When capital does not matter

Bischoff, Kim Marie; Gielnik, Michael Marcus; Frese, Michael

Published in:
Strategic Entrepreneurship Journal

DOI:
10.1002/sej.1364

Publication date:
2020

Document Version
Publisher's PDF, also known as Version of record

Received: 15 February 2019 | Revised: 30 May 2020 | Accepted: 4 June 2020

DOI: 10.1002/sej.1364

SPECIAL ISSUE ARTICLE

STRATEGIC ENTREPRENEURSHIP JOURNAL WILEY

When capital does not matter: How entrepreneurship training buffers the negative effect of capital constraints on business creation

Kim Marie Bischoff[1,2] | Michael M. Gielnik[3] | Michael Frese[3,4]

[1]Faculty of Economics & Media, Hochschule Fresenius University of Applied Sciences, Berlin, Germany

[2]move gGmbH Entrepreneurship Training Institute, Berlin, Germany

[3]Institute of Management and Organization, Leuphana University of Lüneburg, Lüneburg, Germany

[4]Asia School of Business (in collaboration with MIT Sloan Management) (ASB), Kuala Lumpur, Malaysia

Correspondence
Kim Marie Bischoff, Faculty of Economics & Media, Hochschule Fresenius University of Applied Sciences, Jägerstraße 32, Berlin 10117, Germany.
Email: kim.bischoff@hs-fresenius.de

Funding information
BASF Foundation (BASF Stiftung), Grant/Award Number: STEP 2012-2013; German Commission for UNESCO (Deutsche UNESCO Kommission); National University of Singapore, Grant/Award Numbers: R-317-000-084-133, R-317-000-095-112; German Academic Exchange Service; Deutscher Akademischer Austauschdienst, Grant/Award Numbers: ID 50020279, ID 54391079

Abstract

Research summary: Entrepreneurship training is an effective means to promote business creation. We examine the effect of entrepreneurship training in conjunction with capital constraints, which entrepreneurs frequently experience in the context of developing countries and emerging economies. We develop a theoretical model that explains how entrepreneurship training attenuates the negative effect of capital constraints on business creation by developing financial mental models. To test our model, we conducted two longitudinal, randomized field experiments in developing countries. Our studies show a moderation effect of entrepreneurship training on the relationship between capital constraints and business creation. Results reveal that financial mental models mediated this moderation. The study demonstrates the role that entrepreneurship training plays in dealing with capital constraints in entrepreneurship in developing countries and emerging economies.

Managerial summary: A major barrier for entrepreneurship is capital constraints. In the context of developing countries and emerging economies, where people experience severe

capital constraints, the common thinking suggests improving access to capital as the major solution for overcoming capital constraints in business creation. Our study provides empirical evidence for a different point of view: It emphasizes the importance of entrepreneurship training as an effective means to cope with capital constraints when starting businesses. Our findings show that entrepreneurship training reduces the negative effect of capital constraints on business creation through financial mental models. This implies that entrepreneurship training improves participants' financial mental models and hence supports them in starting businesses despite capital constraints. Consequently, we recommend promoting entrepreneurship training to overcome capital constraints in business creation.

KEYWORDS

emerging economies, entrepreneurship training, financial capital, mental model, new venture creation

1 | INTRODUCTION

Entrepreneurship has a positive impact on innovation and job creation, thus driving economic development and poverty alleviation (Carree & Thurik, 2008; Sutter, Bruton, & Chen, 2019; Thurik, Carree, van Stel, & Audretsch, 2008). Economic development, employment creation, and poverty alleviation are particularly relevant for developing countries, which face an extremely high rate of unemployment or irregular employment (International Labour Office, 2017; Van Waeyenberge & Bargawi, 2018). Given the importance of entrepreneurship, a major task for practitioners, policy maker, and scientists is to promote entrepreneurship.

Research has shown that entrepreneurship training is an effective means to promote entrepreneurship. For example, entrepreneurship training has positive effects on a variety of short- and long-term outcomes, such as trainees' entrepreneurial intention, motivation, skills, and entrepreneurial behavior (Martin, McNally, & Kay, 2013; Nabi, Liñán, Fayolle, Krueger, & Walmsley, 2017). These outcomes in turn positively influence business creation and further factors indicating long-term success (Martin et al., 2013; Walter & Block, 2016). Thus, it is not an open question that, in principle, entrepreneurship training is effective. However, the mechanisms how and why entrepreneurship training unfolds its effects are not yet clear. So far, the typical approach has been investigating main effects of entrepreneurship training on business creation and related outcomes (Bae, Qian, Miao, & Fiet, 2014; Frese, Gielnik, & Mensmann, 2016; Martin et al., 2013; Nabi et al., 2017; Walter & Block, 2016). This research has led to important findings, for example about the importance of using an action-oriented approach, meaning exploratory learning through actively engaging in realistic tasks in entrepreneurship training (Campos et al., 2017; Frese et al., 2016; Gielnik et al., 2015; Nabi et al., 2017; Varamäki, Joensuu, Tornikoski, & Viljamaa, 2015).

In this study, we extend current research on the mechanisms through which entrepreneurship training exerts its effect by adopting a perspective that considers the specific context of entrepreneurship in emerging economies. Entrepreneurship in emerging economies is characterized by institutional voids and resource constraints (Seelos & Mair, 2016; Sutter et al., 2019). In particular, resource constraints in terms of lack of financial capital is a major factor impeding entrepreneurship in these contexts (Chliova, Brinckmann, & Rosenbusch, 2015; Khavul, 2010; Naudé,

Gries, Wood, & Meintjies, 2008). We address this characteristic of emerging economies by developing and testing a theoretical model that explains how entrepreneurship training and capital constraints interact to influence entrepreneurship (see Figure 1). Specifically, we draw on action-regulation theory (Frese, 2009; Hacker, 1998; Zacher & Frese, 2018) to examine entrepreneurship training as a boundary condition that can weaken the negative relationship between capital constraints and business creation. Moreover, we theorize that entrepreneurship training exerts this moderation effect through financial mental models. Financial mental models are cognitive representations that enable people to interpret information and to guide their actions with respect to financial matters (Baron & Ensley, 2006; Bradley, Paul, & Seeman, 2006; Johnson-Laird, 2001; Santos, Caetano, Baron, & Curral, 2015). We present two different studies to test our theoretical model. Both studies comprised randomized controlled field experiments with longitudinal designs. Experimental approaches are particularly useful in the practice of economics and entrepreneurship to address issues of global poverty (Banerjee & Duflo, 2009; Duflo, Glennerster, & Kremer, 2007; McKenzie & Woodruff, 2014). In both studies, we examined if entrepreneurship training weakens the negative effect of capital constraints on business creation. In the second study, we additionally analyzed whether the moderation effect of entrepreneurship training on the relationship between capital constraints and business creation can be explained by financial mental models. We think that our study contributes to the literature in the following ways.

First, we demonstrate that entrepreneurship training can take over the function of a moderator in the context of entrepreneurship in emerging economies, weakening the negative influence of capital constraints on business creation. This offers a new perspective that goes beyond the typical main effect of entrepreneurship training, which has been the focus of prior research (Martin et al., 2013; Walter & Block, 2016). The new perspective suggests that entrepreneurship training can help to overcome the burden of capital constraints, not by reducing capital constraints, but by efficiently dealing with them. The new perspective of the role of entrepreneurship training is important because entrepreneurship training has not been commonly considered as a solution to the problem of capital constraints. Rather, the common thinking suggests providing access to capital as the major solution (De Mel, McKenzie, & Woodruff, 2008; Evans & Jovanovic, 1989; Ho & Wong, 2007; van Auken, 1999; Wiklund & Shepherd, 2003). This thinking prevails particularly in the context of emerging economies, where people experience severe capital constraints (Beck & Demirguc-Kunt, 2008; McKenzie & Woodruff, 2007; Naudé et al., 2008). As a striking example, the Nobel peace laureate Muhammad Yunus asserted that facilitating access to capital in developing countries is far more important than providing training, stating that:

"(…) rather than waste our time teaching them new skills, we try to make maximum use of their existing skills. Giving the poor access to credit allows them to immediately put into practice the skills they already know" (Yunus, 1999, p. 140).

