficacy). Scholars showed that charismatic leaders spread positive emotions and pass them on to their followers (e.g. Bono & Ilies, 2006). This presupposes, that that the trainers must be emotionally involved in the relationship with their trainees to capture them emotionally. Thus, we argue that a trainer's charisma has a positive effect on the trainees' affective training outcome (entrepreneurial self-efficacy) in cases of high appreciation of the trainers towards the relationship with their trainees. This is not true in cases of low appreciation. We will first argue for the

relevance of an emotional bond between trainer and trainee. Secondly, we will argue that the trainer has to be emotionally involved in different ways, to connect emotionally with students.

Meta-analytical findings in the training context show that, human interactions (the degree to which trainees feel they have meaningful interactions with the trainer) predicted a positive affective trainee reactions and higher cognitive and affective learning outcomes (Sitzmann et al., 2008). A recent pedagogic investigation of the relationship between teacher and student concluded, that the student’s “achievements are products or by-products of relationships” (Aspelin, 2012, p. 55). In philosophy, the emphasis of the importance of the teacher student relationship has a long tradition. Socrates demonstrated a deep appreciation for the importance of the relationship in the context of education (Mintz, 2007). Martin Buber, a philosopher of the twenties century, believed that, “building a relationship (...) between a teacher and his or her student is the goal of teaching and learning. (...). Teachers should (...) interact with each of them in order to help them develop their unique potentials” (Shim, 2008, p. 530). Similarly, the relationship between a therapist and patient is characterized as collaboration with emotional and cognitive exchange. Even meta-analytical results showed that the working alliance (the positive collaboration between a therapist and patient) leads to a positive therapy outcome and can be used to emphasize the importance of the relationship between teacher and learner (Del Re, Flückiger, Horvath, Symonds, & Wampold, 2012).

Along with the importance of the relationship, it is equally accepted that the trainer (e.g. Towler et al., 2014), the teacher (Aspelin, 2012; Wright, Horn, & Sanders, 1997) or the therapist (e.g. Del Re et al., 2012) plays the decisive role in this relationship. Being one of the first in the fields of training research to investigate the relationship between trainer and trainee, Bolman (1971) found that the trainers’ affection leads to a positive emotional reaction in the trainee. Affection in this context is defined as “the amount of liking, caring and concern expressed by the trainer toward the trainees” (Bolman, 1971, p. 310). Additionally, a recent literature review on the student-teacher-relationship at

universities revealed that a crucial aspect of the affective dimension of the teacher-student relationship is that the teacher cares for their students. The authors found caring teachers provoke a beneficial situation for both sides, because the students are more motivated to learn and the teachers can enjoy a more effective way of teaching (Hagenauer & Volet, 2014). Additionally, the underlining motivation for teachers to care for each and every one of their students is to appreciate their uniqueness (Shim, 2008). In the impressive synthesis of over 800 meta-analyses relating to achievement, John Hattie also identified caring as one of the crucial teacher characteristics in creating a fruitful bond between teacher and student (Arnold, 2011). From a philosophical perspective, teachers ought to be caring, which can be understood as expression of affective (unlike sexual) love (Cho, 2005).

Summarizing these findings, the importance of emotionality of the trainer-trainee-relationship with a caring trainer, is unambiguous. We therefore argue that trainers must appreciate the relationship with their trainees in order to have a charismatic influence on their affective training outcome (entrepreneurial self-efficacy). Thus, we hypothesize the following:

Hypothesis 2a: The positive effect of the trainer's charisma on the trainees' entrepreneurial self-efficacy is moderated by the trainer's appreciation for the relationship between trainer and trainee.

Deepening the explorative research for aspects that enhance affective relationship building in learning contexts, we furthermore argue that in order to reach the trainees' emotionally, and enhance their affective learning outcome (entrepreneurial self-efficacy) with charisma, the trainer has to be empathic and able to take the trainees' perspective. In line with Shim (2008) and with McCroskey's (1992) concept of caring, we argue that in order to have the feeling of appreciation for the trainer-trainee relationship, the trainer has to be empathic. Davis (1980) defines empathy to have four components: (1) empathy concern (2) perspective taking (3) fantasy (4) personal distress. In the given context of a learning relationship we consider empathy concern

and perspective taking to be relevant. Empathy concern describes the disposition to experience the feeling of others. Perspective taking describes the disposition to adopt the cognitive points of view of others (Davis, 1980). When teachers communicate that they connect emotionally with the trainees and by that proving their empathy to them, the trainees' positive affect increases and this leads to a better learning outcome (Bolman, 1971). By taking the student's perspective and talking to them about their obstacles, not only helps them to overcome their problems but also creates a deeper bond between teacher and student (Shim, 2008). Additionally, perspective taking was found to improve the collaborative outcomes between employees and suppliers (Parker & Axtell, 2001). Together with reasoning on emotional contagion (Towler et al., 2014), we argue that the trainers have to be empathic and be able to take the trainees' perspectives in order to reach trainees emotionally. Thus, we hypothesize the following:

Hypothesis 2b: The Positive effect of the trainer's charisma on the trainees' entrepreneurial self-efficacy is moderated by the trainer's empathy for the trainee.

Hypothesis 2c: The Positive effect of the trainer's charisma on the trainees' entrepreneurial self-efficacy is moderated by the trainer's ability to take the trainees' perspective.

3.4 Method

3.4.1 Procedure

We conducted a longitudinal study with four classes and measurements over 12 weeks (12x4 measurements). The setting of the study was an entrepreneurship training program. The training program was based on the training concept of Gielnik et al. (2015). The training was a 12-week action-oriented entrepreneurship training program with weekly sessions of three hours. The training consisted of 12 modules, which were delivered by different trainers each week. The trainers involved were nine lecturers

from the University of Dar es Salaam Business School (UDBS). The lecturers taught different subjects at the university, e.g. marketing, finance, business administration, etc. Each trainer was prepared to deliver one or more⁴ modules each week, four times on four different days. A master-trainer⁵ prepared the trainer to deliver the modules in a train-the-trainer workshop (TTT). Within this workshop the trainers learned the didactical approach of our training in an action-oriented way. The didactical approach of our training is based on Frese & Zapf's (1994) action regulation theory perspective on training. The concept of the training consisted of two central aspects: Teaching theoretical knowledge by the use of action principals and internalizing this theoretical knowledge by the use of active learning. Action principals are evidence-based rules of thumb that require established scientific knowledge and theories. Active learning means learning-by-doing. In our training, the participants start up small businesses in groups (five to seven people) in the first session and apply the action principals directly to their real start-up business. We trained the trainers to deliver the training content in an action-oriented way, this means that in each session the trainers have a small part of theory lecture to teach the action principals to the trainees. Afterwards, the trainees work on exercises to theoretically apply the action principals to their businesses. Following this, the trainees present the results of the exercises to the plenum. Finally, the trainers encourage the trainees to give feedback on their presentations and complete the feedback if necessary (for a more detailed description of action training see Mensmann and Frese (n.d.)).

2.3.2 Sample

The participants in the training were students of the University of Dar es Salaam, and represented all faculties. At the beginning of the semester we recruited the students by informing them of the entrepreneurship training through short-presentations at the end of their lectures and leaflets.

⁴ Six out of the nine trainers delivered one module. Three out of the nine trainers delivered two modules.

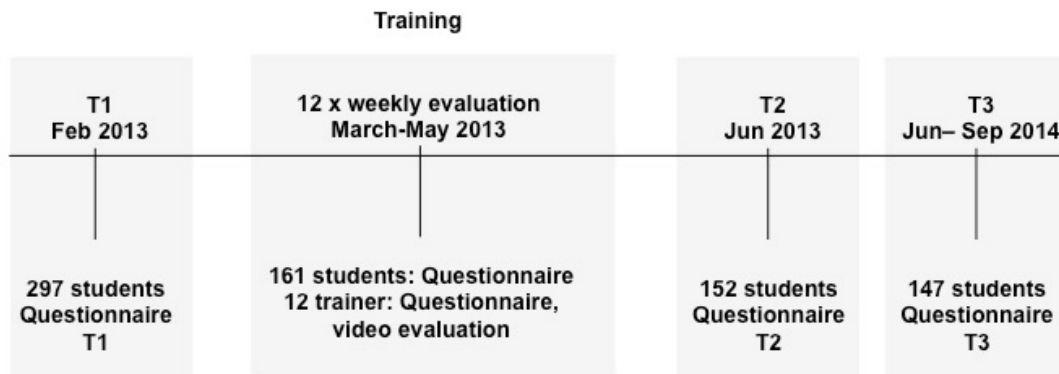
⁵ The master-trainer in this study was Kim Marie Bischoff, a well-experienced trainer from our team. Ms. Bischoff delivered the train-the-trainer workshop several times in international and especially African settings.

489 Students applied for the entrepreneurship training, but due to capacity constraints, we could only select around 200 students who would actually receive training. The remaining students formed the control group. The control group did not receive any kind of treatment. The selection of the students for the training group was conducted in a randomized manner: The applicants all had to take part in a lottery that then decided if they would receive the training or not. We conducted a random selection, as it addresses possible validity problems in the evaluation study, such as testing, history, maturation, and self-selection (Campbell, 1957). The randomization, with pre- and post-intervention measurement controls maturation, testing effects, external influences (i.e., history, for example in terms of changes in the society or economy), and self-selection (because selection for the training is based on chance and not on students' personal interests, preferences or talents).

To test if the randomization was successful, we conducted a t-test for the control and training group and found no significant differences at T1 in any variable. This suggests that the two groups were equivalent before training. The students in the training group were divided into four classes of approximately 50 people. Each class received one training module once per week, thus, the trainer for a particular module had to deliver the module four times per week. Each of these four classes was evaluated in a weekly evaluation. In this weekly evaluation the approximately 50 trainees and the one trainer completed questionnaires. Additionally the trainers' performance during the session was evaluated via video evaluation.

For our statistical analysis we excluded all trainees who had attended less than eight out of the twelve sessions. For our main statistical analysis, all together we had 48 times of measurement with 116 trainees and 9 trainers. For our supplemental statistical analysis we had an additional three measurement waves with the students of the training and the control group (see Figure 1): T1, directly before the training (N total = 297; N training group: 118, N control group: 179); T2 directly after the training (N total = 152; N training group: 96, N control group: 56) and T3, one year after T1 (N total = 147; N training group: 81, N control group: 66) (for the supplemental analysis).

Figure 1. Times of measurements and sample sizes.



2.3.3 Study Measures

For our main analysis, we used the following measurements, which were filled in or rated in the following way:

Table 1. Overview of data resources for the main analysis (“who evaluated what”)

Scales	Trainer	Trainee	Rater
Student entrepreneurial self-efficacy		X	
Trainer charisma (self-rating)	X		
Trainer charisma (video-rating)			X
Trainer Empathy	X		
Trainer Appreciation Relationship Trainer-Student	X		
Trainer Perspective taking	X		
Trainer Gender	X		
Student Gender		X	
Student Conscientiousness (T1)		X	

The trainees filled in questionnaires after each session, measuring their entrepreneurial self-efficacy, gender and conscientiousness. The trainer filled in questionnaires after each session, measuring their charisma, their appreciation for the relationship with their trainee, their degree of empathy, their ability to take the trainee’s perspective and their gender. Additionally the trainers were videotaped in each session and two raters evaluated the trainers’ charisma.

For our supplemental analysis, the students (training group and control group) filled in questionnaires at T1, measuring their entrepreneurial self-efficacy, whether they had started a business (business owner), if they were part of the training or the control group (training), their gender, conscientiousness, whether somebody in their family is a business owner (family) and if they had taken any business courses before (business course). At T2 and T3, we repeated the measurement of the students’ entrepreneurial self-efficacy and whether they had started a business (business owner). The applied scales are described in the following:

Students’ entrepreneurial self-efficacy. To measure the students’ self-efficacy regarding their entrepreneurial skills, we employed items developed by Frese et al. (2007) on the basis of Bandura’s (1989) theoretical conceptions. For the T1, T2 and T3

measurement waves, the scale consists of 12 items, starting all with the question “How confident are you that you can...” Since entrepreneurial self-efficacy is task specific, the items then provided different entrepreneurial tasks, for example “Do the marketing of a business well?” The participants answered the questions on a 5-point Likert-percentage scale. The mean of the 12 items formed the score for the participants’ entrepreneurial self-efficacy. The internal consistency of the items was very good at all 4 measurement times (Cronbach’s Alpha T1 .92, Cronbach’s Alpha T2 .90, Cronbach’s Alpha T3 .94). For the weekly evaluation of the trainees’ entrepreneurial self-efficacy we used a reduced version of the 12-item scale. We used four items, starting with the same question “How confident are you that you can...” We only used items that enquired to general entrepreneurial self-efficacy (e.g. “How confident are you, that you can start a business” or “...become self-employed”). We used four items because the trainees acquired specific entrepreneurial knowledge in each session (e.g. Marketing, Book keeping, etc.), thus the acquirement of this e specific entrepreneurial knowledge would have biased the enquiry of specific entrepreneurial self-efficacy (e.g. “How confident are you, that you can do the marketing of a business well?”). The internal consistency of the items was very good for all 12 measurements across the four classes (Cronbach’s Alpha between .90 and .94).

Trainers’ Charisma. To measure the trainers’ charisma we used a 10-item, self-reporting scale. Scholars have noted that, especially in the context of teacher rating by students, that the results can be biased because of social desirability (Greenwald, 1997; Krosnik, 1990). For the trainers’ charisma self-report we used three subscales of the Multifactor leadership questionnaire (Avolio, Bass, & Jung, 1995). The subscales measure the (1) idealized influence (behavior), (2) idealized influence (attributed) and the (3) inspirational motivation. According to the transformational leadership theory, idealized influence and inspirational motivation together constitute the leader’s charisma (Avolio & Bass, 1991). The original charisma scale consists of 12 items. We excluded the items “I was effective in meeting organizational requirements” and “I went beyond self-interest for the good of the group”, because we think these items apply to an organizational context rather than to a training context. An item example for the

charisma scale is: “I talked about my most important values and beliefs”. The internal consistency of the 10 items was good (Cronbach’s Alpha = .84).

For our statistical analyses, we used the self-rating of the trainer’s charisma. To validate the self-rated trainer’s charisma results, the trainer’s charisma was also measured in a video evaluation. We used a 15-item charisma scale, based of Frese et al. (2003) , which was specially developed for the use of charisma video ratings. The scale consists of 8 items measuring the use of charismatic content (e.g. “The trainer talks in a way, that inspires the trainees”) and 7 items measuring the use of charismatic presentation (e.g. “The trainer keeps eye-contact with the trainees”). Two raters evaluated the trainer on a 5-point Likert-scale (ICC= .98; 48 subjects). The coefficient of the self-rated charisma showed a positive and significant correlation with the coefficient of video rated charisma .57. We therefore regard the charisma self-rating as a valid indicator for the trainer’s charisma.

Trainer’s Appreciation of the Trainee-Trainee Relationship. In order to measure to what extent the trainers appreciate the relationship between themselves and their trainees we used the valence-instrumentality–expectancy scale (Cannon-Bowers, Salas, Tannenbaum, & Mathieu, 1995) and adjusted the wording to the training context. We used five-point Likert-scale. One example item is: “How important are the following to you: Having a close relationship to the students”. The internal consistency of the four items was for all measurements good (Cronbach’s Alpha = .88).

Trainer’s Empathy. We measured the trainers’ empathy towards their trainees by using a subscale of Davis’ (1983) empathy scale, the empathy concern scale. We adjusted the wording to the training context. The scale consists of six items, for example: “When I see student’s being taken advantage of, I feel kind of protective towards them”. The internal consistency of the six items was for all measurements good (Cronbach’s Alpha = .77).

Trainer’s Perspective Taking. To measure the ability of the trainers to take the trainees’ perspective we used the employee perspective taking scale of Parker and Axtell (2001) and adjusted the wording to the training context. The scale consists of 6

items, for example: “I understand the problems students are dealing with”. The internal consistency of the six items was good for all measurements (Cronbach’s Alpha = .75).

Control variables. We used the following variables as control variables for our statistical analyses. We measured the trainees’ as well as the trainer’s gender (female = 0, male = 1) as a recent study showed that gender can influence the trainer-trainee-interaction (Bell et al., 2011). Additionally, we measured the trainee’s conscientiousness (Costa & McCrae, 1992), because research showed that is related to a higher degree of learning motivation (Colquitt & Simmering, 1998). Finally, we included time to control for any effects that occurred over time, within the period of training. For our supplemental analysis, we additionally employed to the control variables gender and conscientiousness, the control variables family and business course. We measured if somebody in the student’s family owns his or her own business (family). With “business course” we measured if the students had taken any business courses to control for the possible influence of previous entrepreneurial knowledge.

Entrepreneurship training. To measure the effects of the entrepreneurship training the students were randomly assigned to the training group or the control group. We coded the answers as “1” if the student was part of the training group and “0” if the student was in the control group.

Business Owner. To measure if the students own a business at T1, T2 and T3 we used the question “Are you currently the owner of a business” in our questionnaires. We coded answers as “1” if the response was “yes” and “0” if the response was “no”.

2.3.4 Method of Analysis

Main Analysis

For our statistical analyses, we regressed the trainees’ entrepreneurial self-efficacy (DV) on trainers’ charisma (IV) to calculate for the effects of the trainer on the trainees over 12 x 4 times of measurements (within every training session). Therefore,

we employed a 2-level data matrix. Level one included the 919 observations of variables that change over time nested in 116 trainees and 4 classes. The variables on level one were: students' entrepreneurial self-efficacy, trainers' charisma and time, as well as the moderators appreciation for relationship respectively, empathy, respectively perspective taking. Level two included all control variables: students' and trainers' gender as well as conscientiousness.

To assess the changes in entrepreneurial self-efficacy over time, we used the calculation of lagged-effects. We conducted our analyses with trainer charisma and entrepreneurial self-efficacy in the same session, controlling for the entrepreneurial self-efficacy of the previous session, because the student's entrepreneurial self-efficacy was evaluated at the end of the session and we therefore wanted to examine the immediate influence that one trainer had on the entrepreneurial self-efficacy of the students within that one session.

For our statistical analyses, we used the evaluations of the students' from the training group, as we wanted to evaluate the effects on the students' entrepreneurial self-efficacy within the session. In order to underline the relevance of entrepreneurial self-efficacy as a key factor in starting a business, we additionally correlated the mean of the entrepreneurial self-efficacy coefficient of the last 3 Sessions with the entrepreneurial self-efficacy coefficient after the training (with the training and control group). The correlation is significant and positive ($r = .60, p < .01$).

Supplemental-analysis

To additionally reinforce the relevance of entrepreneurial self-efficacy as a key indicator for predicting business ownership, and that it is necessary to take a more distinguished look at the factors that influence entrepreneurial self-efficacy within the training, we calculated a linear regression analysis of business ownership (T3) (DV) on the effect of the entrepreneurship training (IV), mediated through entrepreneurial self-efficacy (T2).