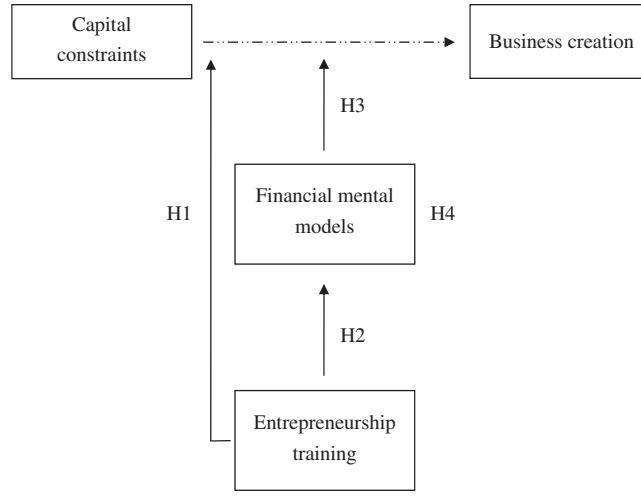

FIGURE 1 The theoretical model of the study. The dashed path between capital constraints and business creation indicates that our theoretical model does not argue for a direct effect of capital constraints on business creation, but this effect is contingent upon entrepreneurship training and financial mental models

Our theoretical model suggests a different point of view with respect to the roles of entrepreneurship training and capital constraints. It emphasizes the importance of entrepreneurship training as an effective means to cope with capital constraints by improving participants' financial mental models. Thus, providing capital is not the only answer to capital constraints, but entrepreneurship training also offers an effective leverage point.

Second, we investigate financial mental models as a factor that explains the moderation effect of entrepreneurship training on the relationship between capital constraints and business creation. This is important for two reasons. First, identifying financial mental models as a factor underlying the impact of entrepreneurship training adds to the theoretical understanding of the mechanisms that explain why entrepreneurship training is effective. This contributes to developing a theory of entrepreneurship training that comprehensively describes the multiple pathways through which entrepreneurship training has positive effects (Martin et al., 2013). Second, integrating financial mental models into our theoretical model adds to the research that advocates adopting an interactionist approach to explain entrepreneurship and business creation (Gielnik & Frese, 2013; Welter & Smallbone, 2011). Our study examines the interaction of capital constraints and the cognitive factor of financial mental models to examine boundary conditions of the effect of capital constraints on business creation. The interactionist approach and joint consideration of capital constraints and financial mental models help to develop a more integrated theoretical perspective on drivers and barriers of business creation (Gielnik & Frese, 2013; Welter, 2011).

Third, we add to the understanding of the antecedents and function of financial mental models. Research showed that financial mental models were linked to entrepreneurial experience, as financial mental models of experienced entrepreneurs were better developed than those of novice entrepreneurs (Baron & Ensley, 2006; Santos et al., 2015). In our study, we demonstrate that people can acquire financial mental models not only through entrepreneurial experience, but also through entrepreneurship training. Furthermore, we demonstrate that financial mental models have an important function in entrepreneurship by attenuating the negative effect of capital constraints on business creation.

2 | THEORY

Entrepreneurs frequently abandon the process of starting a new business (Reynolds et al., 2005). A major reason for giving up is facing capital constraints (Evans & Jovanovic, 1989; Ho & Wong, 2007; Holtz-Eakin, Joulfaian, & Rosen, 1994; van Auken, 1999). Experiencing capital constraints, that is, having limited access to financial capital, hinders the acquisition of the necessary assets to start a business (Blanchflower & Oswald, 1998; Wiklund & Shepherd, 2003). Indeed, several studies have shown the negative impact of capital constraints on business creation (Blanchflower & Oswald, 1998; Chliova et al., 2015; Evans & Jovanovic, 1989; Ho & Wong, 2007; Song, Podoynitsyna, van der Bij, & Halman, 2008). Particularly in emerging economies, capital constraints are a major barrier impeding new venture creation (Naudé et al., 2008). Capital constraints are often the result of a weak or nonexistent formal financial sector (Beck & Demirguc-Kunt, 2008). Other funding sources are also difficult to access. For example, informal moneylenders demand high interest rates to deal with loan default, and the high interest rates limit the success of the businesses in the long run. Thus, coping with capital constraints is a major task of entrepreneurs in emerging economies (Gries & Naudé, 2010; Klinger, Khwaja, & Del Carpio, 2013).

2.1 | Entrepreneurship training: Moderating the effect of capital constraints on business creation

Although scholars agree that capital constraints are a barrier for business creation, research suggested that the effects vary across different settings (Naudé et al., 2008). For example, research showed that the effect of financial capital on entrepreneurial success was contingent on entrepreneurial ability (De Mel et al., 2008). Similarly, research revealed that entrepreneurial experience could compensate for a lack of financial capital, demonstrating that experienced individuals

needed less capital to start a business (Chandler & Hanks, 1998). These results suggest that capital constraints alone cannot sufficiently explain business creation, and cognitive resources, such as the ability and experience of the entrepreneur, can function as boundary conditions of the effect of capital constraints on business creation.

We argue that, similar to ability and experience, entrepreneurship training influences the effect of capital constraints on business creation. In this study, we focus on entrepreneurship training that is action-oriented, because this type of training is particularly effective in entrepreneurship in general, and also in the specific context of emerging economies (Campos et al., 2017; Frese et al., 2016). In fact, research comparing different types of training revealed that an action-oriented training approach is more effective in promoting entrepreneurship and venture performance than other entrepreneurship training methods (Campos et al., 2017; Nabi et al., 2017; Varamäki et al., 2015). An action-oriented training approach comprises three learning channels: learning through action, learning through action principles, and learning through feedback (Bell & Kozlowski, 2002, 2008; Campos et al., 2017; Frese, Beimel, & Schoenborn, 2003; Gielnik et al., 2015; Glaub, Frese, Fischer, & Hoppe, 2014; Keith & Frese, 2005). Applied to entrepreneurship, an action-oriented training approach involves actively engaging in the entrepreneurial process and performing real-life activities to start a business. Furthermore, it involves learning action principles, which are evidence-based rules-of-thumb that contain practical knowledge about effective entrepreneurial actions, and lastly, action-oriented training involves receiving feedback from trainers and one's own entrepreneurial actions (Campos et al., 2017; Frese et al., 2016; Gielnik et al., 2015; Glaub et al., 2014).

Action-regulation theory suggests that performing real-life actions and receiving feedback allow for interpreting information appropriately, solving problems fast, and taking correct and efficient actions in real-life (Frese, 2009; Gielnik et al., 2015; Glaub et al., 2014; Zacher & Frese, 2018). In entrepreneurship, taking correct and efficient actions implies that entrepreneurs make fewer mistakes and thus, make the best use of their limited (financial) resources during the start-up process. Preventing the waste of resources is particularly important when entrepreneurs face capital constraints and have fewer resources to sustain themselves and the new business. Accordingly, applying effectively the few resources is key to succeeding in business creation. As entrepreneurship training helps to take action effectively, it should weaken the negative effect of capital constraints on business creation. Therefore, we hypothesize the following:

Hypothesis (H1). *Entrepreneurship training moderates the effect of capital constraints on business creation, such that entrepreneurship training weakens the relationship between capital constraints and business creation.*

2.2 | Financial mental models: Explaining the moderation effect of entrepreneurship training

We argue that financial mental models are a mechanism underlying the effect of entrepreneurship training on the relationship between capital constraints and business creation. Specifically, we hypothesize that financial mental models mediate the moderation effect of entrepreneurship training. To develop this hypothesis, we first argue for an effect of entrepreneurship training on financial mental models. We then develop our hypotheses regarding the mediation effect of financial mental models.

Mental models are cognitive representations of concepts or situations and include knowledge about what kind of action is necessary in which situation (Bradley et al., 2006; Frese, 2009; Frese & Zapf, 1994; Glass & Holyoak, 1986; Hacker, 1998; Johnson-Laird, 2001). People can develop mental models for different topics and various situations. With respect to entrepreneurship, scholars have investigated a variety of mental models influencing business creation, such as arrangement (e.g., contacts, relationships, resources, assets), willingness (e.g., commitment), ability (e.g., necessary skills, knowledge, capacity), alertness, and roles (Baron & Ward, 2004; Corbett & Hmieleski, 2007; Gaglio & Katz, 2001; Mitchell, Smith, Seawright, & Morse, 2000). Mental models about financial concepts are called financial mental models. These financial mental models are cognitive representations about financial matters, for example about the role of

return and investment rates, cash flow, or profit margins in entrepreneurship (Baron & Ensley, 2006). Financial mental models play an important role in entrepreneurship, for example regarding the identification of business opportunities and the decision to create a business (Baron & Ensley, 2006; Santos et al., 2015). Baron and Ensley (2006) found that experienced entrepreneurs were more likely to use criteria of finances and potential financial success than unexperienced entrepreneurs. Thus, the mental models of experienced entrepreneurs were different from the mental models of non-experienced entrepreneurs. More specifically, experienced entrepreneurs identified and evaluated new products and services according to financial success and the capacity to generate positive cash flow. Furthermore, mental models of experienced entrepreneurs were better developed, more clearly defined, and richer in content than the mental models of unexperienced entrepreneurs (Baron & Ensley, 2006).

Drawing on action-regulation theory (Frese, 2009; Zacher & Frese, 2018), we hypothesize that entrepreneurship training leads to well-developed financial mental models, in particular when the training approach is action-oriented (Bell & Kozlowski, 2008, 2009; Chillarege, Nordstrom, & Williams, 2003; Fabiani et al., 1989; Fiore, Cuevas, & Oser, 2003; Frese et al., 1988). We argue that such entrepreneurship training develops trainees' financial mental models through financial action principles, performing start-up actions, and learning from feedback (Frese, 2009; Frese et al., 2003; Keith & Frese, 2008). Entrepreneurship training that teaches action principles about financial aspects, for instance about managing finances, bookkeeping, accounting, finding starting capital, and financial bootstrapping activities, improves trainees' financial mental models because action principles provide guidelines about how to act in various situations. Indeed, the literature provides empirical support that financial action principles improve trainees' mental models about financial situations and financial processes (Drexler, Fischer, & Schoar, 2011).

Furthermore, performing start-up actions facilitates developing financial mental models. According to action-regulation theory (Frese, 2009; Hacker, 1998; Zacher & Frese, 2018), actions are key to learning and updating mental models. When carrying out actions, people explore their environment and acquire knowledge about situational signals as well as about conditions of successful action (Frese, 2009; Zacher & Frese, 2018). In entrepreneurship training that is action-oriented, trainees engage in the start-up of a new venture and perform activities to start and manage a business. They identify business opportunities, acquire raw materials, and sell their products or services. In this way, trainees learn about financial matters, detect financial signals, and interpret financial information (e.g., working capital, income, expenditures, and revenue). Lastly, entrepreneurship training that emphasizes being open toward errors as a form of feedback and source of learning supports trainees in developing financial mental models (Frese, 2009; Heimbeck, Frese, Sonnentag, & Keith, 2003; Keith & Frese, 2008). Learning new actions implies that errors occur during the learning process (Heimbeck et al., 2003; Keith & Frese, 2005). When actions are not successful and fall short of the standard, people reflect about the causes for why actions were unsuccessful (Frese, 2009). In entrepreneurship training, trainees learn new actions in terms of starting and managing a business, and they make errors while engaging in this process. For example, they might run short of working capital or miscalculate profits. Trainees reflect on these errors and derive lessons how to avoid similar errors in future, further improving their mental models.

Hypothesis (H2). *Entrepreneurship training positively influences financial mental models.*

Based on action-regulation theory (Frese, 2009; Hacker, 1998; Zacher & Frese, 2018), we hypothesize that financial mental models moderate the effect of capital constraints on business creation. Well-developed mental models help people to interpret information, understand complex patterns, and detect signals in the environment. Furthermore, well-developed mental models imply that people have a better understanding of the environment and find solutions for problems more easily. This enables people to act quickly and effectively, which has beneficial impacts on performance (Frese, 2009; Frese & Zapf, 1994; Kieras & Bovair, 1984; Mumford et al., 2012; Sonnentag, 1998; Sonnentag & Kleine, 2000). Accordingly, we argue that well-developed financial mental models enable entrepreneurs to better interpret financial information, have a profound financial understanding, and foresee financial problems. Entrepreneurs with well-developed financial mental models are thus more likely to avoid or better deal with problems related to their finances during the start-up process. They reduce cost-intensive mistakes and

wasting resources, which would otherwise constitute a burden to the low budget of entrepreneurs. Thus, entrepreneurs can compensate for capital constraints with the help of financial mental models since well-developed financial mental models enable an effective use of resources and a successful progression through the start-up process even when capital is limited. Thus, entrepreneurs who have well-developed financial mental models can accomplish the start-up process despite facing capital constraints, suggesting that financial mental models attenuate the negative effect of capital constraints on business creation.

Hypothesis (H3). *Financial mental models moderate the effect of capital constraints on business creation, such that well-developed financial mental models weaken the relationship between capital constraints and business creation.*

Our theoretical model holds that financial mental models constitute a mechanism underlying the moderation effect of entrepreneurship training on the relationship between capital constraints and business creation. We argued for a moderation effect of entrepreneurship training on the relationship between capital constraints and business creation (Hypothesis 1). In general, training exerts long-term effects through cognitive training outcomes (Baldwin & Ford, 1988; Kraiger, Ford, & Salas, 1993). Also with regard to entrepreneurship, research suggests that entrepreneurship training supports the development of cognitive training outcomes (Martin et al., 2013; Walter & Block, 2016), which can explain why entrepreneurship training influences the effect of capital constraints on business creation. Financial mental models are such cognitive training outcomes. Accordingly, we hypothesize that financial mental models explain why entrepreneurship training attenuates the negative effect of capital constraints on business creation.

Hypothesis (H4.) *Financial mental models mediate the moderation effect of entrepreneurship training on the relationship between capital constraints and business creation.*

2.3 | The context of the present study: The economy of Uganda

We conducted our study in Uganda, a context of high early-stage entrepreneurial activity, high capital constraints, and high unemployment among youths. Uganda is classified as a low-income country with a gross national income of 620 USD per capita (in comparison, the gross national income per capita is 63,080 USD in the United States; The World Bank, 2019b). Uganda has a high total early-stage entrepreneurial activity (TEA) of 35% (in comparison to the global average of 13%; (Singer, Amorós, & Arreola, 2015). In addition, capital constraints are one of the main problems in Uganda. In fact, Uganda scores below global and regional averages in entrepreneurial finance, and its score even decreased over the last survey of the Global Entrepreneurship Monitor (Singer et al., 2015). Furthermore, Uganda ranks 73 out of 190 countries in the category "getting credit" (The World Bank, 2019a), indicating that entrepreneurs face high capital constraints. Uganda has also a high rate of youth unemployment (International Labour Office, 2017; Van Waeyenberge & Bargawi, 2018), and finding a job is difficult in Uganda as over 38% of the unemployed youth was not able to find employment within 1 year (Van Waeyenberge & Bargawi, 2018). In comparison to other countries, the labor market conditions in Uganda are particularly adverse for youths with secondary and higher education (OECD, 2017). The high unemployment rate among youths with a university degree calls for interventions to promote entrepreneurship in this particular group. University students in Uganda and similar contexts feel oftentimes less inclined to consider entrepreneurship as a career option (Katono, Heintze, & Byabashaija, 2010; Oyugi, 2014; Plattner, Lechaena, Mmolawa, & Mzingwane, 2009). Accordingly, the high early-stage entrepreneurial activity does not necessarily apply to university students. A reason might be that they oftentimes perceive and experience severe capital constraints (Fatoki & Chindoga, 2011; Katono et al., 2010; Ovat, 2013). Consequently, investigating how entrepreneurship training helps to deal with capital constraints is practically useful to promote entrepreneurship among university graduates who have the potential to create formal, high-expectation, and opportunity-driven businesses (Sonobe, Akoten, & Otsuka, 2011; van Stel, Storey, & Thurik, 2007).

2.4 | Overview of the present studies (study I and study II)

To test our hypotheses, we carried out two studies. In both studies, we conducted randomized controlled field experiments with pre- and post-testing. We used longitudinal designs with measurement waves before and after the training program. In both studies, we randomly assigned the study participants to a training group and a control group. The randomized controlled design with pre−/post-testing enabled us to control for biases due to maturation, history, testing, or self-selection (Cook, Campbell, & Peracchio, 1990). We randomly assigned the study participants to the groups after the first measurement wave. The training groups of both studies received entrepreneurship training after the first measurement wave. The control group of Study II was a waiting control group and was offered to participate in the training after the evaluation period of this study.

2.5 | The entrepreneurship training program

The entrepreneurship training program took place at three universities in Uganda. The program consisted of 12 weekly sessions of 3 hr, which were delivered over a timeframe of 12 weeks *(Gielnik et al., 2015)*. The 12 sessions covered topics from the fields of business administration, psychology, and entrepreneurship. Out of the 12 sessions, four sessions explicitly covered finance-related topics: bookkeeping (two sessions), finding starting capital, and managing finances. The training taught financial action principles, similar to financial literacy rules of thumb (see also Drexler et al., 2011) for a similar approach). In the two sessions about bookkeeping, trainees learned to control the finances of their businesses, to keep records of their cash in- and outflows, to prepare an overview of their incomes and expenditures, to prepare a profit and loss statement, to identify the total costs of their businesses, and to calculate a price for their products or services. In the session about finding starting capital, trainees learned to identify the amount of starting capital needed for starting their businesses, to identify different sources of capital, to evaluate these sources according to the net present value and return on investment, and to employ financial bootstrapping activities. In the session about managing finances, trainees learned to manage their working capital, debtors, creditors, stock, and cash. Furthermore, they learned how to make forecasts for expected incomes and expenditures, and to conduct a financial analysis to understand why actual results are different from the forecasts.