We conducted our statistical analyses with the nlme package (for linear and nonlinear mixed effects models) included in the open source software R and restricted maximum likelihood (REML) estimation.

3.4 Results

Main Analysis

Table 2a shows the descriptive statistics and zero-correlations of relevant study variables in the hierarchical data matrix with lagged effects. The results show a significant correlation between the time and the coefficient of every variable except for the coefficient for trainers' appreciation relationship student-trainer, suggesting that every other variable increased or decreases gradually over time, except the variable for appreciation relationship student-trainer, which does not show a gradual pattern over time.

Supplemental-analysis

Table 2b displays the descriptive statistics and zero-correlations of study variables at T1, T2 and T3. The results show a positive significant correlation between the training and entrepreneurial self-efficacy at T2 ($r = .29, p < .01$) but not with entrepreneurial self-efficacy at T1. These results suggest, that the training increases the students' entrepreneurial self-efficacy. Another interesting result is the positive significant correlation between the training and business owner at T3 ($r = .38, p < .01$), suggesting that the training increases the rate of start-ups one year after the training. Another noteworthy result is the positive significant correlation between entrepreneurial self-efficacy at T2 and business owner at T3 ($r = .32, p < .01$), suggesting that the more entrepreneurial self-efficacy the students have developed after the training the more likely it is for them to start a business.

Table 2a Descriptive statistics and zero-correlations of relevant study variables in the hierarchical data matrix with lagged effects (main analysis).

Variable	Mean	SD	1	2	3	4	5	6	7
1. Time	6.00	3.21							
2. Student entrepreneurial self-efficacy (w+1)	4.60	0.56	.24**						
3. Student entrepreneurial self-efficacy (w)	4.57	0.57	.26**	.68**					
4. Trainer charisma	6.62	0.45	-.14**	-.02	-.07*				
5. Trainer appreciation rel. student-trainer	6.65	0.48	-.02	-.03	-.04	.61**			
6. Trainer perspective taking	4.18	0.46	.20**	.02	.02	-.01	.26**		
7. Trainer empathy	3.53	0.67	-.29**	-.04	-.04	-.29**	-.18**	.23**	
8. Trainer gender ^a	0.52	0.50	.27**	.06*	.06*	-.22**	-.06	.07*	.02

Note. Number of observations = 919; ^a Trainer gender: 0 = female, 1 = male; * = $p < .05$, ** = $p < .01$

Table 2b. Descriptive statistics and zero-correlations of study variables at T1, T2 and T3 (supplemental

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. Training	0.68	0.47								
2. Entrepreneurial self-efficacy (T1)	4.28	0.70	-.04							
3. Entrepreneurial self-efficacy (T2)	4.49	0.49	.29**	.37**						
4. Business owner (T3)	0.52	0.50	.38**	.05	.32**					
5. Business owner (T1)	0.14	0.35	.20*	-.04	.07	.39**				
6. Gender ^a	0.67	0.47	.01	-.02	.11	.09	.02			
7. Conscientiousness	4.38	0.42	.18	.43**	.38**	.10	-.04	.08		
8. Business course (T1)	0.53	0.50	.13	.07	.03	.14	.19	.01	.04	
9. Family	0.59	0.49	.08	-.13	.00	.13	.08	-.08	.01	.11

Note. N = 95; ^a Gender: 0 = female, 1 = male; * = p < .05, ** = p < .01

2.4.1 Results of Testing the Hypotheses

Hypothesis 1 states that the trainers' charisma has a positive effect on the students' entrepreneurial self-efficacy. Table 3a shows the prediction model of the trainers' charisma on the students' entrepreneurial self-efficacy (subsequent wave) over all 12 Session to test our hypothesis 1. In Model 1a, we regressed the students' entrepreneurial self-efficacy on the control variables. The coefficient for time was significant and positive ($B = .03, p < .01$) suggesting that the student's entrepreneurial self-efficacy increases over time. In Model 1b, we added the variable for trainer's charisma into the model. The coefficient for trainer's charisma was significant and positive ($B = .06, p < .05$) suggesting that the charismatic trainers increased the student's entrepreneurial self-efficacy. Thus, we find support for hypothesis 1.

Table 3a. Hierarchical linear modeling of the effect of trainers' charisma on students' entrepreneurial self-efficacy (subsequent wave).

Dependent variable	Model 1a		Model 1b	
	Entrepreneurial self-efficacy (subsequent wave)			
	B	SE	B	SE
Time	0.03**	0.00	0.03**	0.00
Student gender	0.12*	0.06	0.12*	0.06
Student conscientiousness (T1)	0.23**	0.06	0.23**	0.06
Student entrepreneurial self-efficacy	0.27**	0.03	0.27**	0.03
Trainer gender	0.02	0.02	0.03	0.03
Trainer charisma			0.06*	0.03
Deviance (-2 * LogLikelihood)	918.25		919.03	

Note. Number of observations = 919; Number of students = 116; Number of classes = 4;
 $\dagger = p < .10, * = p < .05, ** = p < .01$.

Hypothesis 2a states that the positive effect of the trainers' charisma on the students' entrepreneurial self-efficacy is moderated by the trainer's appreciation for the trainer-student relationship. Table 3b displays the prediction model of the trainers' charisma on the students' entrepreneurial self-efficacy (subsequent wave) moderated by the trainer's appreciation for the trainer-student relationship over all 12 sessions to test our hypothesis 2a. The effect of the interaction between trainer's appreciation for the trainer-student relationship and trainers' charisma is not significant. Thus, we find no support for hypothesis 2a.

Table 3b. Hierarchical linear modeling of the interaction effect of trainers' charisma and the trainer's appreciation for the trainer-student relationship on students' entrepreneurial self-efficacy (subsequent wave).

Dependent variable	Model 1a			Model 1b			Model 1c		
				Entrepreneurial self-efficacy (subsequent wave)			Entrepreneurial self-efficacy (subsequent wave)		
	B	SE		B	SE		B	SE	
Time	0.03**	0.00		0.03**	0.00		0.03**	0.00	
Student gender	0.12*	0.06		0.13*	0.06		0.13*	0.06	
Student conscientiousness (T1)	0.23**	0.06		0.22**	0.06		0.22**	0.06	
Student entrepreneurial self-efficacy	0.27**	0.03		0.27**	0.03		0.27**	0.03	
Trainer gender	0.02	0.03		0.03	0.03		0.03	0.03	
Trainer appreciation relationship trainer-student				-0.04	0.03		-0.02	0.03	
Trainer charisma				0.08*	0.03		0.09*	0.03	
Trainer appreciation relationship trainer-student x Trainer charisma							0.04	0.08	
Deviance (-2 * LogLikelihood)	918.25			923.17			926.59		

Note. Number of observations = 919; Number of students = 116; Number of classes = 4; † = $p < .10$, * = $p < .05$, ** = $p < .01$.

Hypothesis 2b states that the positive effect of the trainers' charisma on the students' entrepreneurial self-efficacy is moderated by the trainer's empathy. Table 3c shows the prediction model of the trainers' charisma on the students' entrepreneurial self-efficacy (subsequent wave) moderated by the trainer's empathy over all 12 sessions to test our hypothesis 2b. The effect of the interaction between trainer's empathy and trainers' charisma is not significant. Therefore, we find no support for hypothesis 2b.

Table 3c. Hierarchical linear modeling of the interaction effect of trainers' charisma and trainer's empathy on students' entrepreneurial self-efficacy (subsequent wave).

Dependent variable	Model 1a		Model 1b		Model 1c	
	Entrepreneurial self-efficacy (subsequent wave)					
	B	SE	B	SE	B	SE
Time	0.03**	0.00	0.03**	0.00	0.03**	0.00
Student gender	0.12*	0.06	0.12*	0.06	0.12*	0.06
Student conscientiousness (T1)	0.23**	0.06	0.23**	0.06	0.22**	0.06
Student entrepreneurial self-efficacy	0.27**	0.03	0.27**	0.03	0.28**	0.03
Trainer gender	0.02	0.03	0.02	0.03	0.03	0.03
Trainer empathy			0.04†	0.03	0.03	0.03
Trainer charisma			0.07*	0.03	0.07*	0.03
Trainer empathy x Trainer charisma					0.07	0.06
Deviance (-2 * LogLikelihood)	918.25		922.52		924.67	

Note. Number of observations = 919; Number of students = 116; Number of classes= 4; † = $p < .10$, * = $p < .05$, ** = $p < .01$.

Hypothesis 2c states that the positive effect of the trainers' charisma on the students' entrepreneurial self-efficacy is moderated by the trainer's ability to take the students' perspective. Table 3d displays the prediction model of the trainers' charisma on the students' entrepreneurial self-efficacy (subsequent wave) moderated by the trainer's ability to take the students' perspective over all 12 sessions to test our hypothesis 2c. The effect of the interaction between the trainer's ability to take the students' perspective and trainers' charisma is not significant. Consequently, we find no support for hypothesis 2c.

Table 3d. Hierarchical linear modeling of the interaction effect of trainers' charisma and the trainer's ability to take the students' perspective on students' entrepreneurial self-efficacy (subsequent wave).

Dependent variable	Model 1a			Model 1b			Model 1c			
	Entrepreneurial self-efficacy (subsequent wave)						B	SE	B	SE
	B	SE	B	SE	B	SE				
Time	0.03**	0.00	0.03**	0.00	0.03**	0.00	0.03**	0.00	0.00	
Student gender	0.12*	0.06	0.12*	0.06	0.12*	0.06	0.12*	0.06	0.06	
Student conscientiousness (T1)	0.23**	0.06	0.23**	0.06	0.23**	0.06	0.23**	0.06	0.06	
Student entrepreneurial self-efficacy	0.27**	0.03	0.27**	0.03	0.27**	0.03	0.27**	0.03	0.03	
Trainer gender	0.02	0.02	0.03	0.03	0.02	0.03	0.02	0.03	0.03	
Trainer perspective taking			-0.04	0.03			-0.25	0.03		
Trainer charisma			0.05*	0.03			0.05*	0.03		
Trainer perspective taking x Trainer charisma							-0.08	0.08		
Deviance		918.25		922.98		925.47				
(-2 * LogLikelihood)										

Note. Number of observations = 919; Number of students = 116; Number of classes = 4; † = $p < .10$, * = $p < .05$, ** = $p < .01$.

Supplemental Analysis: Entrepreneurial self-efficacy as the decisive training outcome

In order to underline the key role of entrepreneurial self-efficacy as the decisive criterion for starting a business we want to test if the relationship between the entrepreneurship training and the start up rate of the students (training and control group) one year after the training (T3), is mediated through entrepreneurial self-efficacy (T2) as the decisive mediator.

Table 4a displays the prediction model of the entrepreneurship training on business owner (T3) mediated through entrepreneurial self-efficacy (T2). In Model 1a, we regressed business ownership in T3 on the control variables. The coefficient for business owner (T1) was significant and positive ($B = .54, p < .01$). In Model 1b, we added the training variable into the model. The coefficient for training was significant and positive ($B = .32, p < .01$) suggesting that the students in the training group are more likely to start a business than the students of the control group who did not participate in the training. In Model 1c, we added the variable measuring entrepreneurial self-efficacy at T2 in into the model. The coefficient for training ($B = .27, p < .05$) and the coefficient for entrepreneurial self-efficacy at T2 ($B = .24, p < .05$) were significant and positive. This indicates that participation in the training as well as having a high entrepreneurial self-efficacy at T2 increase the probability of starting a business.

Table 4a. Linear regression model of entrepreneurial self-efficacy (T2) as mediator between the entrepreneurship training and business owner (T3).

Dependent variable	Model 1a		Model 1b		Model 1c	
	B	SE	B	SE	B	SE
Business owner (T1)	0.54**	0.14	0.46**	0.14	0.44**	0.14
Gender	0.09	0.10	0.09	0.10	0.07	0.10
Business course	0.05	0.10	0.02	0.10	0.03	0.09
Family	0.12	0.10	0.09	0.10	0.09	0.09
Conscientiousness	0.13	0.12	0.06	0.11	-0.03	0.12
Training			0.32**	0.10	0.27*	0.10
Entrepreneurial self-efficacy (T2)					0.24*	0.10
R ²	0.18		0.26		0.31	
Δ R ²			0.08		0.04	

Note. N = 147; † = p < .10, * = p < .05, ** = p < .01.

To test whether the training actually leads to an increase in the students' entrepreneurial self-efficacy we conducted an additional analysis. Table 4b shows the prediction model of entrepreneurship training on entrepreneurial self-efficacy (T2). In Model 2a, we regressed entrepreneurial self-efficacy at T2 on the control variables. The coefficient for entrepreneurial self-efficacy at T1 was positive and significant ($B = .18$, $p < .05$). In Model 2b, we included the training variable into the model. The coefficient for training was significant and positive ($B = .29$, $p < .01$) suggesting that the students in the training group, in comparison to the students of the control group, experience an increase in their level of entrepreneurial self-efficacy.

Table 4b. Linear regression model of the entrepreneurship training predicting entrepreneurial self-efficacy (T2).

Dependent variable	Model 2a		Model 2b	
	B	SE	B	SE
Entrepreneurial self-efficacy (T1)	0.18*	0.076	0.21**	0.07
Gender	0.10	0.10	0.10	0.10
Business Course	-0.00	0.09	-0.03	0.09
Family	0.04	0.10	0.03	0.09
Conscientiousness	0.30*	0.13	0.23	0.12
Training			0.29**	0.10
R ²	0.20		0.27	
ΔR^2			0.07	

Note. N = 171; † = $p < .10$, * = $p < .05$, ** = $p < .01$.

To test the mediation effect, we applied the bootstrapping approach (Preacher & Hayes, 2008). The results provided support for the assumed mediation effect. The 95% confidence interval around the indirect effect did not include zero which means that

indirect effect was significant (indirect effect = 0.073, lower bound = 0.009, upper bound, = 0.163, $p < .05$). Thus, the relationship between the entrepreneurship training and the start up rate of the students (training and control group) one year after the training (T3) is mediated through entrepreneurial self-efficacy (T2) as the decisive mediator.

3.5 Discussion

In this study, we examined the under-researched field of the trainer-trainee-relationship in entrepreneurship (Burke & Hutchins, 2008; Harris et al., 2014; Rangel et al., 2015; Towler, 2009; Varela et al., 2011). There are two reasons for this neglect: One explanation fore neglecting the trainer-trainee-relationship in research could be the “lack of theoretical framework and scarcity of empirical evidence” to build upon (Towler et al., 2014, p. 20). Additionally, this could explained as Burke and Hutchins (2008) suggest: training certification programs (like the American Society of Training & Development) and other organizations focus more on aspects such as program design or the development of competencies, thus research provides more results and knowledge about those training aspects than on aspects of the social exchange or the trainers’ characteristics (Burke & Hutchins, 2008).

In line with recent findings, we argue that the trainers’ charisma influences the trainees’ entrepreneurial self-efficacy (Rangel et al., 2015; Towler et al., 2014). We build on different theoretical perspectives to show that charisma is an important trainer characteristic and that entrepreneurial self-efficacy is an important trainee learning outcome (Bass, 1985; Kraiger, Kraiger, et al., 1993; Sitzmann et al., 2008; Towler et al., 2014). Furthermore, we investigated the general learning relationship between trainer and trainee from different fields of research. We used the perspectives of different fields of research because we were interested in a more detailed consideration of the trainer-trainee-relationship. We argued that there are different trainer characteristics that support the knowledge-transfer between trainer and trainee on an affective level.

In our statistical analyses, we demonstrated that the trainers' charisma has a positive effect on the trainees' entrepreneurial self-efficacy within the training session. Unfortunately our explorative examination of the trainer-trainee-relationship for aspects that enhance affective relationship building in learning contexts, only lead to non-significant results. The non-significance can be attributed to several reasons: One explanation for all three mediators being non-significant could be that Tanzanian students are not accustomed to evaluating their lecturers. The Tanzanian culture is characterized by a high degree of power distance⁶. Power distance describes the fact that the less powerful members of an institution or organization (e.g. the students) expect and accept that power is distributed unequally (Hofstede, 2015). Since this is a subconscious cultural agreement, we assume that, the more powerful member (e.g. the lecturer) is not used to admitting his affections towards the less powerful member (e.g. the students) as this could disequilibrate the slope of power distribution. Further research should give more consideration to cultural dimensions and adjust their research methods to them.

Another explanation for the non-significance of all three mediators could be, that the quantitative analysis is not an adequate methodological approach for examining the trainer-trainee-relationship on an affective level. Perhaps the use of qualitative methods, like in-depth interviews would be a more appropriate approach to grasp the gestalt of the underlying interdependency (Morgan & Smircich, 1980). Future research should use qualitative measurements to examine the underlying mechanisms of the trainer-trainee-relationship.

In a supplemental analysis, we showed that entrepreneurial self-efficacy is a crucial learning outcome of entrepreneurship training, because the trainees actually start business one year after the training.

We believe that our study contributes to the literature in the several ways. First, as stated above, the research on trainer-trainee relationship is scant. Thus, our study contributes to filling the research gap in this area. By doing so, we contributed to

⁶ Tanzania has a power-distance-value of 70. In comparison, the power-distance-value of the USA is 40 (Hofstede, 2015).

increasing the knowledge about what enhances knowledge transfer between trainer and trainee and thus, leads to a better outcome, and thus, more efficient training (Sitzmann et al., 2008).

Second, since our entrepreneurship training was implemented in Tanzania, we not only able to contribute to the field of research of trainings in general, but also to the field of study of entrepreneurship trainings in developing countries. Reacting on McKenzie and Wodruff's (2012) recent call for more sophisticated measurements in studies on entrepreneurship trainings in developing countries, we employed in our statistical analysis calculations with 919 observations and controlled for changes in the trainee's entrepreneurial self-efficacy with measurements of lagged-effects. Thus, we meet the required methodological standard of evaluation.

Third, by using an explorative approach to look for possible moderators for the effect of the trainer's charisma on the trainee's self-efficacy, we allowed ourselves to argumentatively open up and enrich our findings with the insights of different disciplines. Even though our results for testing our hypothesized moderator were all non-significant, we believe that the multidisciplinary approach to our examination of trainer-trainee-relationship, were more detailed and on an affective level, broadened the perspective in the field of training research.

Finally, our study contributed to the examination of self-efficacy in entrepreneurship. Scholars have identified self-efficacy as decisive training outcome (e.g. Salas & Cannon-Bowers, 2001). In our supplemental analysis, we were able to show that the entrepreneurship training leads to an increase in business owners one year after the training. This relation was mediated through entrepreneurial self-efficacy. Gielnik et al. (2015) argued that trainees' self-efficacy increases because of aspects that happen outside the training context (trainees actually start their own business). Thus, Gielnik et al.'s (2015) line of reasoning on why the training enhances entrepreneurial self-efficacy was based on mastery experience. In our study, we focused on the examination of entrepreneurial self-efficacy in the entrepreneurship training within the sessions. To examine the development of entrepreneurial self-efficacy in the

entrepreneurship training within the sessions, we measured the trainees' the training entrepreneurial self-efficacy over time and found that the entrepreneurial self-efficacy increases during the twelve weeks ($B = .03, p < .01$). Furthermore and in particular, we focused on the trainers' charisma, because we argued that the trainers' charisma enhances the trainees' entrepreneurial self-efficacy through social persuasion and vicarious experience. Accordingly, Gielnik's et al. (2015) theoretical approach on the development of self-efficacy outside the training sessions (by starting their own business) and our perspectives on the development of entrepreneurial self-efficacy within the session (through the interaction with the trainer) complement each other. Thus, our study contributes to the literature by providing a new theoretical perspective on the development of self-efficacy in entrepreneurship trainings.