During the training, the trainees engaged in actions to start a new business. In the first session of the training, they formed teams and started to work on launching a new business. Their goal was to start and operate a business that would make profit in the 12 weeks of the training period. The trainees performed actions under real business conditions, carrying out all necessary start-up activities of the entrepreneurial process, from preparing to launching and managing the business. The trainees identified a business opportunity, acquired equipment and raw materials, handled debtors and creditors, and sold their products or services to real customers. Each start-up team received a starting capital of approximately 100 USD in the first session, which had to be refunded after the 12 weeks of training. Accordingly, the training participants did not have a financial advantage over the participants in the control group because of the starting capital received at the beginning of the training program. The training program was delivered by local lectures at the three universities.

3 | STUDY I: METHOD

3.1 | Procedure and sample

We conducted Study I at a university in a rural region of Uganda. We carried out three measurement waves: the month before the training (T1), the month after the training (T2), and 18 months after T1 (T3). At all three measurement waves, we used questionnaires to collect the data. We collected data from 197 undergraduate

students, who applied for the training program by completing an application form and the baseline questionnaire (T1). Based on a lottery, we randomly allocated applicants to the training group (n = 115) and control group (n = 82). We calculated t-tests as a randomization check. Results revealed no significant differences between the training and control group before the training program, indicating that the randomization was successful.

At T2, we were able to collect data from all 197 students (training group: n = 115, control group: n = 82). At T3, we were able to collect data from 130 students (training group: n = 87, control group: n = 43). The final sample thus consisted of 130 students. We were not able to collect data from 67 students at T3, because the students had changed their contact details, lived far away, or refused to fill in the questionnaire. We conducted t-tests to test if students who dropped out of the training group significantly differed in any variable measured at T1 from the students who dropped out of the control group (test of differential loss). The t-tests showed no significant results except for a marginally significant difference in gender (more male participants dropped out in the training group than in the control group).

3.2 | Measures

3.2.1 | Entrepreneurship training

Participants of the training group were coded as "1" and participants of the control group as "0."

3.2.2 | Business creation

We measured business creation before (T1) and 18 months after the training program (T3). We asked, "*Are you currently the owner of a business?*", coding participants' answers as "1" (yes) and "0" (no). We validated the answers by asking whether the participants made any sales with their businesses and whether they had any employees.

3.2.3 | Capital constraints

We adapted the measure by Wiklund and Shepherd (2003) to measure capital constraints. We assessed capital constraints before (T1) and after the training program (T2), using three items ("*if I wanted to start a business, potential sources to get the necessary starting capital would be limited*", "*if I wanted to start a business, a great impediment for my venture would be a lack of available sources for starting capital*", and "*if I wanted to start a business, getting access to sufficient financial capital would be difficult*"). Participants answered the three items on a seven-point Likert scale ranging from *"strongly disagree"* (1) to" *strongly agree"* (7). The internal consistency of the scale at both measurement waves was good (T1: Cronbach's Alpha = .78; T2: Cronbach's Alpha = .82).

3.2.4 | Control variables

We assessed gender, relatives in business, and social norms as control variables in the questionnaire at T1. Research showed that these variables affect business creation (Davidsson & Honig, 2003; Wang & Wong, 2004). In the baseline questionnaire, we asked participants to indicate their gender (*female* = 0, *male* = 1). Furthermore, we assessed whether participants had relatives who owned a business (*yes* = 1, *no* = 0). In addition, we controlled for social norms

regarding entrepreneurship. We measured social norms with six items based on Krueger, Reilly, and Carsrud (2000). Participants answered the items on a five-point Likert scale ranging from *"not at all"* (1) to *"absolutely"* (5). An example item is "*would family and friends want you to start your own business?*" The internal consistency of the scale was good (Cronbach's Alpha = .85).

4 | STUDY I: RESULTS

Table 1 displays the correlations and descriptive statistics of the variables. As a preliminary check, we tested whether entrepreneurship training had a significant effect on capital constraints. We computed a linear regression model with capital constraints at T2 as dependent variable and training as independent variable controlling for capital constraints at T1. Results showed that training did not influence capital constraints (B = 0.02, SE = 0.25, ns.) indicating that training did not change capital constraints.

4.1 | Results of testing the hypotheses

We tested whether entrepreneurship training moderates the effect of capital constraints on business creation (Hypothesis 1). We calculated logistic regression analyses with business creation at T3 as dependent variable, capital constraints at T1 as independent variable, and entrepreneurship training as moderator variable. We controlled for gender, relatives in business, and social norms. We also controlled for business creation at T1 to model change in our dependent variable. We mean centered the independent and moderator variable before computing the interaction term. Table 2 displays the results. Results revealed a significant interaction effect of capital constraints and entrepreneurship training (B = 0.71, SE = 0.36, p < .05), providing support for Hypothesis 1. To illustrate the significant interaction effect, we plotted the slopes for capital constraints for the training group and control group (see Figure 2). Simple slope analyses revealed a significant and positive relationship between capital constraints and business creation for the training group (B = 0.51, SE = 0.26, p < .05). The simple slope analyses showed a negative but non-significant relationship for the control group (B = −0.44, SE = 0.32, ns.). The results of our analyses suggest that entrepreneurship training served as a moderator for the relationship of capital constraints and business creation.

5 | STUDY I: DISCUSSION

Study I provided support for Hypothesis 1 that entrepreneurship training moderates the relationship between capital constraints and business creation. Thus, entrepreneurship training can be an effective means to promote business creation in capital constrained environments. However, we note that the simple slope analyses differed from our expectation. The slope of the training group was positive, while the slope of the control group was negative but non-significant. A post-hoc explanation for the unexpected finding is that high capital constraints indicated a larger discrepancy and caused negative affect, which had a motivating function for participants of the training group to invest extra effort into activities to start a business (Carver & Scheier, 1982; Foo, Uy, & Baron, 2009).

Furthermore, the results of Study I showed that entrepreneurship training did not have a main effect on capital constraints. Thus, entrepreneurship training does not directly change capital constraints, but rather modifies the way training participants deal with capital constraints. However, the findings do not explain why entrepreneurship training moderated the effect of capital constraints on business creation. We conducted Study II to provide an explanation for the effect. Study II aimed at replicating the results and extending the findings by demonstrating that financial

TABLE 1 Study I: Descriptive statistics and correlations of the variables

	Variable	Wave	*M*	*SD*	1	2	3	4	5	6	7
1	Gender	T1	0.52	0.50							
2	Relatives in business	T1	0.76	0.43	−0.14						
3	Social norms	T1	3.99	0.68	−0.09	0.25**					
4	Business creation	T1	0.25	0.43	−0.03	0.19*	0.14				
5	Business creation	T3	0.41	0.49	−0.02	0.17+	−0.05	0.18*			
6	Capital constraints	T1	4.57	1.33	0.24*	−0.17+	−0.11	0.07	0.04		
7	Capital constraints	T2	4.47	1.39	0.13	−0.16+	0.14	−0.03	−0.15+	0.25**	
8	Training[a]	T1	0.67	0.47	0.02	−0.05	0.11	0.02	0.08	−0.11	−0.02

+$p < .10$; *$p < .05$; **$p < .01$.

[a]Training means entrepreneurship training (1 = training group, 0 = control group).

TABLE 2 Study I: Logistic regression analyses testing the moderation effect of entrepreneurship training on the relationship of capital constraints and business creation

	Business creation at T3					
	Model 1		Model 2		Model 3	
	B	*SE*	*B*	*SE*	*B*	*SE*
Step 1						
Gender	−0.02	0.37	−0.09	0.39	−0.18	0.39
Relatives in business	0.88$^{+.}$	0.49	0.97$^{*.}$	0.49	0.87^{+}	0.51
Social norms	−0.37	0.29	−0.40	0.29	−0.47	0.30
Business creation at T1	0.78^{+}	0.43	0.74$^{+.}$	0.44	0.63	0.44
Step 2						
Capital constraints			0.10	0.15	0.04	0.16
Training[a]			0.51	0.41	0.49	0.42
Step 3						
Capital constraints × Training[a]					0.71*	0.36
Nagelkerke's R^2	0.09		0.11		0.15	
Deviance	167.30		165.41		161.37	
Change in deviance (χ^2)			1.89		4.04	

Note: Unstandardized regression coefficients (*B*) and standard errors (*SE*) are reported.
$^{+}p < .10$; $^{*}p < .05$; $^{**}p < .01$.
[a]Training means entrepreneurship training.

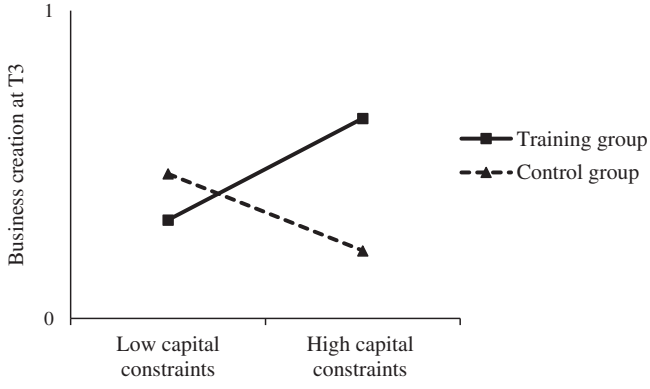

FIGURE 2 Study I: The moderation effect of entrepreneurship training on the relationship between capital constraints and business creation

mental models are a mechanism underlying the moderation effect of entrepreneurship training on the relationship between capital constraints and business creation.

6 | STUDY II: METHOD

6.1 | Procedure and sample

We conducted Study II at two universities in Uganda. We carried out four measurement waves, which took place in the month before training (T1), in the month after training (T2), 12 months after T1 (T3) and 18 months after T1 (T4).

We employed structured, face-to-face interviews and questionnaires at all four measurement waves. We trained interviewers in how to conduct the interviews. They learned to probe participants' answers, take notes, use prompts to clarify unspecific statements, and to avoid typical interviewer errors, such as displaying non-verbal agreement with statements. Two independent raters coded the open questions of the interview according to predefined coding schemes.

Participants of the present study were undergraduate, non-business students in their final year. The total number of students, who applied for the training, was 651. Due to limited training capacities, we could offer training to about 200 students. We randomly assigned 203 students to the training group and 203 students to the control group. At T1, 13 students did not take part in the interviews and questionnaires. We excluded nine students of the training group because they participated in less than eight of the 12 training sessions. Accordingly, the sample included 384 undergraduate university students (training group: n = 194, control group: n = 190). We used t-tests to test for significant differences between the training group and the control group at T1 and did not find any significant differences between both groups on any measure at T1 except for a marginal significant difference in capital constraints. The marginal significant difference was due to higher capital constraints in the training group than in the control group (training group: M = 5.15, control group: M = 4.81; p = .09).

After the training, 337 students took part in the second measurement wave (T2) (training group: n = 184, control group: n = 153) and 304 students in the third wave at T3 (12 month after T1; training group: n = 162, control group: n = 142). We did not use data from T2 or T3 in the present study because these data have already been reported in the study by *Gielnik and colleagues (2015)*. In the fourth measurement wave (T4), we contacted the 406 students of the initial sample again and collected data from 228 students (training group: n = 110, control group: n = 118). In the analyses, we included students who took part in the interviews at T1 and T4. The final sample was reduced because seven students took part in the interview at T4, but not in the interview at T1. Additionally, we excluded four participants of the training group, because they attended less than eight of the 12 training sessions. Finally, we excluded three outliers, who reported a value of five standard deviations above the mean in the number of employees they employed in their businesses. The final sample of the present study consisted of 214 students (training group: n = 109, control group: n = 105). We ran statistical analyses at each measurement wave to examine non-response biases. First, we used t-tests and compared the students of the training group who dropped out at T4 with the students of the control group who dropped out at T4. We did not find any significant differences in the demographic variables and T1-measures between the non-respondents of the training group and the non-respondents of the control group. Second, we compared the final sample of this study with the initial sample at T1 described in *the study by Gielnik and colleagues (2015)*. We calculated t-tests to analyze if the two samples (the initial sample of 384 students and the sample of this study) differed in any variable used in the present study. Results showed no significant differences between the two samples.

6.2 | Measures

We used the same measures as in Study I for the following constructs: *entrepreneurship training, business creation, capital constraints, gender, relatives in business, and social norms*. We measured these variables at T1. We also measured business creation at T4. The internal consistencies for the scales of capital constraints (Cronbach's Alpha = .78) and social norms (Cronbach's Alpha = .79) were good. In Study II, we included two additional control variables: *university* and *cognitive ability*. We included university as a control because we sampled students from two different universities. Additionally, we assessed cognitive ability as a control variable. We measured cognitive ability with the digit span test in the interview at T1. The digit span test is a subtest of the Wechsler test (Wechsler, 1997) that assesses working memory capacity or general mental ability (Colom, Rebollo, Palacios, Juan-Espinosa, & Kyllonen, 2004). The digit span test includes four sets of digits that participants need to remember and reproduce. We used the four sets as four items that formed the scale of cognitive ability. The internal consistency of the scale

was good (Cronbach's Alpha = .81). We considered cognitive ability as a control variable in our statistical analyses, because cognitive ability influences participants' learning performances (Mackey, Adams, Stafford, & Winke, 2010). Therefore, it could affect learning during the training and hence, influence participants' development of financial mental models.

We measured *financial mental models* at T4 during the interview. The measurement was based on Baron and Ensley (2006). In the interview, we asked participants to describe an idea for a new product or service, that they had considered but then ultimately rejected and to explain why they had rejected this idea ("*please indicate why you rejected this idea*"). In case participants had rejected more than one business idea, we repeated the questions for the second and third business idea. We developed a coding scheme based on Baron and Ensley (2006) to code the responses. Baron and Ensley (2006) showed that the mental models of experienced entrepreneurs were richer in content with regard to financial aspects. For instance, experienced entrepreneurs identified and evaluated business opportunities according to aspects of financial success, manageable risks, and the capacity to generate positive cash flow. We coded participants' responses according to the following four categories: (a) low margins, (b) slow cash flow, (c) long sales cycle, and (d) low return/high investment. We coded participants' answers for each category. Per category, participants received a score of "0" if their answers did not include the respective category, a "1" if their reasons for rejecting the business opportunity included the category and a "2" if they gave detailed descriptions of reasons in this category. Two independent raters were trained in coding participants' responses. Both raters were blind to the hypotheses and to the experimental condition of the participants (training group or control group). We used the mean of the two raters for our measure of financial mental models. Calculations of intraclass correlation coefficients (ICC; Shrout & Fleiss, 1979) showed good inter-rater reliabilities (ICC = 0.96).

7 | STUDY II: RESULTS

7.1 | Descriptive statistics and correlations of study variables

Table 3 presents the correlations and descriptive statistics of the variables. The correlations indicated that entrepreneurship training predicted financial mental models (r = .17, p < .05) and business creation at T4 (r = .15, p < .05).

7.2 | Results of testing the hypotheses

We followed the procedure by Grant and Berry (2011) to test the mediated moderation effect. First, we conducted linear regression analyses to test whether entrepreneurship training was significantly related to financial mental models. Table 4 displays the results of the linear regression analyses showing that entrepreneurship training had a positive effect on financial mental models (B = 0.03, SE = 0.01, p < .05). Training accounted for 3% in the explained variance in financial mental models. Thus, the results provided support for Hypothesis 2 that entrepreneurship training leads to the development of financial mental models.

We used logistic regression analyses to test the hypotheses regarding business creation as an outcome. First, we tested whether entrepreneurship training moderated the effect of capital constraints on business creation (Hypothesis 1). We calculated logistic regression analyses with capital constraints as predictor, training as moderator, and business creation at T4 as the dependent variable controlling for the control variables and business creation at T1. We mean centered the predictor and moderator variable before computing the interaction term. Table 5 (Models 1 to 3) depicts the results, showing that the interaction term between entrepreneurship training and capital constraints significantly predicted business creation at T4 (B = 0.50, SE = 0.25, p < .05). Figure 3 illustrates the slopes for the training group and control group. Simple slope analyses revealed a marginally significant negative effect of capital constraints on business creation at T4 for the control group (B = –0.33, SE = 0.19, p < .10). These results are in line

TABLE 3 Study II: Descriptive statistics and correlations of the variables

	Variable	Time	*M*	*SD*	1	2	3	4	5	6	7	8	9
1	Gender	T1	0.62	0.49									
2	Cognitive ability	T1	2.92	0.95	0.00								
3	University	T1	0.26	0.44	0.05	−0.18**							
4	Relatives in business	T1	0.56	0.50	−0.07	−0.01	0.00						
5	Social norms	T1	3.83	0.71	0.17*	−0.05	0.06	0.19*					
6	Business creation	T1	0.20	0.40	0.07	0.03	−0.03	0.20**	0.11				
7	Business creation	T4	0.56	0.50	0.17*	−0.17*	0.14*	0.11	0.04	0.17*			
8	Capital constraints	T1	4.99	1.41	0.03	0.08	−0.16*	−0.09	0.10	−0.12+	−0.07		
9	Training[a]	T1	0.51	0.50	0.01	−0.02	−0.06	−0.02	0.03	−0.09	0.15*	0.12+	
10	Financial mental models[b]	T4	0.06	0.09	−0.04	−0.01	−0.12+	−0.18**	−0.03	−0.05	0.08	0.13+	0.17*

+$p < .10$; *$p < .05$; **$p < .01$.