3.5.1 Strength & Limitations

A potential limitation of the study could be that we used a self-reporting scale, answered by the trainers. Although, scholars have noted that especially in the context of teacher rating through the students, results can be biased because of social desirability (Greenwald, 1997; Krosnik, 1990), other meta-analytical results prove that student ratings can be a valid instrument for measuring training effectiveness (Cohen, 1981). Thus, it would be interesting to measure the perceived charisma from a trainee perspective. But on the other hand, we validating the charisma self-reported scale though the video rating.

One could assume that since we calculated the trainers' charisma and the trainees' entrepreneurial self-efficacy within one time of measurement (one session), we would have a common methodological problem. We generally calculate within the same time of measurement but we do not use the same source. We have the trainer as one source of data and the students as the other source of data. Additionally, with our lagged effects model we can control for the entrepreneurial self-efficacy coefficient of the previous session and we calculate with the entrepreneurial self-efficacy coefficient of the subsequent session of the training.

Further potential limitations of the presented study could be that cultural aspects (like power distance) hindered the trainers to openly evaluate their affective relation towards their trainees. Finally, to examine the trainer-trainee-relationship on an affective level, qualitative research measures could be more appropriate to grasp the gestalt of this interdependency (see above).

3.5.2 Conclusions

Our study showed that there are certain characteristics of the trainer (e.g. charisma) that influences the trainee positively (e.g. entrepreneurial self-efficacy). Scholars from various research areas have emphasized the importance of the examination of the relationship between trainer/teacher and trainee/student in a learning context (Aspelin, 2012; Burke & Hutchins, 2008; Harris et al., 2014; Rangel et al., 2015; Towler et al., 2014; Varela et al., 2011; Wright et al., 1997). We believe, that in order to design more effective trainings, it is necessary to further investigate the trainer-trainee-relationship, especially in the context of entrepreneurship trainings in developing countries.

CHAPTER 4

Entrepreneurship training makes happy: Examining short- and long-term effects of entrepreneurship training on life satisfaction

4.1 Abstract

Based on theories of life satisfaction, we develop a theoretical model to explain how entrepreneurship training affects life satisfaction. The model states that entrepreneurship training has positive short- and long-term effects on life satisfaction; however, the underlying mechanisms for the effects are fundamentally different. Specifically, we hypothesize that entrepreneurship training has an immediate short-term boost on life satisfaction, which is mediated through entrepreneurial self-efficacy and vanishes over time. We further hypothesize that training has a long-term effect through self-employment, which holds in the long-run. We⁷ conducted an entrepreneurship training as part of a randomized⁸ controlled field experiment with five measurement waves over a total period of 2.5 years to test our hypotheses. The total sample size was 1,092 observations from 312 students. Using discontinuous growth modeling to take into account the temporality of our hypothesized effects, we found empirical support for our theoretical model. The findings suggest that there are different pathways through which entrepreneurship training increases life satisfaction in the short- and long-run.

⁷ I gratefully received the data from Prof. Michael Gielnik and Kim Marie Bischoff who led the survey at all times of measurement. Eike Hedder, Andreas Heese, Rebecca Kernert, Marie-Luise Lackhoff, Kay Turski, Melanie von der Lahr, and Kristina Zyla, Svenja Haskamp and Elisabeth Gerlach collected the quantitative data in this study.

⁸ The randomization of the students into a control or training group is true until the T4 measurement wave. After the T4 measurement wave the control group also received the entrepreneurship training. Therefore, we also conducted a robustness test on all of the results using a sample with only 4 measurement waves. The pattern of the results was identical.

4.2 Introduction

In the past years, the number and diversity of entrepreneurship education and training programs has substantially increased in many developed and developing countries (Kabongo & Okpara, 2010; Klandt, 2004; Solomon, 2007). Obviously, the main idea of these entrepreneurship programs is to promote entrepreneurship and indeed, a recent meta-analysis has shown that entrepreneurship programs are effective in promoting entrepreneurial skills, intentions, start-up, and performance (Martin, McNally, & Kay, 2013). However, the same meta-analysis has also concluded that many studies evaluating entrepreneurship programs lack a proper theoretical grounding as well as an integrated presentation of the short- and long-term outcomes (Martin et al., 2013). Similarly, other scholars have noted that research on the impact of entrepreneurship education and trainings is still at an exploratory stage with evaluation studies suffering from several methodological problems, such as a lack of basic controls in the form of pre-post-testing, a lack of longitudinal measurements, and a lack of randomized control groups (M. Glaub & Frese, 2012; Henry, 2004; Honig, 2004; McMullan, Chrisman, & Vesper, 2001; Souitaris, Zerbinati, & Al-Laham, 2007; von Graevenitz, Harhoff, & Weber, 2010). All these drawbacks preclude an unambiguous interpretation of the results and the development of proper theoretical models to explain the effects of entrepreneurship courses and trainings. Furthermore, it is important to extend the perspective on potential outcomes of entrepreneurship and entrepreneurship trainings. Recently, Shepherd and Haynie (2009) have stated that entrepreneurship scholars should go beyond the traditional performance constructs and also examine more philanthropic outcomes, such as entrepreneurs' health and psychological well-being. Such research would contribute to the study and theoretical models of positive psychology in the specific area of entrepreneurship (Seligman & Csikszentmihalyi, 2000).

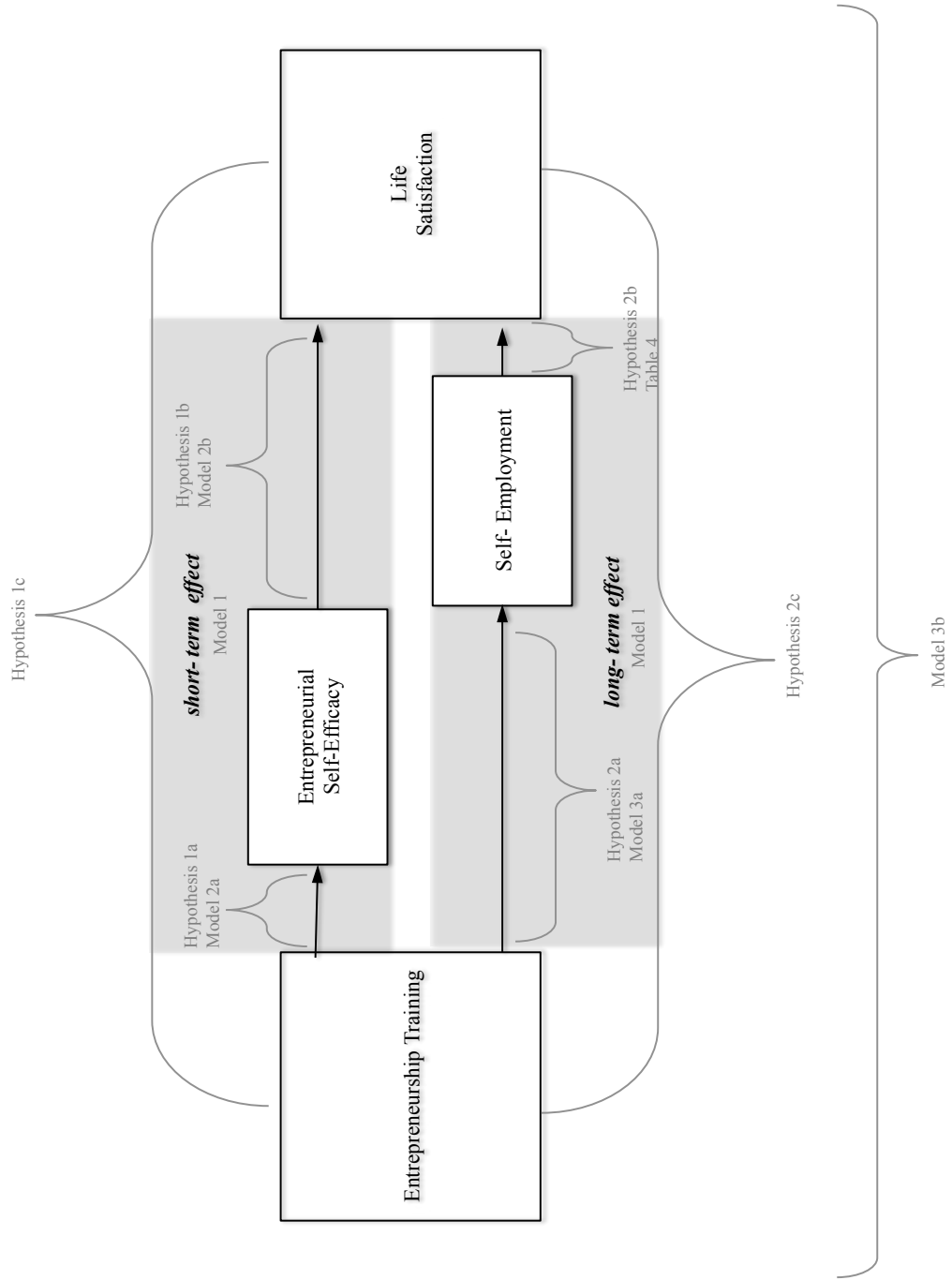
In this study, we seek to address some of the shortcomings of previous research by developing a theoretical model that specifically distinguishes between the short- and

long-term effects of entrepreneurship training on life satisfaction. Based on recent theoretical notions in the domain of life satisfaction (Luhmann, Hofmann, Eid, & Lucas, 2012), we distinguish between short- and long-term effects to better understand the underlying mechanisms of the causal effects of the entrepreneurship training on life satisfaction. Specifically, we argue that the entrepreneurship training promotes life satisfaction in the short- and long-run but the underlying mechanisms for the short- and long-term effects are fundamentally different. There are two different pathways through which the entrepreneurship training affects life satisfaction. Our theoretical model considers the two different pathways and thus provides a more detailed conceptualization of the causal flow of the effects of the entrepreneurship training on life satisfaction. In line with Luhmann et al. (2012) we argue that our participants experience a brief boost in life satisfaction as a result of the entrepreneurship training, which vanishes over time because of adaption. This positive short-term effect of the entrepreneurship training on life satisfaction arises because the participants experience an increase in the confidence in their entrepreneurial skills (i.e., entrepreneurial self-efficacy). Thus, there will be an immediate short-term effect of the entrepreneurship training on life satisfaction, which is mediated through entrepreneurial self-efficacy and vanishes over time. Furthermore, based on the theoretical notions that a change in employment status and especially, becoming self-employment can have a positive constant and long-lasting effect on people's life satisfaction (Luhmann et al., 2012), we hypothesize that for the training group, there is a long-term positive effect of the entrepreneurship training on life satisfaction through becoming self-employed, which holds over time.

Our study contributes to the literature in the following ways. First, we present a theoretical model that integrates the short- and long-term effects of the entrepreneurship training on life satisfaction (see Figure 1). We therefore provide a theoretical grounding that explains why and how the training has an effect on life satisfaction. This model argues that there are fundamentally different mechanisms underlying the training's overall effect on life satisfaction: an immediate, short-term effect (boost) through entrepreneurial self-efficacy and a long-term effect through self-employment. Taking

into account the temporality of effects and theorizing about the different underlying processes from a temporal perspective is essential to advance our theoretical models and make more precise predictions (George & Jones, 2000; Gielnik et al., 2014; Mitchell & James, 2001). Secondly, to test our theoretical model, we employed a randomized controlled field experiment in a longitudinal design over a total period of 2.5 years with five measurements (one pre-training and four post-training measurements). Our study design thus meets the required scientific standards to test theoretical models assuming causal effects (Reay, Berta, & Kohn, 2009). Furthermore, we apply a discontinuous growth model to statistically analyze the short- and long-term effects of the training (Lang & Bliese, 2009; Lang & Kersting, 2007). This methodological approach allows researchers to model the temporality of effects. Finally, we provide evidence for the positive effects of entrepreneurship on life satisfaction. Examining constructs from the domain of positive psychology, such as life satisfaction and happiness, as outcomes of entrepreneurship contributes to our understanding of the positive impact of entrepreneurship on people's lives and their balanced well-being beyond economic parameters (Binder & Coad, 2013; Parasuraman & Simmers, 2001; Shepherd & Haynie, 2009; Uy, Foo, & Song, 2013).

Figure 1. Theoretical model of the short- and long-term effects of the entrepreneurship training on life satisfaction.



4.2.1 Conceptual Background and hypotheses development

We first describe the concept of life satisfaction and the didactical approach of our entrepreneurship training to provide the conceptual background for our hypotheses. We then develop a theoretical model and specific hypotheses on the short- and long-term effects of the entrepreneurship training on life satisfaction through entrepreneurial self-efficacy and self-employment.

Life Satisfaction

“Life satisfaction is defined as an overall cognitive and global evaluation of the quality of one's life” (Burleigh, Farber, & Gillard, 1998, p. 45; see also Diener, Emmons, Larsen, & Griffin, 1985; Erdogan, Bauer, Truxillo, & Mansfield, 2012a). Life satisfaction forms part of people's general subjective well-being. Subjective well-being describes the sum of peoples' affective and cognitive judgments regarding the quality of their lives (Diener, 1984). Subjective well-being is regarded as a construct consisting of three components: positive affect, negative affect, and life satisfaction (Diener, 2001; Pavot & Diener, 2008). In our study, we focus on life satisfaction because according to Diener (1984), life satisfaction is the key component of people's subjective well-being (Erdogan, Bauer, Truxillo, & Mansfield, 2012).

The Entrepreneurship Training

The training is an action-oriented entrepreneurship training that aims to promote entrepreneurship. Entrepreneurship is defined as the process of discovering, evaluating, and exploiting business opportunities (Shane & Venkataraman, 2000). Scholars have acknowledged that action-oriented trainings are an effective way to facilitate entrepreneurship because entrepreneurial action is a key factor for discovering and exploiting business opportunities (Baron, 2007; Barr, Baker, & Markham, 2009; Michael Frese, 2009; M. E. Glaub, Frese, Fischer, & Hoppe, 2014; McMullen & Shepherd, 2006). Entrepreneurship is a domain that draws on different disciplines (Baron, 2007). Our entrepreneurship training therefore covered 12 topics from the domains of entrepreneurship, business administration, and psychology (Gielnik et al.,

2014). The 12 topics were on (1) identifying business opportunities, (2) marketing, (3) leadership and strategic management, (4) the psychology of planning and implementing plans, (5) financial management, (6) persuasion and negotiation, (7) acquiring starting capital, (8) networking, (9) accounting, (10) personal initiative, (11) business plan, and (12) legal and regulatory issues. We chose these 12 topics based on a comprehensive literature review on entrepreneurship education and trainings (Solomon, 2007; Vesper & Gartner, 1997). The training had weekly sessions of three hours over a period of 12 weeks. The sessions were taught by lecturers from two universities.

We based the didactical approach of the training on Frese and Zapf's (1994) action regulation theory perspective on training. The perspective maintains two important aspects: First, the theoretical training content should be delivered in the form of action principles. Action principles are rules-of-thumb or heuristics of how to perform and accomplish goals (Glaub et al., 2014). Action principles are evidence-based, that is they draw on established scientific knowledge and theories. Action principles guide the training participants and specify how to approach specific tasks in order to be successful. For example, goal-setting theory states that goals should be specific, challenging, and time-bound in order to increase performance (Locke & Latham, 2002). Accordingly, the action principle for goal setting was to set specific, challenging, and time-bound goals. Second, the theoretical content should be internalized by active learning, meaning learning-by-doing (Frese & Zapf, 1994). During the training, the participants formed start-up teams of five participants to directly apply the action principles that they have learned. The students prepared, launched, and managed a micro business in the course of the 12 weeks of the training. To increase the students' awareness that they had to start a real business, we provided them with starting capital of 100 USD. The students had to repay the starting capital at the end of the training. The students dealt with real money, goods, and customers in the training, which meant that they had the real-life experience of becoming a business owner in the 12 weeks. The start-up teams identified a business opportunity in the first session, assembled the necessary resources and equipment to set-up their business, made their first sale, and managed their business until the last session of the training.

The participants thus went through the whole entrepreneurial process during the 12 weeks of training. The training content in the form of the action principles guided the students in the entrepreneurial process and provided them with the necessary skills and knowledge to successfully accomplish the tasks of an entrepreneur.

Short-Term Effects of the Entrepreneurship Training: Brief Boost in Life Satisfaction mediated by Entrepreneurial Self-efficacy

We argue that entrepreneurship training has a positive short-term effect on life satisfaction through entrepreneurial self-efficacy, which vanishes over time. Specifically, we argue that the entrepreneurship training affects entrepreneurial self-efficacy and that entrepreneurial self-efficacy in turn has a positive effect on life satisfaction. In this paragraph, we first argue for the first link in this causal chain (the link from the entrepreneurship training to entrepreneurial self-efficacy). In the next paragraphs, we argue for the second link (the link from entrepreneurial self-efficacy to life satisfaction) and the mediation effect of entrepreneurial self-efficacy in the short-term relationship between the training and life satisfaction.

In line with Gielnik et al. (2014), we argue that the entrepreneurship training leads to an increase in the participant's entrepreneurial self-efficacy. Self-efficacy is defined as one's belief in one's ability to succeed in specific situations (Bandura, 1977). The entrepreneurship training increases participants' self-efficacy for the following reasons: First, the participants engage in a real start-up process during the entrepreneurship training; this experience functions as a mastery experience and enhances participants' self-efficacy (Bandura, 1989; Gist & Mitchell, 1992). The entrepreneurship training functions as a setting in which the participants experience to succeed in entrepreneurship. Second, during the training, the trainers emphasized and mentioned that the participants learn all the necessary knowledge and skills to succeed in entrepreneurship. This verbal persuasion should further enhance participants' self-efficacy (Bandura, 1989; Gist & Mitchell, 1992). Finally, the participants observed the accomplishments and successes of other start-up teams in their training classes. Therefore participants should also increase in entrepreneurial self-efficacy through observing successful peers (Bandura, 1989; Gist & Mitchell, 1992). Indeed, Gielnik et

al. (2014) provided evidence that entrepreneurship training had a positive effect on entrepreneurial self-efficacy. In conclusion, we hypothesize that the entrepreneurship training has a positive effect on entrepreneurial self-efficacy.

Hypothesis 1a: The entrepreneurship training has a positive effect on entrepreneurial self-efficacy.