[a]Training means entrepreneurship training.

[b]Minimum of the variable is zero, maximum of the variable is 0.38.

TABLE 4 Study II: Regression analyses testing the effect of entrepreneurship training on financial mental models

	Financial mental models					
	Model 1			Model 2		
	B	*SE*	*β*	*B*	*SE*	*β*
Step 1						
Gender	0.00	0.01	.01	0.00	0.01	.00
Cognitive ability	0.00	0.01	.01	0.00$^{\cdot}$	0.00	.00
University	−0.02	0.02	−.10	−0.02	0.02	−.08
Relatives in business	−0.04**	0.01	−.21**	−0.04**	0.01	−.21*
Social norms	0.00	0.01	.02	0.00	0.00	.01
Business creation at T1	−0.01	0.02	−.07	−0.01	0.02	−.05
Step 2						
Training[a]				0.03*	0.01	.16*
R^2	0.06			0.09		
ΔR^2				0.03		
F	1.94			2.28		

Note: Unstandardized regression coefficients (*B*), standard errors (*SEs*), and standardized regression coefficients (β) are reported.

$^{+}p < .10$; $^{*}p < .05$; $^{**}p < .01$.

[a]Training means entrepreneurship training.

with research showing that capital constraints negatively affects business creation (Blanchflower & Oswald, 1998; Evans & Jovanovic, 1989). For the training group, the relationship between capital constraints and business creation at T4 was not significant ($B = 0.18$, $SE = 0.17$, ns.).

Second, we tested whether financial mental models moderated the effect of capital constraints on business creation (Hypothesis 3). We calculated logistic regression analyses with the control variables and capital constraints as predictor, financial mental models as moderator, and business creation at T4 as the dependent variable. We mean centered the predictor and moderator variable before computing the interaction term. Table 5 (Models 4 and 5) presents the results. The interaction term between capital constraints and financial mental models predicted business creation at T4 ($B = 3.85$, $SE = 1.72$, $p < .05$). We plotted values of business creation at T4 for one standard deviation above and below the means of capital constraints and financial mental models (Figure 4). Simple slope analyses revealed a significant negative effect of capital constraints on business creation at T4 in case of less developed financial mental models ($B = -0.40$, $SE = 0.18$, $p < .05$). In case of well-developed financial mental models, the relationship between capital constraints and business creation at T4 was not significant ($B = 0.27$, $SE = 0.18$, ns.).

Third, we tested whether the interaction between financial mental models and capital constraints mediated the moderation effect of training on the relationship between capital constraints and business creation at T4. Table 5 (Model 5) shows that the interaction term between capital constraints and training became non-significant when the interaction term between capital constraints and financial mental models was entered into the equation. To statistically analyze the mediation effect, we used the bootstrapping procedure (Preacher & Hayes, 2004, 2008). The bootstrapping procedure allows us to test whether the moderation effect of training on the relationship between capital constraints and business creation at T4 was indirect through the effect of financial mental models. Bootstrapping analyses indicated a significant indirect effect (indirect effect = 0.116; 95% confidence interval: lower bound = 0.001, upper bound = 0.373). In conclusion, the results provided support for Hypothesis 4 that financial mental models mediated the moderation effect of entrepreneurship training on the relationship between capital constraints and business creation.

TABLE 5 Study II: Logistic regression analyses testing the mediated moderation effect of entrepreneurship training and financial mental models on the relationship of capital constraints and business creation

	Business creation at T4									
	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
Step 1										
Gender	0.99**	0.33	0.87*	0.35	0.91**	0.35	0.94**	0.36	0.91*	0.36
Cognitive ability	−0.27	0.17	−0.27	0.18	−0.26	0.18	−0.27	0.18	−0.28	0.19
University	0.36	0.38	0.43	0.40	0.55	0.41	0.59	0.41	0.65	0.42
Relatives in business	0.55·	0.33	0.57	0.35	0.68+	0.36	0.81*	0.38	0.95*	0.39
Social norms	−0.16	0.23	−0.21	0.25	−0.25	0.25	−0.27	0.25	−0.14	0.26
Business creation at T1	0.72+	0.43	0.89*	0.45	0.95*	0.46	0.98*	0.46	0.94*	0.46
Step 2										
Capital constraints			−0.06	0.12	−0.07	0.12	−0.08	0.12	−0.06	0.13
Training[a]			0.85*	0.34	0.86*	0.35	0.80*	0.35	0.67+	0.36
Step 3										
Capital constraints × Training[a]					0.50*	0.25	0.46+	0.25	0.41	0.26
Step 4										
Financial mental models							2.88	2.03	3.43+	2.08
Step 5										
Capital constraints × Financial mental models									3.85*	1.72
Nagelkerke's R^2	0.14		0.18		0.21		0.22		0.26	
Deviance	224.15		209.46		205.42		203.35		198.07	
Change in deviance (χ^2)			14.69		4.04*		2.07		5.28*	

Note: Unstandardized regression coefficients (*B*) and standard errors (*SE*) are reported.
+$p < .10$; *$p < .05$; **$p < .01$.
[a]Training means entrepreneurship training.

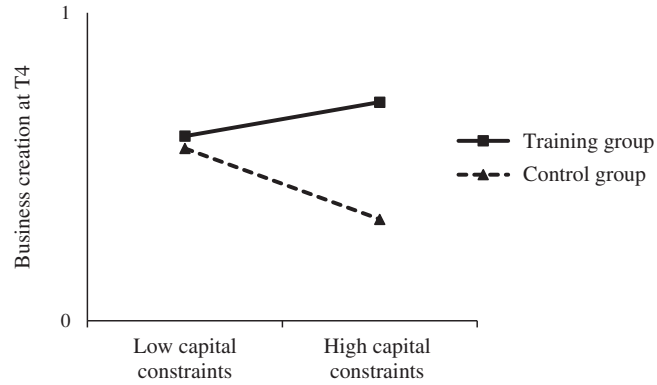

FIGURE 3 Study II: The moderation effect of entrepreneurship training on the relationship between capital constraints and business creation

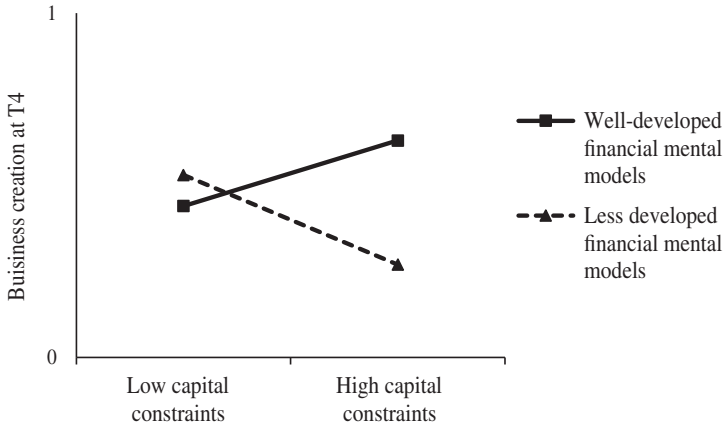

FIGURE 4 Study II: The moderation effect of financial mental models on the relationship between capital constraints and business creation

7.3 | Robustness tests and supplemental analyses

We measured both financial mental models and business creation at T4. Thus, there might be an issue of reverse causality and endogeneity. To address this issue, we conducted regression analyses and switched the mediator (financial mental models) with the dependent variable (business creation). The interaction effect of capital constraints and training on financial mental models was not significant (β = 0.10, ns.). The interaction effect of capital constraints and business creation on financial mental models was only marginally significant (β = 0.13, p < .10). As an additional test of reverse causality, we used data reported in the study by *Gielnik and colleagues (2015)* to examine whether business creation at T3 (12 months after T1) predicted financial mental models at T4. The correlation was not significant (r = −.02, p = .78), suggesting that business creation does not necessarily influence financial mental models.