We hypothesize that entrepreneurial self-efficacy leads to an increase in life satisfaction. We argue that entrepreneurial self-efficacy has a positive effect on life satisfaction because the feelings of confidence and competence associated with higher entrepreneurial self-efficacy should uplift people's satisfaction with their lives. Lyubomirsky et al. (2005) introduced the concept of intentional activities. Under the construct of intentional activities the authors count certain actions or practices, in which people can choose to engage but also require some degree of effort to enact. Meaning, that the person has to try to do the activity and that it does not happen by itself (e.g. the entrepreneurship training). Two important aspects of intentional activities are goal progress and attainment. Goal progress and attainment lead to an increase in people's subjective well-being (Lyubomirsky, et al., 2005; Sheldon & Elliot, 1999; Sheldon & Kasser, 1998). In other words: if people experience that their actions lead towards their goals and that they can therefore achieve them, it increases their level of subjective-wellbeing.

The cognitive-motivational indicator of progress is self-efficacy. People with a higher level of self-efficacy have experienced a feeling of mastery and that they have accomplished something (Bandura, 1977; Vancouver, Thompson, & Williams, 2001; Vancouver, More, & Yoder, 2008; Wood & Bandura, 1989). The underlying psychological mechanism here is, that by setting a goal, people create psychological discrepancy between the current- and the desired target-state (Bandura, 1977; Carver, 2006; Gielnik, Spitzmuller, Schmitt, Klemann, & Frese, n.d.). By achieving their goal, or even a sub-goal this discrepancy closes and people experience an increase in their well-being (Gielnik et al., n.d.; Weick, 1984). In fact, research shows that self-efficacy

is related to well-being and life satisfaction (Bandura, 1977; Lyubomirsky et al., 2005; Scheier & Carver, 1993; Taylor & Brown, 1988). Thus, we hypothesize the following:

Hypothesis 1b: Entrepreneurial self-efficacy has a positive effect on the participant's life satisfaction.

We hypothesize that there is an immediate, short-term boost in participants' life satisfaction because of the entrepreneurship training, which is mediated through entrepreneurial self-efficacy and vanishes over time. In line with Luhmann et al. (2012), we argue that because entrepreneurship training cannot be regarded as a severe life event but more as a minor life event, it only has a short-term impact on the participant's life satisfaction. The training does provide the participants with a mastery experience and thus, leads to an increase of their entrepreneurial self-efficacy (Hypothesis 1a). Furthermore we have argued, that this increase in entrepreneurial self-efficacy has a positive effect on the participant's life satisfaction (Hypothesis 1b). But because this increase in life satisfaction does not have the impact of a severe life event, and thus, is not sustainable, participants relapse and move to their initial set-point of life satisfaction. Therefore, we hypothesize that training has a positive short-term effect on the participant's life satisfaction, which is mediated by entrepreneurial self-efficacy and vanishes over time.

Hypothesis 1c: The entrepreneurship training has a positive short-term effect on life satisfaction, which is mediated through self-efficacy and vanishes over time.

Long-Term Effects of the Entrepreneurship Training Through Self-Employment

We argue that the entrepreneurship training has a positive effect on self-employment and becoming self-employed is a far-reaching and long-lasting life event transmitting the effect of the entrepreneurship training on life satisfaction. In this

paragraph, we first argue for the first link in this causal chain (the link from the entrepreneurship training to self-employment). We then argue for the second link (the link from self-employment to life satisfaction) and the mediation effect in the next paragraphs.

For the first link, we follow Gielnik, et al. (2015) to argue that the entrepreneurship training positively affects self-employment. Gielnik, et al. (2015) have argued that the didactical features of action principles and active learning lead to an increase in four action-regulatory factors: action knowledge, entrepreneurial goal intentions, entrepreneurial self-efficacy, and action planning. These action-regulatory factors mediate the positive effect of training on entrepreneurial action and entrepreneurial action is a key antecedent of starting a business and becoming self-employed (Gielnik et al., 2014). Gielnik, et al. (2015) have provided empirical support for the causal chain leading from the entrepreneurship training to business ownership. Accordingly, Gielnik and Frese (2013) have concluded that the entrepreneurship training led to a significantly stronger increase in number of business owners indicating that the training is an effective intervention to increase self-employment. We therefore hypothesize:

Hypothesis 2a: Entrepreneurship training has a positive effect on self-employment.

For the second link (self-employment has a positive long-term effect on life satisfaction), we argue that self-employment makes a continuous difference in people's lives.

Based on Diener's (2000) theoretical conceptions, we argue that the participants can experience a long-lasting change in life satisfaction after a major life event that makes a continuous difference in their lives. Several scholars have suggested that it is important to consider certain major life events that influence the level of life satisfaction over time (Diener, Lucas, & Scollon, 2006; Diener, 2000; Easterlin, 2005). For example, Luhmann et al. (2012) provided meta-analytic results on the effects of life events on subjective well-being. Their findings indicate that depending on the severity

of the life events (e.g., widowhood, childbirth, becoming unemployed, or divorce), there are long-lasting effects on people's subjective well-being and life satisfaction (Luhmann et al., 2012). Similarly, Fujita and Diener (2005) surveyed the baseline levels of people's well-being in a 17-year longitudinal study and provided evidence for highly significant changes of people's well-being in 24% of the cases. Besides widowhood and childbirth, the most frequent researched life events are employment and marriage status (Diener et al., 2006; Diener, 2000; Dolan, Peasgood, & White, 2008). Especially changes in a person's employment status are so far-reaching and long-lasting that they can change the original set-point of a person's life satisfaction in the long-run (Diener et al., 2006; Diener, 2000; Dolan et al., 2008; Lucas, Clark, Georgellis, & Diener, 2004; Luhmann et al., 2012). Summarizing, we note, that self-employment has a long-term effect on peoples' life satisfaction

According to Warr's vitamin-theory (Warr, 2009) we assume that environmental features can lead to a constant level of happiness and life satisfaction. The theory is based on the analogy comparing the intake of vitamins to environmental job features. Vitamins prevent people from developing physical diseases. But the intake of vitamins can provoke different reactions. For example, the intake of vitamins C and E can support the human body to a moderate level. When this moderate level is reached, the intake of vitamins E and C becomes completely ineffective. In context of happiness in a work environment, vitamins are seen as certain environmental features. According to the theory, people's happiness depends on these certain environmental features that can lead to a decrease in happiness when they are missing. In the analogy of the work environment, the vitamin-theory assumes that there are certain job characteristics that, when absent, have a negative influence on peoples happiness and when present beyond a certain level, would not have a further positive influence on a person's happiness. The theory refers to these characteristics as CE-vitamins, which is also the abbreviation for "constant effect". With regard to self-employment the decisive vitamins that lead to long-term happiness are for example availability of money, task variety and opportunities for personal control. Therefore, we hypothesize the following:

Hypothesis 2b: Self-employment has a positive constant effect on life satisfaction.

With regard to our study we have a training group and a control group. We argue that in a long-term perspective the control group will experience a decrease in their life satisfaction. However the training group, received the training, thus, shows a higher rate of self-employment (Gielnik et al., 2013), and according to the vitamin-theory, will show a constant level of life satisfaction.

We hypothesize that the entrepreneurship training has a long-term indirect (mediated) effect on life satisfaction through self-employment. In order to have a sustainable long-term effect on people's life satisfaction, the entrepreneurship training must lead to a life event, which results in a continuous or habitual change in peoples' lives. We have argued that the entrepreneurship training leads to self-employment (Hypothesis 2). We have further argued that self-employment has a constant positive effect on life satisfaction. It is important to note that starting a business and becoming self-employed is a process that takes several months or years (Carter, Gartner, & Reynolds, 1996) and that self-employed people usually remain in this occupational status over time (Zacher, Biemann, Gielnik, & Frese, 2012). Therefore, there should be an indirect effect of the entrepreneurship training on life satisfaction through self-employment which manifests itself only after some time and which holds in the long-run.

Hypothesis 2c: The entrepreneurship training has a long-term effect on life satisfaction through self-employment, which holds in the long-run.

4.3 Method

4.3.1 Procedure and Sample

We conducted a longitudinal study with a randomized controlled field experiment (see also Gielnik, Frese, et al., 2014). The treatment in this experiment was the entrepreneurship training. The training consisted of a 12-week action-oriented entrepreneurship training with weekly sessions of three hours. The participants were undergraduate students from two universities in Kampala, Uganda (University A and

B). We sampled students from the disciplines of arts, social science, natural science, technology, law, and medicine, who were in the last year of their studies. We recruited the students through leaflets distributed by the lecturers of the universities. The leaflet included an application form, which the students completed and returned to the lecturers. The training was a voluntary, without credits or marks. 651 students submitted application form. Because of capacity constraints, we could select about 200 students for the training. From the list of applicants, we randomly selected 406 students for the training and control groups with 203 students in each group. The control group was a waiting control group and did not receive an alternative treatment. The random selection accounts for possible validity problems of the evaluation study, such as maturation, testing, history, and self-selection (Campbell, 1957). The randomization with pre- and post-intervention measurements controls for maturation, testing effects, external influences (i.e., history, for example in terms of changes in the society or economy), and self-selection (because selection for the training is based on chance and not on students' personal interests, preferences or talents). We conducted t-tests to compare the training group with the control group at T1 and found no significant differences in any study variable suggesting that the randomization was successful and the two groups were equivalent before the training. The 203 students of the training group were subdivided into classes of approximately 50. The students formed start-up teams of five to seven students in which they started a real micro business in the course of the training. To make sure that the training group only included students who had received the treatment, we excluded all students from our statistical analyses who attended less than eight out of the 12 sessions.

In total, we had five measurement waves to evaluate the training and its effects on self-employment and life satisfaction. The first measurement wave (T1) took place before the training, the second measurement wave (T2) immediately after the training, the third measurement wave (T3) one year after T1, the fourth measurement wave (T4) took place 1.5 years after T1, and the fifth measurement wave (T5) took place 2.5 years after T1. At each measurement wave, we collected data through standardized interviews and questionnaires. To have a true longitudinal design with at least three measurements

per student (Bliese & Ployhart, 2002; Ployhart & Vandenberg, 2010), we included only students in the sample who took part in at least three measurement waves. This led to a total sample of 312 participants for our statistical analyses. The specific number of participants at the different measurement waves were 312 participants at T1 (training group: 172; control group: 140), 297 participants at T2 (training group: 168; control group: 129), 286 participants at T3 (training group: 156; control group: 130), 161 participants at T4 (training group: 68; control group: 93), and 82 participants at T5 (training group: 45; control group: 37). Reasons for the drop-out over time were non-availability or refusal to take part in the study any longer. We tested for a possible non-response bias by comparing the non-respondents from the training group with the non-respondents from the control group (test for differential loss of participants across training and control group). We did not find any significant differences suggesting that there was no response bias.

4.3.2 Study Measures

Entrepreneurship training. The students were randomly assigned to the training group or the control group. To capture the short- and long-term effects of the training, we created two training variables following the dynamic coding approach by Lang and colleagues (Lang & Bliese, 2009; Lang & Kersting, 2007). Based on theoretical reasoning, the dynamic coding approach specifies when an effect sets in and when it stops. We hypothesized that entrepreneurship training has an immediate short-term effect on life satisfaction, which wears off in the long-run. We further hypothesized that the training has a delayed long-term effect on life satisfaction that holds in the long-run. We employed five measurement waves. Accordingly, for the short-term effect, we coded the training variable in a way that there was no effect before the training (T1), an immediate effect (boost) on life satisfaction after the training (T2) which wears off in the long-run, such that there is no longer any effect in the following measurement waves (T3-T5). This means the coding for the variable for the short-term effect of the training is 0-1-0-0-0 for the five measurement waves (see Table 1). Similarly, for the long-term effect of the training which has a delayed onset and then holds in the long-run, we

coded the variable in the following way: no effect at T1 and T2 and the delayed effect which holds from T3 to T5 (0-0-1-1-1). In both variables, the control group was coded ‘no effect’ for all five measurement waves (0-0-0-0-0). Table 1 provides an overview of the dynamic coding.

Table 1. Dynamic coding of the training variable to capture short- and long-term effects of the entrepreneurship training in a discontinuous growth model.

Variable	T1	T2	T3	T4	T5
Training group short-term	0	1	0	0	0
Training group long-term	0	0	1	1	1
Control group (short- and long-term)	0	0	0	0	0

Life satisfaction. We used a questionnaire to measure life satisfaction at the five measurement waves by using Diener’s life satisfaction scale (Diener, Emmons, Larsen, & Griffin, 1985). Our scale consisted of four items. An example item is “In most ways my life is close to my ideal”. The participants answered the questions on a 7-point Likert scale. The internal consistency of the four items was at T1 (Cronbach’s Alpha = .71), at T2 (Cronbach’s Alpha = .70), at T3 (Cronbach’s Alpha = .72), at T4 (Cronbach’s Alpha = .78) and at T5 (Cronbach’s Alpha = .80). We excluded one item from the original scale because of its low total-item-correlation across all five measurement waves. The item we excluded was “If I could live my life over, I would change almost nothing”. An explanation for the low total-item-correlation of this item is that the participants of the training group would change something in their lives because the training equipped them with the necessary skills and confidence to start a business. This means that the intervention may have influenced the validity of the item.

Self-employment. We measured self-employment during the standardized interview by asking the participants “Are you currently the owner of a business”. We coded answers as “1” if the response was “yes” and “0” if the response was “no”.

Entrepreneurial Self-efficacy. We used the items developed by Frese et al. (2007) on the basis of Bandura's (1989) theoretical conceptions to measure the participant's entrepreneurial self-efficacy. The scale consists of 12 items, starting all with the question "How confident are you to...". Since entrepreneurial self-efficacy is task specific, the items then provided different entrepreneurial tasks, for example "Do the marketing of a business well?". The participants answered the questions on an 11-point Likert scale. The mean of the 12 items formed the score for entrepreneurial self-efficacy. The internal consistency of the items was at T1 (Cronbach's Alpha = .92), at T2, T3, T4 (Cronbach's Alpha = .94) and at T5 (Cronbach's Alpha = .93).

Control variables. We measured the following variables to test whether the randomization was successful and as control variables in our statistical analysis models. We measured all control variables at T1 during the standardized interview. We measured the demographic variables of *age*, *gender* (female = 0, male = 1), and the *university* at which the participants studied (University A = 0, University B = 1). We controlled for *employment status* by asking whether or not the participants were currently employed (yes = 1, no = 0). Furthermore, we measured *income*, *marital status* and *general mental ability* as research has provided evidence that these factors affect self-employment and life satisfaction (Davidsson & Honig, 2003; Tomes, 1986). To measure the participant's total income we added the participant's income through self-employment (asking, "How much is the monthly salary you pay yourself? How much money do you keep for yourself per month? (pre-tax)") to the participant's income through employment (asking "What is your monthly salary (earnings)? (pre-tax)"). We converted the amount from Uganda Shilling to US Dollars based on the exchange rates at each measurement wave. To measure the marital status, we asked if participant is married (yes = 1, no = 0). For the measurement of general mental ability we used the digit span test forward and backward. This is a subtest of the Wechsler test, which measures the working memory capacity or general mental ability (Colom, Rebollo, Palacios, Juan-Espinosa, & Kyllonen, 2004). The four items (two times forwards and two times backwards) had a good internal consistency (Cronbach's Alpha = .77). Finally, we included the *wave* of measurement in our statistical analyses to control for

any effects that occurred over time, such as a general change in the social or economic conditions in our study context.

4.3.4 Method of Analysis

We used a dynamic mediated discontinuous growth model to examine the dynamic changes in life satisfaction over time caused by the training (Lang & Bliese, 2009; Lang & Kersting, 2007). In general, growth modeling is useful to analyze how units (e.g., individuals, groups, or organizations) change in a construct over time and whether the units differ in their patterns of change (Bliese & Ployhart, 2002). Basic growth modeling allows researchers to analyze a constant linear change in a construct over time (i.e., increase, decrease, or stable). Discontinuous growth modeling is an expansion of the basic growth modeling insofar as it allows researchers to model discontinuous changes in a construct and thus, to model the timing of effects (Lang & Bliese, 2009). This requires recoding of the independent variable in a way that it captures the temporality of effects. We created two different independent variables to differentiate between the short- and long-term effects of the training (see Table 1). Table 1 presents the coding of these variables for the training group and the control group (see also Lang & Bliese, 2009; Lang & Kersting, 2007). In our analyses, we regressed life satisfaction on the training variables and a time variable (wave) to model the effects of the training on life satisfaction over the five measurement waves.

Because we assessed the same participants over five measurement waves, our observations were not independent. In total, we collected 1,092 observations from 312 students (3.5 observations per student). To control for the nested structure and the dependency in the data, we used random coefficient modeling (Holcomb, Combs, Sirmon, & Sexton, 2010). Ignoring the non-independence of the data would lead to inflated standard errors biasing the tests of significance of the regression coefficients (Bliese & Ployhart, 2002; Ployhart & Vandenberg, 2010). We created a two-level hierarchical data matrix. Level one contained the 1,092 observations of the variables that changed over time (wave, self-employment, employment, life satisfaction,

entrepreneurial self-efficacy, income, training short-term, and training long-term). Level two contained the control variables that we measured at the first measurement wave (gender, age, university, and general mental ability, and marital status). We conducted the discontinuous growth modeling analyses with the nlme package included in the open source software R and restricted maximum likelihood (REML) estimation (Bliese & Ployhart, 2002). Using the two-level data matrix, our models were all two-level mixed-effects models with measurement occasions at level one nested within individuals at level two (Lang & Bliese, 2009).

4.4 Results

Table 2 displays the descriptive statistics and zero-order correlations of the variables used in this study at T1. The results show a significant positive correlation between self-employment and employment ($r = .12, p < .05$). This indicates that both employment statuses are not mutually exclusive. Marital status is positively correlated with self-employment ($r = .23, p < .01$), employment ($r = .28, p < .01$) and with income ($r = .26, p < .01$). This suggests that being married is associated with being self-employed, being employed and with a higher income.

Table 2.1 Descriptive statistics and correlations of study variables at T1.

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Training	0.55	0.50										
2. Self-employment	0.20	0.40	-0.08									
3. Life satisfaction	4.35	1.18	-0.02	.11								
4. Entrepreneurial Self-efficacy	7.91	1.16	.01	.02	.16*							
5. Gender ^a	0.62	0.49	.02	.03	.03	.11						
6. General mental ability	2.93	0.91	-0.01	.04	.03	.01	-0.07					
7. Age	24.44	4.08	.00	.11	-0.05	-0.03	.16**	-0.07				
8. University ^b	0.21	0.40	.00	-0.02	-0.04	.06	.09	-0.17*	.01			
9. Employment	0.12	0.33	-0.01	.12*	.04	.02	-0.03	.06	.32**	-0.10		
10. Income	40.10	106.80	-0.03	.44**	.06	-0.10	.00	.05	.28**	-0.07	.53**	
11. Marital status	0.04	0.19	-0.05	.23**	-0.04	-0.09	.08	-0.08	.67**	.02	.28**	.26**

Note. Sample size n = 312; a Gender: 0 = female, 1 = male; b University: 0 = University A, 1 = University B; * = p < .05, ** = p < .01.

4.4.1 Results of Testing the Hypotheses

To illustrate the trajectories of life satisfaction for the students of the training group and control group over the five measurement waves, we plotted the means of life satisfaction for the two groups at each measurement wave in Figure 2. Figure 2 displays the short-time boost in life satisfaction for the students of the training group immediately after the entrepreneurship training (T2) and the generally higher level of life satisfaction for students of the training group compared to students of the control group over time (T3-T5). The figure also shows a blow to participants' life satisfaction between T3 and T4 (which we will discuss in the discussion of this paper).

Figure 2. Trajectories of life satisfaction for students of the training group and control group over the five measurement waves.

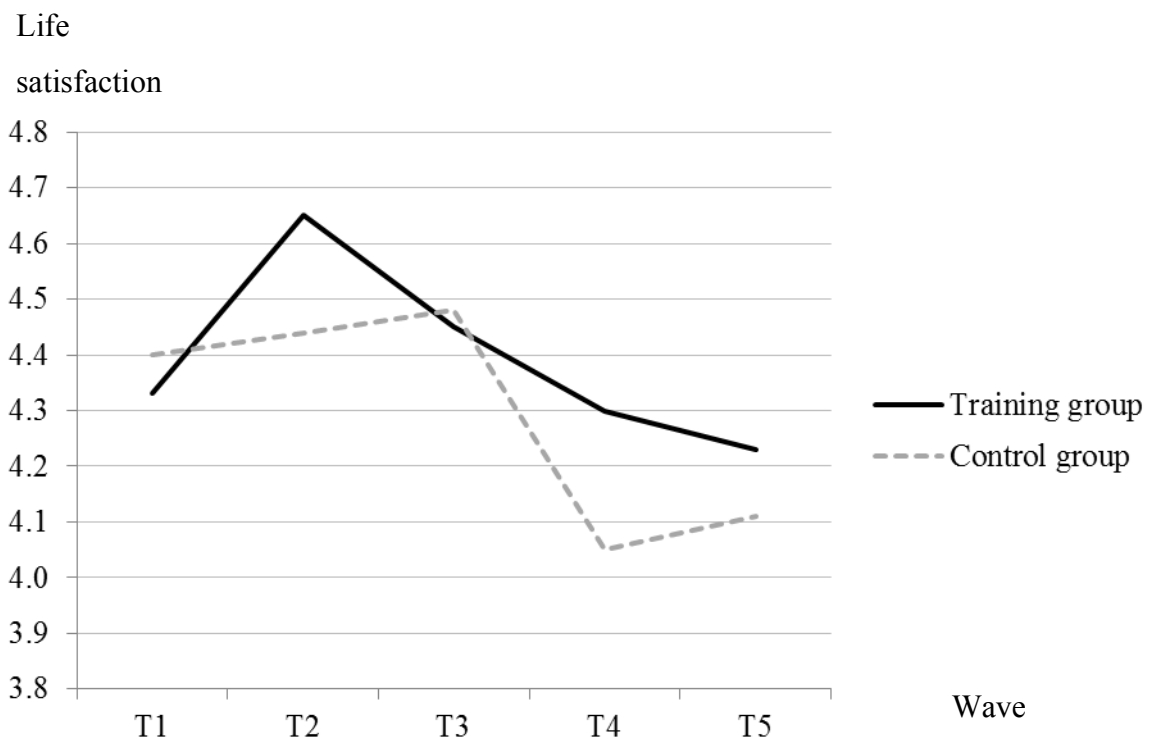


Table 3. Discontinuous growth model for the dynamic short- and long-term effects of the entrepreneurship training on life satisfaction through self-efficacy and self-employment.

Dependent variable	Model 1		Model 2a		Model 2b		Model 3a		Model 3b	
	Life Satisfaction		Entrepreneurial Self-efficacy		Life Satisfaction		Self Employment		Life Satisfaction	
	B	SE	B	SE	B	SE	B	SE	B	SE
Wave	-0.07*	0.03	0.18**	0.03	-0.10**	0.03	0.06**	0.01	-0.11**	0.03
Gender	0.03	0.12	0.12	0.12	0.01	0.11	0.02	0.04	0.00	0.11
General mental ability	-0.09	0.06	-0.03	0.06	-0.09	0.06	-0.01	0.02	-0.09	0.06
Age	0.00	0.02	0.01	0.02	0.00	0.02	0.00	0.01	0.00	0.02
University	-0.11	0.14	0.24†	0.14	-0.15	0.13	0.05	0.04	-0.16	0.14
Employment	-0.07	0.09	0.17†	0.09	-0.10	0.09	-0.22**	0.04	-0.06	0.09
Income	0.00	0.00	-0.00	0.00	0.00	0.00	0.00**	0.00	0.00	0.00
Marital status	-0.15	0.39	0.30†	0.39	-0.03	0.37	0.31**	0.12	-0.08	0.37
Training short-term effect	0.40**	0.08	0.30**	0.08	0.34**	0.08	-0.04	0.22	0.35**	0.08
Training long-term effect	0.19*	0.09	-0.01	0.09	0.19*	0.09	0.15**	0.04	0.16†	0.09
Entrepreneurial Self-Efficacy					0.17**	0.03	0.01	0.01	0.17**	0.03
Self-employment									0.20**	0.07
Deviance	2926.30		2879.62		2907.08		1112.59		2906.12	
(-2 * LogLikelihood)										

Note. Number of observations = 1092; number of participants = 312; † = $p < .10$, * = $p < .05$, ** = $p < .01$.

Table 3 shows the results of the discontinuous growth modeling to test our hypotheses. We controlled for wave, gender, general mental ability, age, university, employment, income, and marital status in all models. We first examined the coefficient of the variable for the different training effects in Model 1. In Model 1, we regressed life satisfaction on the control variables and the variables for the short- and long-term effects of the training. The coefficient for wave was significant and negative ($B = -0.07$, $p < .05$) suggesting that the participants' life satisfaction generally decreased over the time of the study. The coefficient of the variable for the training short-term effect captures the immediate effect of the entrepreneurship training on life satisfaction without any long-term effects (see Table 1 for the coding of the variable). The coefficient was positive and significant ($B = 0.40$, $p < .01$). Also the coefficient for the long-term effect was positive and significant ($B = 0.19$, $p < .05$). This suggests that the entrepreneurship training has both, short- and long-term effects on the participant's life satisfaction.

To test whether the short-term training effect is mediated by entrepreneurial self-efficacy we tested hypothesis 1a, 1b and 1c separately. Hypothesis 1a states that the entrepreneurship training has a short-term effect on entrepreneurial self-efficacy. To test hypothesis 1a we regressed in Model 2a entrepreneurial self-efficacy on the control variables and the variables that measure training effects. The results show that the control variable wave is positive and significant ($B = 0.18$, $p < .01$) suggesting, that the entrepreneurial self-efficacy increases over time. The decisive variable in Model 2a is the positive significant coefficient of the short-term training effect ($B = 0.30$, $p < .01$). This suggests, that the training has a positive short-term effect on entrepreneurial self-efficacy. This means that we found support for Hypothesis 1a that the entrepreneurship training has a positive short-term effect on entrepreneurial self-efficacy.

Hypothesis 1b states that entrepreneurial self-efficacy has a positive effect on life-satisfaction. We tested Hypothesis 1b in Model 2b. Model 2b shows that the coefficient of the regression of life-satisfaction on entrepreneurial is positive and significant ($B = 0.17$, $p < .01$). This finding suggests that entrepreneurial self-efficacy leads to an increase in the participant's life satisfaction. Thus, we find support for hypothesis 1b.

We conducted a Sobel test to examine the mediation effect (Preacher & Hayes, 2004), stated in hypothesis 1c, that the short-term effect of the entrepreneurship training is mediated by entrepreneurial self efficacy. The test verified that there was a significant indirect effect of the entrepreneurship training on life satisfaction through entrepreneurial self-efficacy ($t = 3.03$, $p < .01$) supporting hypothesis 1c.

Model 1 also provides the results for the long-term effects of training on life satisfaction. The coefficient of the variable for the training's long-term effect captures the delayed effect of the entrepreneurship training on life satisfaction, which holds in the long-run (see Table 1 for the coding of the variable). The results for the long-term effect of the entrepreneurship training showed a significant and positive effect on life satisfaction ($B = 0.19$, $p < .05$) indicating that the entrepreneurship training had a delayed long-term effect on life satisfaction, which held in the long-run.

To test whether the significant long-term effect of the entrepreneurship training on life satisfaction is mediated through self-employment, we examined the effect of the training on self-employment in Model 3a (Hypothesis 2a) and the effect of self-employment on life satisfaction in Model 3b (Hypothesis 2b). Model 3a showed a significant and positive coefficient for wave ($B = 0.06$, $p < .01$) suggesting that the number of self-employed generally increased over the time of the study. Model 3a also showed a significant and positive coefficient of the variable for the training's long-term effect ($B = 0.15$, $p < .01$). This finding suggests that there is a significant long-term effect of training on self-employment. This supports Hypothesis 2a. In Model 3b, we tested whether self-employment had a positive influence on life satisfaction. We entered the variable self-employment as an independent variable together with the control variables and the short- and long-term effects of the entrepreneurship training in the regression model of life satisfaction. The results showed a positive effect of self-employment on life satisfaction, even when the variables for the training's short- and long-term effects were included in the model ($B = 0.20$, $p < .01$). This finding supported Hypothesis 2b. Furthermore, in Model 3b, the coefficient of the variable for the training's long-term effect was reduced and was only marginally significant ($B = 0.16$, p

< .10). This provides preliminary support for Hypothesis 2c that self-employment mediates the long-term effect of entrepreneurship training on life satisfaction. To provide further support for Hypothesis 2c, we conducted a Sobel test to examine the mediation effect (Preacher & Hayes, 2004). The test verified that there was a significant indirect effect of the entrepreneurship training on life satisfaction through self-employment ($t = 2.34$, $p < .05$) therefore supporting Hypothesis 2c.

4.4.2 Add-On Analysis

The analyses in Model 1 to 3b allow us to draw causal conclusions regarding the short- and long-term effects of the entrepreneurship training on life satisfaction and self-employment because the training was an experimental manipulation. The variables for the short- and long-term effects of the training compared the training group to a non-treatment control group. This means that an alternative explanation in the form of a reversed causal effect to explain our findings for the effects of the entrepreneurship training on life satisfaction and self-employment, is not possible. However, the effects of self-employment on life satisfaction are based on synchronous measurements of the variables for self-employment and life satisfaction. Therefore, we have to provide additional evidence that there is indeed a causal effect of self-employment on life satisfaction as stated in Hypothesis 2b.

We created a new data set with a lagged structure so that we could test the lagged effects of self-employment on life satisfaction over time. The lagged-effects model tests the effect of an independent variable at one point in time on the dependent variable at the subsequent point time (e.g., T1 on T2, T2 on T3, and so on). Because in this analysis, we had a lagged data structure (and not a growth model), we included the training variable, which generally distinguishes between students of the training group and control group. Table 4 presents the results of the prediction model of life satisfaction. The prediction model included life satisfaction measured in a subsequent wave ($wavet+1$) as the dependent variable and life satisfaction measured in the prior wave ($wavet$) as an additional control variable. We included all control variables, the training variable, and self-employment in the prior wave ($wavet$) as independent

variables. The results showed a significant positive lagged effect of self-employment on life satisfaction ($B = 0.17, p < .05$). Thus, the results indicated that there was an effect of self-employment on life satisfaction in a lagged design.

This add-on analysis is only adequate to assure the causal relation between the mediator and life satisfaction in the long-term effect, not in the short-term effect. Since the lagged effects structure of the data set includes all five measurement waves, and the short-term effect of the training only reaches until T2, it would not be adequate to apply the ad-on analysis to the causal relationship in the short-term effect between entrepreneurial self-efficacy and life satisfaction. The coefficient of entrepreneurial self-efficacy being not significant underlines, that the effect of entrepreneurial self-efficacy on life satisfaction is only related to the short-term effect of the training and cannot be transferred to all measurement times⁹.

⁹ Because the control group also received the entrepreneurship training after the T4 measurement wave, we also conducted a robustness test on all of the results using a sample with only 4 measurement waves. The pattern of the results was identical.

Table 4. Prediction model of life satisfaction over five waves.

	Life satisfaction (subsequent wave)	
	Unstandardized Coefficient	SE
Life satisfaction	0.56**	0.03
Wave	-0.21**	0.04
Gender	-0.05	0.07
General mental ability	-0.08	0.04
Age	0.01	0.01
University	0.03	0.09
Employed	-0.07	0.12
Income	0.00	0.00
Marital status	-0.15	0.24
Entrepreneurship training	0.02	0.07
Entrepreneurial Self- Efficacy	0.04	0.03
Self-employment	0.17*	0.08
Deviance (-2 * LogLikelihood)	2098.37	

Note. Number of observations = 742; number of groups = 306; † = $p < .10$, * = $p < .05$,

**= $p < .01$.

Table 5. Regressing life satisfaction on entrepreneurial self-efficacy (short-term).

	Life Satisfaction (T2)	
	Unstandardized Coefficient	SE
Life satisfaction (T1)	0.49**	0.05
Gender	0.06	0.12
General mental ability	-0.19*	0.06
Age	0.01	0.02
University	-0.33†	0.14
Employed (T1)	-0.30	0.21
Income (T1)	0.00†	0.00
Marital status	0.10	0.38
Entrepreneurship training	0.05	0.12
Entrepreneurial Self- Efficacy (T2)	0.24**	0.05
F	16.26	
R ²	0.40	

Note: N= 256; † = $p < .10$, * = $p < .05$, ** = $p < .01$.

In order to test the mediation effect of entrepreneurial self-efficacy on life satisfaction, we regressed life satisfaction (T2) on entrepreneurial self-efficacy (T2) controlling for life satisfaction (T1) and the control variables (see Table 5). The results showed a significant positive effect of entrepreneurial self-efficacy on life satisfaction ($B = 0.24$, $p < .01$). Since we want to provide additional support for the short-term effect of the training and the effect entrepreneurial self-efficacy on life satisfaction we use the measurements of T1 and T2. Thus, the results suggest that there was a short-term effect of entrepreneurial self-efficacy on life satisfaction.

4.5 Discussion

In this study, we built on different theories from the domain of well-being and life satisfaction to develop a theoretical model on the short- and long-term effects of entrepreneurship training on life satisfaction (Diener, 2000; Luhmann et al., 2012). We built on different theoretical perspectives because we were interested in a more detailed consideration of the short- and long-term effects and the different underlying mechanisms for the effects. We argued that there are different processes underlying the changes in life satisfaction in the short- and in the long-run. In our statistical analyses, we demonstrated the positive short- and long-term effects of the entrepreneurship training on life satisfaction, with the short-term effect being mediated by entrepreneurial self-efficacy and the long-term effect being mediated by self-employment. Specifically, we found significant results for our hypothesized immediate boost in life satisfaction because of the training, which wore off in the long-run. Additionally, we found significant results for our hypothesized delayed long-term effect on life satisfaction, which held in the long-run. We also found evidence for the both hypothesized mediation effects of entrepreneurial self-efficacy and self-employment in the relationship between the different training effects and life satisfaction. We think that our study contributes to the literature in the several ways.

First, a contribution of our study is to conceptually distinguish between the short- and long-term effects of the training on the same outcome in terms life satisfaction. The entrepreneurship training has a positive effect on the same outcome (i.e., life satisfaction) in the short- and long-run. However, the underlying mechanisms for the positive short- and long-term effects are conceptually different. Our theoretical model holds that there is an immediate short-term effect that wears off and a delayed long-term effect through self-employment, which holds in the long-run. Distinguishing between short- and long-term effects is important to better understand the effects of entrepreneurship training on life satisfaction (Luhmann et al., 2012). The same might hold true for other attitudinal and motivational constructs, such as entrepreneurial goal intentions or career satisfaction. To build a solid theory for the impact of entrepreneurship trainings, it is important to conceptually integrate short- and long-term

effects of the trainings on the same and different outcomes (Martin et al., 2013). This also means that it is important to take into account the temporality of effects. Scholars have argued for the importance of time as a key factor in theory development but only a few studies have included time as a relevant factor into their theory building (George & Jones, 2000; Mitchell & James, 2001; Zaheer, Albert, & Zaheer, 1999). Zaheer et al. (1999) and Frese and Zapf (1988) have noted that especially the time-perspective on a phenomenon, meaning the distinction between short- and long-term effects of a predictor on an outcome, is crucial for solid theory building. In our study, if we had chosen a time perspective that was too close, the effects of the phenomenon would have appeared stronger than they truly are. In this case, according to the set-point theory, we would have only captured the boost in life satisfaction because of a specific life event (see Figure 2). To investigate the long-term effect of entrepreneurship on life satisfaction, we have to choose a time perspective that is wider (Zaheer et al., 1999). Thus, we must consider both, the short- and long-term effects to grasp the true nature of the effect of entrepreneurship on life satisfaction (Mitchell & James, 2001).

Second, our study design of a randomized control group field experiment allows us to assess the causal impact of the entrepreneurship training on life satisfaction. Martin et al. (2013) noted that more evaluation studies that use a pre-post-test design with a randomized control group are needed. We employed a longitudinal design with a randomized control group examining the participants before the training and four times after the training. Hence, our study contributes to the growing body of entrepreneurship education research in higher (tertiary) education (Bechard & Gregoire, 2005; Kabongo & Okpara, 2010; Katz, 2003; Klandt, 2004; Solomon, 2007) and overcomes some of the methodological problems of previous research evaluating entrepreneurship education. For example, only because we had a control group as part of the study design, we were able to identify the positive long-term effect of the training on life satisfaction. In general, we found a negative effect of time (wave) on life satisfaction over the time of the study period. This negative effective can be mainly attributed to the blow to the participants' life satisfaction between T3 and T4 (see Figure 2). Shortly before the measurement wave at T4 (August 2010), there were terrorist attacks in Kampala,

Uganda, during the football world cup final in July 2010. The general drop in life satisfaction that we detected in our study could have been due to general uncertainty after the bombings (The Daily Monitor, 2010). In our study, the students in the training group experienced a lesser decline in life satisfaction after the incident in July 2010 compared to students in the control group, which means that there is a positive effect of the training. Additionally the inflation rate in Uganda was at the very high peak of 30% at this time¹⁰. This could be another explanation for the general decrease in life satisfaction. The control group allows us to control for such incidents in the social or economic environment (e.g., the terrorist attacks) that might otherwise bias or even reserve the findings of our evaluation study (e.g., a negative trajectory of life satisfaction over time). Furthermore, because of our longitudinal data of life satisfaction with five measurement waves, we can model the development of life satisfaction over a longer period of time. Scholars have argued that a true longitudinal design should include at least three measurement waves to conduct more meaningful research on patterns of change in a construct over time (Holcomb et al., 2010; Ployhart & Vandenberg, 2010). Having three or more measurement waves allows researchers to identify systematic trajectories of change (e.g., growth, decline, or stable) and to relate these trajectories to individual differences (e.g., participation in the training). This helps to provide a more dynamic perspective on the nature of effects and a better test of theory (Bliese & Ployhart, 2002; Ployhart & Vandenberg, 2010). We extended the basic growth modeling approach and used a discontinuous growth model to take into account the timing of effects. We were thus able to provide a sophisticated statistical test of the hypothesized temporality immanent in our theoretical model.