We conducted supplemental analyses to test the impact of a continuous measure of entrepreneurship training. In our analyses, we used a binary variable for entrepreneurship training, which may lead to a loss of information. We computed a training variable that captured the total number of sessions attended by the participants. We conducted the same regression analyses as for our main analyses and used the continuous training variable as independent variable. The interaction effect of capital constraints and the continuous training variable on business creation was marginally significant. Additionally, the continuous training variable had a marginally significant and positive effect on financial mental models. An explanation for the marginally significant effects of the continuous training variable is that financial mental models do not increase linearly with the number of sessions attended. The results thus suggest that the training outcomes are a function of participation per se, and not necessarily a linear function of the number of sessions attended.

8 | OVERALL DISCUSSION

Entrepreneurship contributes to economic development, employment creation, and poverty alleviation (Carree & Thurik, 2008; Sutter et al., 2019; Thurik et al., 2008). In this study, we sought to advance the theoretical understanding of how to promote entrepreneurship in emerging economies, which are often characterized by capital constraints (Seelos & Mair, 2016; Sutter et al., 2019). We developed a theoretical model to explain how entrepreneurship training affects financial mental models and thus weakens the relationship between capital constraints and business creation. The findings of Study I and II showed that entrepreneurship training supports business creation by offsetting the negative effect of capital constraints. We think that our findings have important theoretical implications.

First, we contribute to a better understanding of entrepreneurship training serving as a boundary condition for the effect of capital constraints on business creation. We thus extend current thinking in the literature that an improved access to capital is the major solution for unfavorable capital conditions (De Mel et al., 2008; Ho &

Wong, 2007; van Auken, 1999; Wiklund & Shepherd, 2003). Our studies revealed that training is an additional factor that helps coping with capital constraints. Our study contradicts common thinking and disagrees with the Nobel peace laureate, Muhammad Yunus, who stated that instead of teaching people new skills, we should provide them access to capital (Yunus, 1999, p. 140). The findings of our two studies suggest that training people promotes entrepreneurship, not by reducing capital constraints, but by attenuating the negative impact of capital constraints.

Second, the results of Study II empirically supported our hypothesis that financial mental models mediated the moderation effect of entrepreneurship training. Capital constraints negatively affected business creation for participants who had less-developed financial mental models, whereas capital constraints did not affect business creation for participants who had well-developed financial mental models. Accordingly, well-developed financial mental models buffer the effect of capital constraints and facilitate business creation when facing capital constraints. This finding adds to the theoretical understanding of why and how entrepreneurship training unfolds its effects. Research provides profound knowledge about the impact of entrepreneurship training (Martin et al., 2013; Nabi et al., 2017; Walter & Block, 2016). However, it is still unclear how and why entrepreneurship training works. We contribute to the literature by providing a better understanding about underlying mechanisms of entrepreneurship training. Specifically, our findings suggest that entrepreneurship training can enhance participants' financial mental models, which in turn compensates for a lack of capital constraints. This finding contributes to a better understanding of how entrepreneurship training works by demonstrating an effect of entrepreneurship training through the development of financial mental models.

Third, our findings suggest that entrepreneurship training facilitates the development of financial mental models. So far, research has focused on entrepreneurial experience as an antecedent of developing financial mental models (Baron & Ensley, 2006). Our findings support an action-regulation theory approach by showing that learning through action in a training context contributes to the development of cognitive structures in terms of financial mental models that support business creation (Santos et al., 2015).

Finally, we contribute to developing a more integrated theoretical perspective on drivers and barriers of business creation by taking an interactionist approach (Gielnik & Frese, 2013; Welter & Smallbone, 2011). Besides environmental constructs, research has identified psychological characteristics as important for successful business creation (Gielnik & Frese, 2013). Investigating the interplay between environmental factors, such as capital constraints, and psychological constructs, such as financial mental models, leads to a more comprehensive theory of entrepreneurship that goes beyond unidimensional approaches and takes into account different theoretical lenses to explain entrepreneurship.

8.1 | Strengths and limitations

We conducted randomized controlled experiments with a pre-test/post-test design to provide robust empirical evidence for our theoretical model. Entrepreneurship scholars have called for randomized experiments, which overcome several methodological limitations, to better understand entrepreneurship (Banerjee & Duflo, 2009; Duflo et al., 2007; McKenzie & Woodruff, 2014). Another strength of the present paper is the replication of results across two studies. Scholars called for replications of effects across different studies to enhance the robustness of results (Open Science Collaboration, 2015).

A potential limitation of the present study is the sample and the context of Uganda, in which youths face severe capital constraints when they want to engage in entrepreneurship. However, facing capital constraints is a phenomenon that also applies to other groups. In fact, research shows that people with various socio-demographic backgrounds consider capital constraints to be a major barrier impeding their efforts to create a business (Ho & Wong, 2007). Furthermore, we note that the participants of our study had higher levels of human capital than other groups and that they were at the beginning of their occupational careers. We argue, however, that our findings are also applicable to other groups, such as other age groups and people with lower human capital. The use of action

principles in entrepreneurship training implies that the training content is taught in a simple and action-related way (Frese & Zapf, 1994). This approach is similar to teaching rules of thumb as described in Drexler et al.'s (2011) study. It avoids teaching complex theories, which means that a high level of education is not a requirement for the success of the training. Furthermore, research has shown that elements of an action-oriented training approach, which are used in entrepreneurship training, are effective in changing participants' cognitions in different contexts (Barr, Baker, Markham, & Kingon, 2009; Rasmussen & Sørheim, 2006). We therefore argue that our results are generalizable and hold true in different contexts and for various groups.

A further potential limitation is that the participants voluntarily applied for the training. It is possible to argue that participants who apply for entrepreneurship training are more interested in entrepreneurship. Therefore, our results possibly only apply for participants who are generally interested in entrepreneurship. We think that people who are generally interested in entrepreneurship will engage in the entrepreneurial process and therefore our theoretical model should hold for nascent entrepreneurs.

Additionally, the measurement of financial mental models potentially limits the interpretation of our results. In Study II, financial mental models were measured 18 months after the training. Unlike any other construct of Study II, we did not measure financial mental models before the training. Both variables, business creation after the training and financial mental models, were measured at the same time (18 months after the training). This implies that we must consider the limitation of reverse causality. We conducted supplemental regression analyses and the results from these tests did not contradict our interpretation of the empirical findings. However, we cannot completely rule out the issue of reverse causality. We suggest that future research conducts similar experiments and measures financial mental models at an earlier point in time than business creation. We also note that we randomly assigned the participants to the training group and the control group. We argue that due to the randomization there was no difference in the mental models between the groups before the training.

A potential limitation is that we assessed capital constraints with a subjective measure. We argue that a subjective measure of capital constraints captures the objective and subjective situation of a person. The subjective situation includes personal assessments of capital constraints that are objectively less noticeable but equally relevant for business creation. However, it is useful that further research replicates our study with an objective measure of capital constraints. Future research could shed light on the questions whether subjective or objective capital constraints are more relevant regarding business creation and whether entrepreneurship training has stronger effects on the relationship of capital constraints and business creation in case of subjective or objective measures.

8.2 | Future research

Our studies offer several avenues for future research. First, future research can build on our study and investigate additional factors through which entrepreneurship training exerts a positive effect. Our study showed that well-developed financial mental models are an important outcome of entrepreneurship training as financial mental models attenuate the effect of capital constraints on business creation. Previous research has focused on other mechanisms, such as action-regulatory or emotional and inspirational factors (Gielnik et al., 2015; Souitaris, Zerbinati, & Al-Laham, 2007). Furthermore, scholars suggest that besides financial mental models additional cognitive constructs, such as mental models about arrangement, willingness, necessary abilities, alertness, events, or roles can influence business creation (Baron & Ward, 2004; Corbett & Hmieleski, 2007; Gaglio & Katz, 2001; Mitchell et al., 2000). Research investigating such additional mediating and moderating mechanisms through which entrepreneurship training affects business creation would contribute to developing a comprehensive theory of entrepreneurship training.

Second, future research can add to a better understanding of entrepreneurship training by examining whether entrepreneurship training can effectively compensate for the effect of capital constraints in later stages of the entrepreneurial process (e.g., when expanding the business). This helps to understand the negative effects of capital

constraints on entrepreneurial performance at later stages of the entrepreneurial process and on underlying mechanisms explaining boundary conditions of these effects.