Third, there are many different theoretical perspectives regarding the factors influencing life satisfaction (see Diener, 2009a, 2009b). In entrepreneurship, literature has not yet put a particular focus on life satisfaction from a theoretical perspective. So far, the literature has mainly focused on performance outcomes, such as start-up, growth, and survival. However, a few authors have noted that it is important to take a more comprehensive approach and to examine outcomes that go beyond the typical

¹⁰ <http://www.tradingeconomics.com/uganda/inflation-cpi>

business and performance outcomes. For example, Binder and Coad (2013) have surveyed, as one of the few, explicitly the relationship between self-employment and life satisfaction from an economic point of view. They called for further research that should work “on extending our findings (...) to other countries as well as extending the analysis to cover longer horizons in order to explore the longer-term causal effects of self-employment on life satisfaction” (p. 1030). Shepherd and Haynie (2009) and Uy et al. (2013) have developed theoretical models to predict entrepreneurs’ well-being based on optimal distinctiveness theory and coping theory. We contribute to this line of research by developing a theoretical model that specifies the different underlying mechanisms of the short- and long-term effects of entrepreneurship training on life satisfaction.

4.5.1 Limitations

A potential limitation may be the context of our study. We conducted our study in Uganda with undergraduate students. Uganda is a developing country and provides a special context insofar as the entrepreneurial activity but also the unemployment rate among youths is one of the highest in the world (Garcia & Fares, 2008; Namatovu, Balunywa, Kyejjusa, & Dawa, 2011). This might limit the generalizability of our findings and the effectiveness of the entrepreneurship training in other contexts. However, it is important to note the majority of people live in less developed countries and therefore, these people form an important population for management studies (Arnett, 2008; Bruton, 2010). Bruton (2010) has emphasized the importance of an expanded examination of the bottom billion to develop better models that work in developed and less developed contexts. Entrepreneurship is an important means to reduce poverty and promote economic growth (Mead & Liedholm, 1998; van Praag & Versloot, 2007). We therefore think that our study context is relevant because it advances our theoretical understanding of the effects of entrepreneurship training on self-employment and life satisfaction in a developing country.

We further note that Binder and Coad (2013) found that self-employment had a positive effect on life satisfaction only for those entrepreneurs who pursued

entrepreneurial opportunities, that is entrepreneurs who started their businesses out of an opportunity and not out of necessity. In our study, we did not distinguish between opportunity and necessity entrepreneurship. Future research could investigate whether only opportunity entrepreneurship functions as a mediator in the relationship between an entrepreneurship training and life satisfaction. Such moderated mediation model would further contribute to developing comprehensive theoretical models explaining the positive outcomes of entrepreneurship trainings.

4.5.2 Conclusion

Our study showed that entrepreneurship training boosts life satisfaction in the short-run through entrepreneurial self-efficacy and in the long-run through self-employment. Entrepreneurship trainings are thus a means to increase life satisfaction. Scholars have noted that by implementing certain strategies that promote life satisfaction it is possible to optimize the living circumstances for not only a single person but for a whole society (Diener et al., 2006; Diener, Oishi, & Lucas, 2003). We think that entrepreneurship trainings might be such a general strategy that is effective in promoting people's life satisfaction.

CHAPTER 5

General Discussion

In this dissertation, I investigated success factors in the field of entrepreneurship, specifically entrepreneurship training, from a psychological perspective. Furthermore, I sought to identify certain psychological aspects that help to better understand the underlying mechanisms for successful entrepreneurship trainings and thus, enable successful entrepreneurship. For this purpose and to fill several research gaps, I focused on the thematic extension towards more unconventional perspectives on entrepreneurship trainings as well as the examination of short- and long-term effects. First, to investigate in a essential theoretical topic, planning in entrepreneurship, we provided a new theoretical framework for planning in entrepreneurship that includes advantages and disadvantages of planning. Second, we explored the under researched field of trainer-trainee-relationship and found evidence for the hypothesis that the trainer's charisma has a positive effect on the trainee's entrepreneurial self-efficacy in the context of entrepreneurship training in a developing country. Third, we examined the short- and long-term effects of the entrepreneurship training and we found evidence for our hypothesized model, stating that entrepreneurship training has a positive short-term effect on the trainee's life satisfaction, which is mediated through entrepreneurial self-efficacy and vanishes over time. We found further evidence for the aspect of the hypothesized model, that training has a positive long-term effect on the participant's life satisfaction, which is mediated trough self-employment and holds over time. These results suggest that, the close examination of the trainer-trainee-relationship reveals huge potential to improve the training outcome. Specifically, in the context of entrepreneurship trainings, we believe, that the learning relationship between a trainer and trainee entails especially affective aspects, which motivate trainee's to start their own business. Furthermore, the results of our second study suggest that entrepreneurship and entrepreneurship trainings not only have a positive impact on

productivity growth and employment creation, but also on the trainee's life satisfaction. Entrepreneurship training provides (e.g., activated through the trainer's charisma) participants with a feeling of self-efficacy. This feeling of being capable to start a business induces a short-term feeling of being completely satisfied with one's life. The long-term effect of the training on the trainee's level of life satisfaction acts in a different way: The training equips the trainees with the knowledge, skills and confidence to become self-employed. The change of the job situation from being unemployed to self-employed and the positive aspects about self-employment (e.g., being one's own boss) provides the trainee with a long lasting feeling of being satisfied with their lives. In general, our findings show that adding a psychological perspective to the field of entrepreneurship and especially entrepreneurship training, could be beneficial for organizations, trainers and trainees.

5.1 General Theoretical Implications

The presented findings have several theoretical implications. First, even though meta-analytical findings showed that planning has a positive effect on performance (Brinckmann et al., 2010), we were able to provide a more differentiated perspective of planning in entrepreneurship and were able to provide a new theoretical framework for planning in entrepreneurship. This theoretical framework provides a systematical overview of the situations and conditions in which planning enhances or hinders entrepreneurship, and additionally provides further explanations for these mechanisms. With this more differentiated psychological perspective we can better meet the requirements of situations and environments, e.g. the cultural context in terms of uncertainty (Rauch et al., 2000). Thus, the developed theoretical framework of planning in entrepreneurship is a solid starting point, which can be used for future research.

Secondly, our investigation into the trainer-trainee-relationship contributed to the under-researched field of trainer-trainees relationships in entrepreneurship training. With our findings we contributed a starting point for further theoretical investigation into the identification of especially affective aspects of the trainer-trainee-relationship that enhance the training outcome for the trainees. Additionally, by using insights of different disciplines, we broadened the perspective in the field of training research.

Furthermore, with our study we provided further evidence for self-efficacy as the decisive entrepreneurship training outcome. Gielnik et al. (2015) argued that trainees' self-efficacy increases because of aspects that happen outside the training context (trainees actually start their own business). Our findings show that the trainer's charisma enhanced the trainee's entrepreneurial self-efficacy. The combination of these perspectives: Outside-training session (starting a business during the training) and inside-training session (trainer's charisma) provide a new, holistic theory for the enhancement of self-efficacy in entrepreneurship training.

Third, with our investigation on the short- and long-term effects of entrepreneurship training on a trainee's life satisfaction, we contribute to building a solid theory for the impact of entrepreneurship trainings. To distinguish between short- and long-term effects is important to better understand the effects of the entrepreneurship training on life satisfaction (Luhmann, Hofmann, Eid, & Lucas, 2012). Scholars have argued for the importance of taking the temporality of effects as a key factor into account (Frese & Zapf, 1988; George & Jones, 2000; Mitchell & James, 2001; Zaheer, Albert, & Zaheer, 1999). If researchers examine a phenomenon under a time perspective that is too close, the effects of the examination would have appeared stronger than they truly are and vice versa. Thus, we underline the importance of time as a key factor in theory development. Furthermore, by taking into account the temporality, we extended the basic growth modeling approach and used a discontinuous growth model. Because our longitudinal data had five measurement waves, we were able to model the development of life satisfaction over a longer period of time. With this approach we were able to identify systematic trajectories of change (e.g., growth, decline, or stable) and to relate these trajectories to individual differences (e.g., participation in the training). Thus, this approach provides a more dynamic perspective on the nature of effects and a better test of theory (Bliese & Ployhart, 2002; Ployhart & Vandenberg, 2010). Finally, with the development of our theoretical model, that specifies the different underlying mechanisms of the short- and long-term effects of entrepreneurship training on life satisfaction, we provided a new theoretical perspective on life satisfaction in entrepreneurship. Research on entrepreneurship and entrepreneurship trainings has mainly focused on performance outcomes (e.g., start-up,

growth, and survival). With our study, we plead for more unconventional approaches in entrepreneurship research that go beyond the typical business and performance outcomes.

5.2 General Practical Implications

The presented findings have several practical implications. First, the theoretical framework of planning in entrepreneurship can also be used by entrepreneurs as a checklist to avoid mistakes in their performance or to turn the disadvantage of planning into an advantage. For example, formal plans or business plans lead to no entrepreneurial action, if they are not translated into individual or small group plans. This implies the unambiguous instruction for the entrepreneurs to break down their business plan into smaller plans and action steps.

Second, the investigation into the trainer-trainee-relationship showed that the trainer plays a key role in this relationship and that they are able to enhance training outcomes for trainees. These insights could be, for example, relevant for providers of trainings who could then select their trainers by criteria (e.g., charisma), which were found to improve the trainings outcome.

Third, investigating short- and long-term effects of entrepreneurship training has particular practical relevance in the context of developing countries. Research showed that the last 40 years of development aid was unsuccessful (Doucouliagos & Paldam, 2009). However, the endeavors of NPOs or governmental organizations in developing countries are still growing. Further research results show, that this over-activism in helping leads to a dependency of many developing countries on western (“helping”) countries. To avoid this dependency, which can lead to more unemployment and poverty (Lachmann, 2010; Moyo, 2010; Shikwati, 2006), the investigation of short- and long-term effects of these interventions is inevitable. Only through differentiated evaluations of the effects of (training-) interventions in developing countries, can it be ensured that the interventions are beneficial to the current situation (e.g., weak labor markets) and do not do any harm.

In conclusion, this dissertation aimed to show that entrepreneurship and entrepreneurship trainings entail much more than only the process of starting a business or learning how to start a business. By understanding the psychologically underlying mechanisms of entrepreneurship and entrepreneurship trainings, the efficiency of entrepreneurship and entrepreneurship training can be improved and academics as well as practitioners can benefit from it.

REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.
- Andersson, P. (2008). Happiness and health: Well-being among the self-employed. *The Journal of Socio-Economics*, 37(1), 213–236.
- Arnett, J. J. (2008). The neglected 95%: Why American psychology needs to become less American. *American Psychologist*, 63(7), 602–614.
- Ashford, S. J., & Tsui, A. S. (1991). Self-regulation for managerial effectiveness: The role of active feedback seeking. *Academy of Management Journal*, 34, 251–280.
- Baker, T., & Nelson, R. E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative Science Quarterly*, 50, 329–366.
- Baker, T., Miner, A. S., & Eesley, D. T. (2003). Improvising firms: bricolage, account giving and improvisational competencies in the founding process. *Research Policy*, 32, 255–276.
- Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215.
- Bandura, A. (1989). Human agency in social cognitive theory. *The American Psychologist*, 44, 1175–1184.
- Baron, R. A. (2007). Behavioral and cognitive factors in entrepreneurship: Entrepreneurs as the active element in new venture creation. *Strategic Entrepreneurship Journal*, 1, 167–182.
- Baron, R. A. (2007). Entrepreneurship: A process perspective. In J. R. Baum, M. Frese, & R. A. Baron (Eds.), *The Psychology of Entrepreneurship* (pp. 19–39). Mahwah, NJ: Lawrence Erlbaum.
- Baron, R. A., & Ensley, M. D. (2006). Opportunity recognition as the detection of meaningful patterns: Evidence from comparisons of novice and experienced entrepreneurs. *Management Science*, 52, 1331–1344.
- Barr, S. H., Baker, T., & Markham, S. K. (2009). Bridging the valley of death: Lessons learned from 14 years of commercialization of technology education. *Academy of Management Learning & Education*, 8(3), 370–388.
- Bechard, J. P., & Gregoire, D. A. (2005). Entrepreneurship education research revisited: The case of higher education. *Academy of Management Learning & Education*, 4(1), 22–43.

References

- Bell, S. T., Towler, A. J., & Fisher, D. M. (2011). A Multilevel Examination of the Influence of Trainee-Trainer Gender Dissimilarity and Trainee- Classroom Gender Composition Dissimilarity on Trainee Knowledge Acquisition. *Human Resource Development Quarterly*, 22(3), 343–372.
- Benz, M., & Frey, B. S. (2008). The value of doing what you like: Evidence from the self-employed in 23 countries. *Journal of Economic Behavior & Organization*, 68(3-4), 445–455.
- Bewayo, E.D. (2010). Pre-start-up preparations: Why the business plan isn't always written. *The Entrepreneurial Executive*, 15, 9-23.
- Binder, M., & Coad, A. (2013). Life satisfaction and self-employment: A matching approach. *Small Business Economics*, 40(4), 1009–1033.
- Bischoff, K. M., Gielnik, M. M., & Frese, M. (2014). Entrepreneurship Trainings in Developing Countries. In W. Reichmann (Ed.), *Industrial and Organizational Psychology Help the Vulnerable: Serving the Underserved* (pp. 92–119). Houndmills, UK: Palgrave MacMillan.
- Blanchflower, D. G. (2004). Self-employment: More may not be better. *Swedish Economic Policy Review*, 11(2), 15–73
- Bliese, P. D., & Ployhart, R. E. (2002). Growth modeling using random coefficient models: Model building, testing, and illustrations. *Organizational Research Methods*, 5(4), 362–387.
- Boyd, B. K. (1991). Strategic planning and financial performance: A meta-analytic review. *Journal of Management Studies*, 28, 353–374.
- Bradley, D. E., & Roberts, J. a. (2004). Self-Employment and Job Satisfaction: Investigating the Role of Self-Efficacy, Depression, and Seniority. *Journal of Small Business Management*, 42(1), 37–58.
- Brandstatter, V., Heimbeck, D., Malzacher, J. T., & Frese, M. (2003). Goals need implementation intentions: The model of action phases tested in the applied setting of continuing education. *European Journal of Work and Organizational Psychology*, 12, 37–59.
- Brandstatter, V., Lengfelder, A., & Gollwitzer, P. M. (2001). Implementation intentions and efficient action initiation. *Journal of Personality and Social Psychology*, 81, 946–960.
- Brinckmann, J., Grichnik, D., & Kapsa, D. (2010). Should entrepreneurs plan or just storm the castle ? A meta-analysis on contextual factors impacting the business planning – performance relationship in small firms. *Journal of Business Venturing*, 25(1), 24–40.
- Brodbeck, F. C. (2001). Communication and performance in software development projects. *European Journal of Work and Organizational Psychology*, 10, 73-94.

References

- Bruton, G. D. (2010). Business and the world's poorest billion - The need for an expanded examination by management scholars. *Academy of Management Perspectives*, 24(3), 6–10.
- Burleigh, S. A., Farber, R. S., & Gillard, M. (1998). Community intergration and life satisfaction after traumatic brain injury: Long-term findings. *The American Journal of Occupational Therapy*, 52(1), 45–52.
- Campbell, D. T. (1957). Factors relevant to the validity of experiments in social settings. *Psychological Bulletin*, 54(4), 297–312.
- Carland, J. W., Carland, J. A., & Abey, C. (1989). An assessment of the psychological determinants of planning in small businesses. *International Small Business Journal*, 7, 23-33.
- Carree, M., & Thurik, A. R. (2003). The Impact of Entrepreneurship on Economic Growth. *Handbook of Entrepreneurship Research SE - 20*, 5, 557–594.
- Carter, N. M., Gartner, W. B., & Reynolds, P. D. (1996). Exploring start-up event sequences. *Journal of Business Venturing*, 11, 151–166.
- Carver, C. S. (2006). Approach, avoidance, and the self-regulation of affect and action. *Motivation and Emotion*, 30, 105–110.
- Carver, C. S., & Scheier, M. F. (1982). Control theory: A useful conceptual framework for personality-social, clinical, and health psychology. *Psychological Bulletin*, 92, 111–135.
- Castrogiovanni, G. J. (1996). Pre-startup planning and the survival of new small businesses: Theoretical linkages. *Journal of Management*, 22, 801–822.
- Cha, V., Ruan, A. Y., & Frese, M. (2013). *Is effectuation really enough? An examination on the relationship of logic, experience, and innovativeness in entrepreneurial decision making*. NUS Business School, Singapore: Manuscript.
- Chandler, G. N., DeTienne, D. R., McKelvie, A., & Mumford, T. V. (2011). Causation and effectuation processes: A validation study. *Journal of Business Venturing*, 26, 375–390.
- Colom, R., Rebollo, I., Palacios, A., Juan-Espinosa, M., & Kyllonen, P. C. (2004). Working memory is (almost) perfectly predicted by g. *Intelligence*, 32(3), 277–296.
- Dailey, L., & Mumford, M. D. (2006). Evaluative aspects of creative thought: Errors in appraising the implications of new ideas. *Creativity Research Journal*, 18, 385-390.
- Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18(3), 301–331.
- Delmar, F., & Shane, S. (2003). Does business planning facilitate the development of new ventures? *Strategic Management Journal*, 24, 1165–1185.

References

- Delmar, F., & Shane, S. (2004). Legitimizing first: Organizing activities and the survival of new ventures. *Journal of Business Venturing*, 19, 385–410.
- Dew, N., Read, S., Sarasvathy, S. D., & Wiltbank, R. (2009). Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices. *Journal of Business Venturing*, 24, 287–309.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95(3), 542–575.
- Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*, 55(1), 34–43.
- Diener, E. (2001). Well-being (subjective), psychology of. In N. J. Smelser & P. B. Baltes (Eds.), *International Encyclopedia of the Social & Behavioral Sciences* (pp. 16451–16454). Oxford: Pergamon.
- Diener, E. (2009a). Introduction - The science of well-being: Reviews and theoretical articles by Ed Diener. In E. Diener (Ed.), *The Science of Well-Being* (pp. 1–10). New York: Springer.
- Diener, E. (2009b). Subjective well-being. In E. Diener (Ed.), *The Science of Well-Being* (pp. 11–58). New York: Springer.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 71–75.
- Diener, E., Lucas, R. E., & Scollon, C. N. (2006). Beyond the hedonic treadmill: Revising the adaptation theory of well-being. *American Psychologist*, 61(4), 305–314.
- Diener, E., Oishi, S., & Lucas, R. E. (2003). Personality, culture, and subjective well-being: Emotional and cognitive evaluations of life. *Annual Review of Psychology*, 54, 403–425.
- Dimov, D. (2007). Beyond the single-person, single-insight attribution in understanding entrepreneurial opportunities. *Entrepreneurship Theory and Practice*, 31, 713–731.
- Dolan, P., Peasgood, T., & White, M. (2008). Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology*, 29(1), 94–122.
- Dörner, D., & Schaub, H. (1994). Errors in planning and decision-making and the nature of human information processing. *Applied Psychology: An International Review*, 43, 433–454.
- Doucouliafos, H., & Paldam, M. (2009). The aid effectiveness literature: The sad results of 40 years of research. *Journal of Economic Surveys*, 23(3), 433–461.
- Doucouliafos, H., & Paldam, M. (2009). The aid effectiveness literature: The sad results of 40 years of research. *Journal of Economic Surveys*, 23(3), 433–461.

References

- Easterlin, R. A. (2005). Building a better theory of well-being. In L. Bruni & P. L. Porta (Eds.), *Economics and Happiness: Framing the Analysis* (Vol. No. 742, pp. 29–64). Oxford, UK: Oxford University Press.
- Edelman, L. F., & Yli-Renko, H. (2010). The impact of environment and entrepreneurial perceptions on venture-creation efforts: Bridging the discovery and creation views of entrepreneurship. *Entrepreneurship Theory and Practice*, 34, 833–856.
- Erdogan, B., Bauer, T. N., Truxillo, D. M., & Mansfield, L. R. (2012a). Whistle while you work: A review of the life satisfaction literature. *Journal of Management*, 38(4), 1038–1083.
- Escher, S., Grabarkiewicz, R., Frese, M., van Steekelenburg, G., Lauw, M., & Friedrich, C. (2002). The moderator effect of cognitive ability on the relation between planning strategies and business success of small scale business owners in South Africa: A longitudinal study. *Journal of Developmental Entrepreneurship*, 7, 305–318.
- Frese, M. (2000). Executive summary, conclusions, and policy implications. In M. Frese (Ed.), *Success and failure of microbusiness owners in Africa: A psychological approach*. Westport, Conn.: Greenwood Publ.
- Frese, M. (2009). Toward a psychology of entrepreneurship - An action theory perspective. *Foundations and Trends in Entrepreneurship*, 5, 437–496.
- Frese, M. (2009). Towards a Psychology of Entrepreneurship: An Action Theory Perspective. *Foundations and Trends in Entrepreneurship*, 5(6), 437–496.
- Frese, M., & Zapf, D. (1988). Methodological Issues in the Study of Work Stress : Objective vs Subjective Measurement of Work Stress and the Question of Longitudinal Studies *. In C. L. Cooper & R. Payne (Eds.), *Causes, Coping and Consequences of Stress at Work* (pp. 375–411). John Wiley & Sons, Ltd.
- Frese, M., & Zapf, D. (1994). Action as the Core of Work Psychology: A German Approach. In H. C. Triandis, M. D. Dunnette, & L. M. Hough (Eds.), *Handbook of Industrial and Organizational Psychology* (Vol. 4., pp. 271–340). Palo Alto, CA: Consulting Psychologists Press.
- Frese, M., Bausch, A., Schmidt, P., Rauch, A., & Kabst, R. (2012). Evidence-based entrepreneurship: Cumulative science, action principles, and bridging the gap between science and practice. *Foundations and Trends in Entrepreneurship*, 8, 1–62.
- Frese, M., Krauss, S. I., Keith, N., Escher, S., Grabarkiewicz, R., Luneng, S. T., ... Friedrich, C. (2007). Business owners' action planning and its relationship to business success in three African countries. *The Journal of Applied Psychology*, 92(6), 1481–1498.
- Frese, M., van Gelderen, M., & Ombach, M. (2000). How to plan as a small scale business owner: Psychological process characteristics of action strategies and success. *Journal of Small Business Management*, 38, 1–18.

References

- Fujita, F., & Diener, E. (2005). Life satisfaction set point: Stability and change. *Journal of Personality and Social Psychology*, 88(1), 158–164.
- Garcia, M., & Fares, J. (2008). *Youth in Africa's Labor Market*. Washington: The World Bank.
- Gartner, W. B. (1985). A conceptual framework for describing the phenomenon of new venture creation. *Academy of Management Review*, 10, 696–706.
- George, J. M., & Jones, G. R. (2000). The role of time in theory and theory building. *Journal of Management*, 26(4), 657–684.
- Gielnik, M. M., & Frese, M. (2013). Entrepreneurship and poverty reduction: Applying I-O psychology to microbusiness and entrepreneurship in developing countries. In J. B. Olson-Buchanan, L. L. Koppes Bryan, & L. Foster Thompson (Eds.), *Using Industrial-Organizational Psychology for the Greater Good: Helping Those Who Help Others* (pp. 394–438). New York: Routledge.
- Gielnik, M. M., Barabas, S., Frese, M., Namatovu-dawa, R., Florian, A., Metzger, J. R., ... Walter, T. (2014). A temporal analysis of how entrepreneurial goal intentions, positive fantasies, and action planning affect starting a new venture and when the effects wear off. *Journal of Business Venturing*, 29(6), 755–772.
- Gielnik, M. M., Frese, M., Kahara-Kawuki, A., Katono, I. W., Kyejjusa, S., Munene, J., ... J. Dlugosch, T. (2015). Action and action-regulation in entrepreneurship: Evaluating a student training for promoting entrepreneurship. *Academy of Management Learning & Education*.
- Gielnik, M. M., Krämer, A.-C., Kappel, B., & Frese, M. (in press b). Antecedents of business opportunity identification and innovation: Investigating the interplay of information processing and information acquisition. *Applied Psychology: An International Review*.
- Gielnik, M. M., Spitzmuller, M., Schmitt, A., Klemann, D., & Frese, M. (n.d.). I put in effort, therefore I am passionate: Investigating the path from effort to passion in entrepreneurship. *Academy of Management Journal*.
- Gist, M. E., & Mitchell, T. B. (1992). Self-Efficacy: a Theoretical Analysis of Its Determinants and Malleability. *Academy of Management Review*, 17(2), 183–211.
- Glaub, M. E., Frese, M., Fischer, S., & Hoppe, M. (2014). Increasing Personal Initiative in Small Business Managers or Owners Leads to Entrepreneurial Success: A Theory-Based Controlled Randomized Field Intervention for Evidence-Based Management. *Academy of Management Learning and Education*, 13(3), 354–379.
- Glaub, M., & Frese, M. (2012). A critical review of the effects of entrepreneurship training in developing countries. *Enterprise Development and Microfinance*, 22(4), 335–353.

References

- Glaub, M., & Frese, M. (2012). A critical review of the effects of entrepreneurship training in developing countries. *Enterprise Development and Microfinance*, 22(4), 335–353.
- Glaub, M., & Frese, M. (2012). A critical review of the effects of entrepreneurship training in developing countries. *Enterprise Development and Microfinance*, 22(4), 335–353.
- Gollwitzer, P. M. (1993). Goal achievement: The role of intentions. In W. Stroebe & M. Hewstone (Eds.), *European Review of Social Psychology* (Vol. 4, pp. 141-185). London: Wiley.
- Gollwitzer, P. M. (1996). The volitional benefits of planning. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychological of action* (pp. 287-312). New York: The Guilford Press.
- Gollwitzer, P. M. (1999). Implementation Intentions: Strong Effects of Simple Plans. *American Psychologist*, 54(7), 493–503.
- Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist*, 54, 493–503.
- Gollwitzer, P. M. (1999). Implementation Intentions: Strong Effects of Simple Plans. *American Psychologist*, 54(7), 493–503.
- Gollwitzer, P. M., & Brandstatter, V. (1997). Implementation intentions and effective goal pursuit. *Journal of Personality and Social Psychology*, 73, 186–199.
- Gollwitzer, P. M., & Sheeran, P. (2006). Implementation intentions and goal achievement: A meta-analysis of effects and processes. *Advances in Experimental Social Psychology*, 38, 69–119.
- Gollwitzer, P. M., Heckhausen, H., & Ratajczak, H. (1990). From weighing to willing: Approaching a change decision through pre- and postdecisional mentation. *Organizational Behavior and Human Decision Making Processes*, 45, 41-65.
- Gollwitzer, P. M., Heckhausen, H., & Steller, B. (1990). Deliberative and implemental mind-sets: Cognitive tuning towards congruous thoughts and information. *Journal of Personality and Social Psychology*, 59(6), 1119-1127.
- Hackman, R. (1990). *Groups that work (and those that don't): Creating conditions for effective teamwork*. San Francisco, Calif.: Jossey-Bass.
- Hanges, P. J., & Dickson, M. W. (2004). The development and validation of the GLOBE culture and leadership scales. In R. J. House, P. J. Hanges, M. Javidan, P. W. Dorfman & V. Gupta (Eds.), *Cultures, Leadership and Organizations: A 62 Nation GLOBE Study* (pp. 122-151). Thousand Oaks, Calif.: Sage.
- Hanges, P. J., & Dickson, M. W. (2006). Agitation over aggregation: Clarifying the development of and the nature of the GLOBE scales. *Leadership Quarterly*, 17, 522-536.

-
- Harris, T. B., Chung, W., Hutchins, H., & Chiaburu, D. S. (2014). Do trainer style and learner orientation predict training outcomes? *Journal of Workplace Learning*, 26, 331–344.
- Hayes-Roth, B., & Hayes-Roth, F. (1979). A cognitive model of planning. *Cognitive Science*, 3, 275-310.
- Heckhausen, H., & Gollwitzer, P. M. (1987). Thought contents and cognitive functioning in motivational versus volitional states of mind. *Motivation and Emotion*, 11(2), 101–120.
- Henry, C. (2004). The effectiveness of training for new business creation: A longitudinal study. *International Small Business Journal*, 22(3), 249–271.
- Hiemstra, A. M. F., van der Kooy, K. G., & Frese, M. (2006). Entrepreneurship in the street food sector of Vietnam - Assessment of psychological success and failure factors. *Journal of Small Business Management*, 44, 474–481.
- Hofstede, G. (2001). *Culture's consequences* (2nd ed.). Thousand Oaks, Calif.: Sage.
- Holcomb, T. R., Combs, J. G., Sirmon, D. G., & Sexton, J. (2010). Modeling levels and time in entrepreneurship research: An illustration with growth strategies and post-IPO performance. *Organizational Research Methods*, 13(2), 348–389.
- Honig, B. (2004). Entrepreneurship education: Toward a model of contingency-based business planning. *Academy of Management Learning & Education*, 3(3), 258–273.
- Honig, B., & Karlsson, T. (2004). Institutional forces and the written business plan. *Journal of Management*, 30, 29–48.
- Honig, B., & Samuelsson, M. (2012). Planning and the entrepreneur: A longitudinal examinatio of nascent entrepreneurs in Sweden. *Journal of Small Business Management*, 50, 365–388.
- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (Eds.). (2004). *Cultures, Leadership and Organizations: A 62 Nation GLOBE Study*. Thousand Oaks CA: Sage.
- Hunter, J. E., & Schmidt, F. L. (2004). *Methods of Meta-Analysis: Correcting Error and Bias in Research Findings* (2nd ed.). Thousand Oaks, CA: Sage
- Johnson, R. E., Chang, C. H., & Lord, R. G. (2006). Moving from cognition to behavior: What the research says. *Psychological Bulletin*, 132, 381–415.
- Josephs, R. A., & Hahn, E. D. (1995). Bias and accuracy in estimates of task duration. *Organizational Behavior and Human Decision Processes*, 61, 202-213.
- Kabongo, J. D., & Okpara, J. O. (2010). Entrepreneurship education in sub-Saharan African universities. *International Journal of Entrepreneurial Behaviour & Research*, 16(4), 296–308.
- Katz, D., & Kahn, R. L. (1978). *Social psychology of organizations* (2nd ed.). New York: Wiley.
-

References

- Katz, J. A. (2003). The chronology and intellectual trajectory of American entrepreneurship education 1876 - 1999. *Journal of Business Venturing, 18*(2), 283–300.
- Keeley, R. H., & Kapp, R. (1994). Founding conditions and business performance: “High performers” vs. small venture-capital-backed start-ups. In W. D. Bygrave, S. Birley, N. C. Churchill, E. Gatewood, F. Hoy, R. H. Keeley, W. E. Wetzel Jr. (Eds.), *Frontiers of Entrepreneurship Research* (pp. 236-238). Wellesley, MA: Babson College.
- Keith, N., & Frese, M. (2005). Self-regulation in error management training: Emotion control and metacognition as mediators of performance effects. *Journal of Applied Psychology, 90*, 677–691.
- Keyser, M., De Kruif, M., & Frese, M. (2000). The psychological strategy process and socio-demographic variables as predictors of success in micro- and small-scale business owners in Zambia. In M. Frese (Ed.), *Success and failure of microbusiness owners in Africa: A psychological approach*. Westport, Conn.: Greenwood.
- Klandt, H. (2004). Entrepreneurship education and research in German-speaking Europe. *Academy of Management Learning & Education, 3*(3), 293–301.
- Kuratko, D. F. (2005). The emergence of Entrepreneurship Education: Development, Trends and Challenges. *Entrepreneurship Theory and Practice, 577–598*.
- Lachmann, W. (2010). *Entwicklungshilfe*. Munich: Oldenburg Wissenschaftsverlag.
- Lang, J. W. B., & Bliese, P. D. (2009). General mental ability and two types of adaptation to unforeseen change: Applying discontinuous growth models to the task-change paradigm. *Journal of Applied Psychology, 94*(2), 411–428.
- Lang, J. W. B., & Kersting, M. (2007). Regular feedback from student ratings of instruction: Do college teachers improve their ratings in the long Run? *Instructional Science, 35*(3), 187–205.
- Liao, J. W., & Gartner, W. B. (2006). The effects of pre-venture plan timing and perceived environmental uncertainty on the persistence of emerging firms. *Small Business Economics, 27*, 23–40.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation - A 35-year odyssey. *American Psychologist, 57*(9), 705–717.
- Lord, R. G., Diefendorff, J. M., Schmidt, A. M., & Hall, R. J. (2010). Self-regulation at work. *Annual Review of Psychology, 61*, 543–568.
- Lucas, R. E., Clark, A. E., Georgellis, Y., & Diener, E. (2004). Unemployment alters the set point for life satisfaction. *Psychological Science, 15*(1), 8–13.
- Luhmann, M., Hofmann, W., Eid, M., & Lucas, R. E. (2012). Subjective well-being and adaptation to life events: A meta-analysis. *Journal of Personality and Social Psychology, 102*(3), 592–615.

References

- Lumpkin, G. T., Shrader, R. C., & Hills, G. E. (1998). Does formal business planning enhance the performance of new ventures? In P. D. Reynolds, W. D. Bygrave, N. M. Carter, S. Manigart, C. M. Mason (Eds.), *Frontiers of Entrepreneurship Research* (pp. 180-189). Wellesley, MA: Babson College.
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology, 9*(2), 111–131.
- Mair, J., & Marti, I. (2009). Entrepreneurship in and around institutional voids: A case study from Bangladesh. *Journal of Business Venturing, 24*, 419–435.
- Martin, B. C., McNally, J. J., & Kay, M. J. (2013). Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes. *Journal of Business Venturing, 28*(2), 211–224.
- Mathieu, J. E., & Schulze, W. (2006). The influence of team knowledge and formal plans on episodic team process-performance relationships. *Academy of Management Journal, 49*, 605-619.
- Matthews, C.H. and Scott, S.G. (1995). Uncertainty and Planning in Small and Entrepreneurial Firms: An Empirical Assessment. *Journal of Small Business Management, 33*(4), 34-48.
- Mayer-Haug, K., Read, S., Brinckmann, J., Dew, N., & Grichnik, D. (2013). Entrepreneurial talent and venture performance: A meta-analytic investigation of SMEs. *Research Policy, 42*, 1251–1273.
- Mckenzie, D., & Woodruff, C. (2012). What Are We Learning from Business Training and Entrepreneurship Evaluations around the Developing World ? What Are We Learning from Business Training and Entrepreneurship Evaluations around the Developing World ? *Wp Iza*, (September).
- McMullan, E., Chrisman, J. J., & Vesper, K. H. (2001). Some problems in using subjective measures of effectiveness to evaluate entrepreneurial assistance programs. *Entrepreneurship Theory and Practice, 26*(1), 37–54.
- McMullen, J. S., & Shepherd, D. A. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management Review, 31*, 132–152.
- Mead, D. C., & Liedholm, C. (1998). The dynamics of micro and small enterprises in developing countries. *World Development, 26*(1), 61–74.
- Miller, C. C., & Cardinal, L. B. (1994). Strategic planning and firm performance: A synthesis of more than two decades of research. *Academy of Management Journal, 37*, 1649–1665.
- Mintzberg, H. (1994). The fall and rise of strategic planning. *Harvard Business Review, 72*, 107–114.
- Mintzberg, H. (2000). *Mintzberg on Management: Inside Our Strange World of Organizations*. New York: The Free Press.

References

- Mitchell, T. R., & James, L. R. (2001). Building better theory: Time and the specification of when things happen. *Academy of Management Review*, 26(4), 530–547.
- Mitchell, T. R., & James, L. R. (2001). Building better theory: Time and the specification of when things happen. *Academy of Management Review*, 26(4), 530–547.
- Monitor, T. D. (2010). 50 die in Kampala bomb blasts. *The Daily Monitor*. Retrieved from <http://www.monitor.co.ug/News/National/-/688334/956212/-/x22qke/-/>
- Moyo, D. (2010). *Dead Aid: Why Aid Is Not Working and How There Is a Better Way for Africa*. New York: Farrar, Straus and Grioux.
- Mumford, M. D., Schultz, R. A., & Van Doorn, J. R. (2001). Performance in planning: Processes, requirements, and errors. *Review of General Psychology*, 5, 213–240.
- Namatovu, R., Balunywa, W., Kyejjusa, S., & Dawa, S. (2011). GEM Uganda 2010 Executive Report. Kampala: Makerere University Business School.
- Osburn, H. K., & Mumford, M. D. (2006). Creativity and planning: Training interventions to develop creative problem-solving skills. *Creativity Research Journal*, 18, 173–190.
- Parasuraman, S., & Simmers, C. A. (2001). Type of employment, work-family conflict and well-being: A comparative study. *Journal of Organizational Behavior*, 22(5), 551–568.
- Parker, S.K. & Axtell, C.M. (2001). Seeing Another Viewpoint: Antecedents and Outcomes of Employee Perspective Taking. *The Academy of Management Journal*, 44, 6., 1085-1100.
- Pascha, A., Schöppe, B., & Hacker, W. (2001). Was macht Planen kompliziert? - Zum Einfluß von Aufgabenmerkmalen auf die Schwierigkeit von Abfolgeplanung. [What makes planning complicated? – On the influence of task characteristics on the difficulty of planning]. *Zeitschrift für Psychologie*, 209, 245-276.
- Patalano, A. L., & Seifert, C. M. (1997). Opportunistic planning: Being reminded of pending goals. *Cognitive Psychology*, 34, 1-36.
- Pavot, W., & Diener, E. (2008). The satisfaction with life scale and the emerging construct of life satisfaction. *The Journal of Positive Psychology*, 3(2), 137–152.
- Ployhart, R. E., & Vandenberg, R. J. (2010). Longitudinal research: The theory, design, and analysis of change. *Journal of Management*, 36(1), 94–120.
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods Instruments & Computers*, 36(4), 717–731.
- Rangel, B., Chung, W., Harris, T. B., Carpenter, N. C., Chiaburu, D. S., & Moore, J. L. (2015). Rules of engagement: the joint influence of trainer expressiveness and trainee experiential learning style on engagement and training transfer. *International Journal of Training and Development*, 19, 18–31.

References

- Rauch, A., Frese, M., & Sonnentag, S. (2000). Cultural differences in planning/success relationships: A comparison of small enterprises in Ireland, West Germany, and East Germany. *Journal of Small Business Management*, 38, 28–41.
- Read, S., Song, M., & Smit, W. (2009). A meta-analytic review of effectuation and venture performance. *Journal of Business Venturing*, 24, 573–587.
- Reay, T., Berta, W., & Kohn, M. K. (2009). What's the evidence on evidence-based management? *Academy of Management Perspectives*, 23(4), 5–18.
- Resch, M., & Oesterreich, R. (1987). Bildung von Zwischenzielen in Entscheidungsnetzen. [Formulation of intermediate goals in decision networks]. *Zeitschrift für Experimentelle und Angewandte Psychologie*, 34, 301-317.
- Robinson, R. B., & Pearce II, J. A. (1983). The impact of formalized strategic planning on financial performance in small organizations. *Strategic Management Journal*, 4, 197-207.
- Rooks, G., Sserwanga, A., & Frese, M. (2012). Personal initiative, social capital and innovation across regions. A multi-group analysis of rural and urban Ugandan entrepreneurs. *Submitted for publication*.
- Salas, E., & Cannon-Bowers, J. a. (2001). The Science of Training: A Decade of Progress. *Annual Review of Psychology*, 52, 471–499.
- Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26, 243–263.
- Sarasvathy, S. D. (2003). Entrepreneurship as a science of the artificial. *Journal of Economic Psychology*, 24, 203–220.
- Sarasvathy, S. D., Dew, N., Stuart, R., & Wiltbank, R. (2008). Designing organizations that design environments: Lessons from entrepreneurial expertise. *Organization Studies*, 29, 331–350.
- Scheier, M. F., & Carver, C. S. (1993). On the Power of Positive Thinking: The Benefits of Being Optimistic. *Current Directions in Psychological Science*, 2, 26–30.
- Schwenk, C. R., & Shrader, C. B. (1993). Effects of formal strategic planning on financial performance in small firms: A meta-analysis. *Entrepreneurship Theory and Practice*, 17, 53–64.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000a). Positive psychology: An introduction. *American Psychologist*, 55(1), 5–14.
- Sexton, D.L., Auken, P.V. (1985). A longitudinal study of small business strategic planning. *Journal of Small Business Management*, 23, 7-15.
- Shane, S. (2000). Prior knowledge and the discovery of entrepreneurial opportunities. *Organization Science*, 11, 448–469.

References

- Shane, S., & Delmar, F. (2004). Planning for the market: business planning before marketing and the continuation of organizing efforts. *Journal of Business Venturing*, 19, 767–785.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217–226.
- Sheldon, K. M., & Elliot, Andrew, J. (1999). Goal Striving, Need Satisfaction, and Longitudinal Well-Being: The Self-Concordance Model. *Journal of Personality and Social Psychology*, 76(1990), 482–497.
- Sheldon, K. M., & Kasser, T. (1998). Pursuing Personal Goals: Skills Enable Progress, but Not All Progress Is Beneficial. *Personality and Social Psychology Bulletin*, 24, 1319–1331.
- Shikwati, J. (2006). Fehlentwicklungshilfe. *Internationale Politik*, 61(4), 6–15.
- Shteynberg, G., Gelfand, M. J., & Kim, K. (2009). Peering into the "magnum mysterium" of culture. *Journal of Cross-Cultural Psychology*, 40, 46-69.
- Simonson, I., & Staw, B. M. (1992). Deescalation strategies: A comparison of techniques for reducing commitment to losing courses of action. *Journal of Applied Psychology*, 77, 419-426.
- Slotegraaf, R. J., & Dickson, P. R. (2004). The paradox of a marketing planning capability. *Journal of the Academy of Marketing Science*, 32, 371-385.
- Solomon, G. (2007). An examination of entrepreneurship education in the United States. *Journal of Small Business and Enterprise Development*, 14(2), 168–182.
- Souitaris, V., Zerbinati, S., & Al-Laham, A. (2007). Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *Journal of Business Venturing*, 22(4), 566–591.
- Staw, B. M., & Ross, J. (1987). Behavior in escalation situations: Antecedents, prototypes and solutions. *Research in Organizational Behavior*, 9, 39-78.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: a social psychological perspective on mental health. *Psychological Bulletin*, 103(2), 193–210.
- Thurik, A. R., Carree, M. A., van Stel, A., & Audretsch, D. B. (2008). Does self-employment reduce unemployment? *Journal of Business Venturing*, 23(6), 673–686.
- Thurik, A. R., Carree, M. A., van Stel, A., & Audretsch, D. B. (2008). Does self-employment reduce unemployment? *Journal of Business Venturing*, 23(6), 673–686.
- Tomes, N. (1986). Income distribution, happiness and satisfaction: A direct test of the interdependent preferences model. *Journal of Economic Psychology*, 7(4), 425–446.

-
- Towler, A., & Dipboye, R. (2001). Effects of Trainer Expressiveness, Organisation, and Trainee Goal Orientation on Training Outcomes. *Journal of Applied Psychology*, 86(4), 664–673.
- Towler, A., Arman, G., Quesnell, T., & Hoffman, L. (2014). How charismatic trainers inspire others to learn through positive affectivity. *Computers in Human Behavior*, 32, 221–228.
- Tripoli, A. M. (1998). Planning and allocating: Strategies for managing priorities in complex jobs. *European Journal of Work and Organizational Psychology*, 7, 455–476.
- Unger, J. M., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytical review. *Journal of Business Venturing*, 26(3), 341–358.
- Uy, M. A., Foo, M.-D., & Song, Z. (2013). Joint effects of prior start-up experience and coping strategies on entrepreneurs' psychological well-being. *Journal of Business Venturing*, 28(5), 583–597.
- van der Linden, D., Sonnentag, S., Frese, M., & van Dyck, C. (2001). Exploration strategies, performance, and error consequences when learning a complex computer task. *Behaviour and Information Technology*, 20, 189–198.
- van Gelder, J.-L., de Vries, R. E., Frese, M., & Goutbeek, J.-P. (2007). Differences in psychological strategies of failed and operational business owners in the Fiji Islands. *Journal of Small Business Management*, 45, 388–400.
- Van Gelderen, M., Frese, M., & Thurik, A. R. (2000). Strategies, uncertainty and performance of small business startups. *Small Business Economics*, 15, 165–181.
- Van Praag, C. M., & Versloot, P. H. (2007). What is the value of entrepreneurship? A review of recent research. *Small Business Economics*, 29(4), 351–382.
- van Steekelenburg, W., Lauw, A. M., & Frese, M. (2000). Problems and coping, strategies and initiative in microbusiness owners in South Africa. In M. Frese (Ed.), *Success and failure of microbusiness owners in Africa* (pp. 77–102). Westport, Conn.: Quorum Books.
- Vancouver, J. B., More, K. M., & Yoder, R. J. (2008). Self-efficacy and resource allocation: support for a nonmonotonic, discontinuous model. *The Journal of Applied Psychology*, 93(1), 35–47.
- Vancouver, J. B., Thompson, C. M., & Williams, a a. (2001). The changing signs in the relationships among self-efficacy, personal goals, and performance. *The Journal of Applied Psychology*, 86(4), 605–620.
- Varela, O. E., Cater III, J. J., & Michel, N. (2011). Similarity Attraction in Learning Contexts: An Empirical Study. *Human Resource Development Quarterly*, 22(1), 49–68.
- Vesper, K. H., & Gartner, W. B. (1997). Measuring progress in entrepreneurship education. *Journal of Business Venturing*, 12(5), 403–421.
-

References

- Von Graevenitz, G., Harhoff, D., & Weber, R. (2010). The effects of entrepreneurship education. *Journal of Economic Behavior & Organization*, 76(1), 90–112.
- Warr, P. (2009). Environmental “Vitamins”, Personal Judgements, Work Values, and Happiness. In S. Cartwright & C. L. Cooper (Eds.), *The Oxford Handbook of Organizational Well Being* (pp. 57–74). Oxford University Press.
- Weick, K. E. (1984). Small wins: Redefining the scale of social problems. *American Psychologist*, 39(1), 40–49.
- Welch, J. & Welch, S. (2005). *Winning*. New York: Harper Collins.
- Wiltbank, R., Dew, N., Read, S., & Sarasvathy, S.D. (2006). What to do next? The case for non-predictive strategy. *Strategic Management Journal*, 27, 981–998.
- Wiltbank, R., Stuart, R., Dew, N., & Sarasvathy, S. D. (2009). Prediction and control under uncertainty: Outcomes in angel investing. *Journal of Business Venturing*, 24, 116–133.
- Wood, R., & Bandura, a. (1989). Impact of conceptions of ability on self-regulatory mechanisms and complex decision making. *Journal of Personality and Social Psychology*, 56(3), 407–415.
- Zacher, H., Biemann, T., Gielnik, M. M., & Frese, M. (2012). Patterns of entrepreneurial career development: An optimal matching analysis approach. *International Journal of Developmental Science*, 6(3-4), 177–187.
- Zaheer, S., Albert, S., & Zaheer, A. (1999). Time scales and organizational theory. *Academy of Management Review*, 24(4), 725–741.
- Zempel, J. (1994). Psychologische Strategien der Handlungsplanung. [Psychological strategies of action planning]. Univ. of Giessen, unpublished paper, Giessen.

APPENDIX

A. Scales manual of the dependent and independent study variables

Entrepreneurial Self-Efficacy

Frese, M., Krauss, S. I., Keith, N., Escher, S., Grabarkiewicz, R., Luneng, S. T., ... Friedrich, C. (2007). Business owners' action planning and its relationship to business success in three African countries. *The Journal of Applied Psychology*, 92(6), 1481–1498.

Items

How confident are you that you can

Scale	Wording
1-5	Start a business?
1-5	Become self-employed?
1-5	Perceive business opportunities well?
1-5	Do the marketing of a business well?
1-5	Overcome problems when starting a business?
1-5	Do pricing of products or services well?
1-5	Negotiate with other business men well?
1-5	Keep an overview of your financial affairs well?
1-5	Lead people well?
1-5	Manage a business well?
1-5	Write a business plan well?
1-5	Find financial capital for starting a business?

Scale Labels

1	2	3	4	5
20%	40%	60%	80%	100%

Charisma

Avolio, B. J., Bass, B. M., & Jung, D. (1995). Multifactor leadership questionnaire technical report. Palo Alto, CA: Mind Garden.

Items

Scale	Wording
Idealized influence (Behavior)	
1-7	I talked about my most important values and beliefs
1-7	I specified the importance of having a strong sense of purpose
1-7	I considered the moral and ethical consequences of behavior
1-7	I was effective in meeting organizational requirements
Idealized Influence (attributed)	
1-7	I instilled pride in others for being associated with me
1-7	I went beyond self-interest for the good of the group
1-7	I acted in ways that built other's respect for me
1-7	I displayed a sense of power and confidence
Inspirational Motivation	
1-7	I talked optimistically about the future
1-7	I talked enthusiastically about what needs to be accomplished
1-7	I articulated a compelling vision of the future
1-7	I expressed confidence that goals will be achieved

Scale Labels

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither nor	Somewhat agree	Agree	Strongly agree

Appreciation Relationship Trainer-Trainee

Janis A. Cannon-Bowers, Eduardo Salas, Scott I. Tannenbaum & John E. Mathieu (1995): Toward Theoretically Based Principles of Training Effectiveness: A Model and Initial Empirical Investigation, *Military Psychology*, 7:3, 141-164

Ryan, R.M., Connell J.P. (1989). Perceived Locus of Causality and Internalization: Examining Reasons for Acting in Two Domains. *Journal of Personality and Social Psychology*, 57, 5, 749-761.

Items

How important are the following to you:

Scale	Wording
1-7	That the trainer knows that you are a good trainee.
1-7	Having a close relationship to the trainer.
1-7	Having the feeling that the trainer appreciates you.
1-7	Having a special relationship with the trainer.

Scale Labels

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither nor	Somewhat agree	Agree	Strongly agree

Empathy

Davis, M.H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44, 113-126.

Items

Scale	Wording
Empathy concern	
1-7	When I see student's being taken advantage of, I feel kind of protective towards them.
1-7	Sometimes I don't feel very sorry for students when they are having problems. (-)
1-7	I often have tender, concerned feelings for students that are less fortunate than me.
1-7	Student's misfortunes do not usually disturb me a great deal. (-)
1-7	I am often quite touched by things that I see happen.
1-7	I would describe myself as a pretty soft-hearted person.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither nor	Somewhat agree	Agree	Strongly agree

Perspective Taking

Parker, S.K. & Axtell, C.M. (2001). Seeing Another Viewpoint: Antecedents and Outcomes of Employee Perspective Taking. *The Academy of Management Journal*, 44, 6., 1085-1100.

Items

Scale	Wording
Empathy with Students	
1-7	I feel concerned for students if they are under pressure.
1-7	It pleases me to see that students are doing well.
1-7	I understand the problems students are dealing with.
Positive attributions about behavior and outcomes	
1-7	Students are doing the best they can, given the circumstances.
	If students make mistakes, it's usually not their fault.
1-7	Students work just as hard as we do.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither nor	Somewhat agree	Agree	Strongly agree

Life Satisfaction

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49, 71-75.

Items

Scale	Wording
1-7	In most ways my life is close to my ideal.
1-7	The conditions of my life are excellent.
1-7	I am satisfied with my life.
1-7	So far I have gotten the important things I want in life.
1-7	If I could live my life over, I would change almost nothing.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither nor	Somewhat agree	Agree	Strongly agree

B. Additional calculations to chapter 4

Descriptive and correlations of the dependent and independent variables at T1-T5.

Variable	N	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1. Training	318	0.55	0.50																
2. Life satisfaction (T1)	272	4.37	1.17	-.04															
3. Life satisfaction (T2)	304	4.55	1.13	.10	.54**														
4. Life satisfaction (T3)	292	4.45	1.18	.00	.56**	.59**													
5. Life satisfaction (T4)	165	4.14	1.29	.09	.51**	.54**	.62**												
6. Life satisfaction (T5)	82	4.16	1.24	.06	.57**	.51**	.62**	.68**											
7. Entrepreneurial Self-efficacy (T1)	272	7.90	1.16	.02	.15*	.18**	.19**	-.03	-.13										
8. Entrepreneurial Self-efficacy (T2)	305	8.12	1.13	.23**	.09	.31**	.22**	.21*	.12	.62**									
9. Entrepreneurial Self-efficacy (T3)	292	8.02	1.12	.03	.09	.22**	.26**	.13	.13	.58**	.67**								
10. Entrepreneurial Self-efficacy (T4)	165	9.07	1.29	.14	.25**	.32**	.41**	.28**	.19	.48**	.66**	.76**							
11. Entrepreneurial Self-efficacy (T5)	82	8.21	1.16	.19	-.03	.09	.09	.07	.21	.47**	.62**	.72	.69**						
12. Self-employment (T1)	315	0.20	0.40	-.08	.10	.13*	.10	.07	.07	.01	.05	.09	.08	-.04					
13. Self-employment (T2)	309	0.23	0.42	-.08	.13*	.17**	.21**	.19*	.16	.10	.09	.04	.11	-.06	.43**				
14. Self-employment (T3)	293	0.44	0.50	.18**	.04	.08	.10	.14	-.01	.06	.12	.02	.09	.18	.16*	.29**			
15. Self-employment (T4)	214	0.55	0.50	.17*	.03	.07	.16*	.22*	.12	.05	.13	.10	.15	-.02	.18*	.29**	.43**		
16. Self-employment (T5)	104	0.62	0.49	-.10	-.08	.02	-.02	.09	.20	-.04	.00	.07	-.12	-.04	.22*	.30**	.30**	.46**	

Note. * = $p < .05$, ** = $p < .01$.

Linear Regression of the model
1. Regression model of Entrepreneurial self-efficacy (T2) on the Entrepreneurship Training

Dependent variable	Entrepreneurial Self-efficacy T2	
	β	SE
Entrepreneurial Self-Efficacy (T1)	0.62**	0.04
Gender	0.01	0.10
Age	-0.04	0.02
General mental ability	-0.05	0.06
Marital status	-0.03	0.35
University	-0.02	0.13
Employment (T1)	-0.10†	0.20
Income (T1)	0.19**	0.00
Training	0.23**	0.10
R ²	0.45	

Note. Number of observations =248 † = p < .10, * = p < .05, **= p < .01.

2. Regression model of Self-employment (T3) on Entrepreneurial self-efficacy (T2)

Dependent variable	Model 1		Model 2	
	Self-employment (T3)			
	β	SE	β	SE
Self-employment (T2)	0.28**	0.07	0.30**	0.07
ESE (T2)	0.10†	0.03	0.06	0.03
Gender	0.07	0.06	0.07	0.06
Age	0.09	0.01	0.08	0.01
General mental ability	-0.06	0.04	-0.06	0.03
Marital status	-0.06	0.21	-0.08	0.20
University	0.02	0.08	0.02	0.08
Employment (T1)	-0.04	0.11	-0.06	0.11
Income (T1)	-0.03	0.00	-0.03	0.00
Training			0.17**	0.06
R ²	0.12		0.14	
ΔR^2			0.02	

Note. Number of observations = 266; † = $p < .10$, * = $p < .05$ ** = $p < .01$.

3. Regression model of Life satisfaction (T4) on Self employment (T3)

Dependent variable	Life Satisfaction (T4)	
	β	SE
Life Satisfaction (T3)	0.63	0.07
ESE (T2)	-0.04	0.09
Gender	-0.10	0.17
Age	0.03	0.03
General mental ability	0.00	0.10
Marital status	-0.04	0.58
University	0.05	0.21
Employment (T1)	-0.04	0.37
Income (T1)	0.12	0.00
Self-employment (T2)	0.06	0.18
Training	0.00	0.18
R ²	0.42	

Note. Number of observations = 128; † = $p < .10$, * = $p < .05$ ** = $p < .01$.