Third, we think it is promising to continue adopting an interactionist perspective in entrepreneurship. We showed that individual and environmental characteristics interacted in predicting business creation. Other research has taken a similar approach. For example, scholars have examined how environmental characteristics in terms of environmental dynamism interacted with individual characteristics, such as optimism and leadership, in predicting entrepreneurial performance (Hmieleski & Baron, 2009; Hmieleski & Ensley, 2007). Future research focusing on capital constraints could investigate how other individual factors help entrepreneurs accomplishing the venture creation process even when suffering from capital constraints. Specifically, we think that individual action strategies to deal with resource constraints are particularly promising in this regard. Action strategies, such as bricolage or effectuation, provide approaches to create a business with limited resources. Bricolage means making do by creatively combining the resources at hand (Baker & Nelson, 2005). Effectuation emphasizes using available means in terms of who you are, what you know, and whom you know (Sarasvathy, 2001). Research investigating the interaction between environmental and individual characteristics would contribute to developing more integrated theories of entrepreneurship.

Fourth, we think that examining how the cognitive structures of entrepreneurs are developed is a promising approach to promote entrepreneurship. We found that financial mental models play an important role in entrepreneurship and that entrepreneurship training promotes the development of such mental models. Other research has examined cognitive biases, decision making, and information processing to explain entrepreneurship (Busenitz & Barney, 1997; Gielnik, Krämer, Kappel, & Frese, 2014; Shepherd, Williams, & Patzelt, 2015). Research on cognitions in entrepreneurship would benefit from investigating not only how these factors predict entrepreneurship but also the antecedents of such cognitive factors. Apart from training, research suggests that other forms of learning, for example deliberate practice, contribute to developing cognitive structures that allow entrepreneurs to excel (Baron & Henry, 2010; Unger, Keith, Hilling, Gielnik, & Frese, 2009). Thus, although research on cognitions in entrepreneurship has made a leap forward, there are still open questions regarding the development of entrepreneurial cognitions (Grégoire, Corbett, & McMullen, 2011).

Finally, we suggest continuing with studies on entrepreneurship in emerging economies and developing countries. Little is known about entrepreneurship in these contexts (Bruton, Ketchen Jr., & Ireland, 2013; George, Corbishley, Khayesi, Haas, & Tihanyi, 2016). Contributing to a better understanding of entrepreneurship in developing countries is helpful for practitioners and politicians who work toward alleviating poverty and enhancing economic development. Furthermore, such research is also helpful to develop theories of entrepreneurship that are applicable across the globe and not only in Western societies, which form less than 5% of the world's population (Arnett, 2008).

8.3 | Practical implications and conclusions

The present study suggests that entrepreneurship training reduces the effect of capital constraints on business creation through financial mental models. This implies that entrepreneurship training is helpful to overcome capital constraints by developing financial mental models. Diverging from the common thinking that improved access to capital is the major solution for overcoming capital constraints (De Mel et al., 2008; Evans & Jovanovic, 1989; Ho & Wong, 2007; Wiklund & Shepherd, 2003), the findings of our study suggest that entrepreneurship training is a possible solution for enhancing business creation in environments when capital constraints are an issue, that is, in developing countries and emerging economies. Our study suggests that practitioners and policy makers should promote the implementation of entrepreneurship training, in addition to facilitating access to capital. This approach is in line with Stevenson and Jarillo's (1990) definition that entrepreneurship is “the willingness to pursue opportunity, regardless of the resources under control” (p. 23) and might have sustaining effects. For example, when businesses fail, the

capital entrepreneurs have received to start these businesses, is burned. Failure and mistakes are part of the entrepreneurial process (Funken, Gielnik, & Foo, 2020). In fact, about one third of new businesses are closed down (Headd, 2003). Training outcomes in terms of financial mental models remain and enable entrepreneurs to start other businesses after failure. This implies that the effects of entrepreneurship training might provide a more sustainable approach in dealing with financial requirements and capital constraints than the provision of financial capital. Furthermore, the implementation of entrepreneurship training is less cost-intensive than providing financial capital and can easily be integrated into the educational system. Universities, secondary schools, and other educational institutions can apply entrepreneurship training by integrating it into their curriculum. However, it is important to point out that we do not argue against enhancing access to capital. A more effective approach in promoting new venture creation might be to combine strategies to facilitate access to capital with entrepreneurship education and training.

A further aspect why we recommend the implementation of entrepreneurship training is that it does not aim at providing complex theoretical knowledge. The method of an action-oriented training implies teaching action-principles (rules of thumb) and promoting learning through action. Similar to Drexler et al.'s (2011) study, the objectives of the training are to provide knowledge in a simple form of teaching. This implies that not only university students are able to take part in training programs, but also people with lower education. Training can for example also be applied to older people, people living in rural areas, and school dropouts. Therefore, entrepreneurship training that follows an action-oriented approach is a possible means to enhance financial mental models of less educated people. In this respect, the training might also be of interest for institutions providing knowledge in financial literacy.

To conclude, in order to promote the development of financial mental models and hence support new venture creation, policy makers, practitioners, education, and training institutions should consider implementing entrepreneurship training.

ACKNOWLEDGEMENTS

This research was supported by Deutscher Akademischer Austauschdienst (DAAD, German Academic Exchange Service; ID 50020279 and ID 54391079), the German Commission for UNESCO (Deutsche UNESCO Kommission), BASF Foundation (BASF Stiftung) (STEP-2012-2013), and National University of Singapore (R-317-000-084-133/R-317-000-095-112).

We would also like to thank Eike Hedder, Andreas Heese, Rebecca Kernert, Marie-Luise Lackhoff, Kay Turski, Melanie von der Lahr, Kristina Zyla, Diana Brée, Svenja Haskamp, Susan Haskamp (née Ktimbo), Alexander Küsshauer, Lukas Samel, Johannes Steinberg, Nina Weilmünster, Sebastian Zimmermann, Meike Schwill, Alexander Fröse, Sarina Pfeiler, and Sophia Glaser for their support in collecting the data. Special thanks go to Makerere University Business School, Makerere University, Uganda Christian University, Kyambogo University, Uganda Martyrs University, and Uganda National Commission for UNESCO for the fruitful cooperation. Open access funding enabled and organized by Projekt DEAL.

REFERENCES

Arnett, J. J. (2008). The neglected 95%: Why American psychology needs to become less American. *American Psychologist*, *63*(7), 602–614. https://doi.org/10.1037/14805-008

Bae, T. J., Qian, S., Miao, C., & Fiet, J. O. (2014). The relationship between entrepreneurship education and entrepreneurial intentions: A meta-analytic review. *Entrepreneurship Theory and Practice*, *38*(2), 217–254. https://doi.org/10.1111/etap.12095

Baker, T., & Nelson, R. E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative Science Quarterly*, *50*(3), 329–366. https://doi.org/10.2189/asqu.2005.50.3.329

Baldwin, T. T., & Ford, K. J. (1988). Transfer of training: A review and directions for future research. *Personnel Psychology*, *41*, 63–105. https://doi.org/10.1111/j.1744-6570.1988.tb00632.x

Banerjee, A. V., & Duflo, E. (2009). The experimental approach to development economics. *Annual Review of Economics*, *1*, 151–178. https://doi.org/10.1146/annurev.economics.050708.143235

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*(9), 1331–1344. https://doi.org/10.1287/mnsc.1060.0538

Baron, R. A., & Henry, R. A. (2010). How entrepreneurs acquire the capacity to excel: Insights from research on expert performance. *Strategic Entrepreneurship Journal*, *4*(1), 49–65. https://doi.org/10.1002/sej.82

Baron, R. A., & Ward, T. B. (2004). Expanding entrepreneurial cognition's toolbox: Potential contributions from the field of cognitive science. *Entrepreneurship Theory and Practice*, *28*(6), 553–573. https://doi.org/10.1111/j.1540-6520.2004.00064.x

Barr, S. H., Baker, T., Markham, S. K., & Kingon, A. I. (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. https://doi.org/10.5465/amle.8.3.zqr370

Beck, T., & Demirguc-Kunt, A. (2008). Access to finance: An unfinished agenda. *The World Bank Economic Review*, *22*(3), 383–396. https://doi.org/10.1093/wber/lhn021

Bell, B. S., & Kozlowski, S. W. J. (2002). Adaptive guidance: Enhancing self-regulation, knowledge, and performance in technology-based training. *Personnel Psychology*, *55*(2), 267–306. https://doi.org/10.1111/j.1744-6570.2002.tb00111.x

Bell, B. S., & Kozlowski, S. W. J. (2008). Active learning: Effects of core training design elements on self-regulatory processes, learning, and adaptability. *The Journal of Applied Psychology*, *93*(2), 296–316. https://doi.org/10.1037/0021-9010.93.2.296

Bell, B. S., & Kozlowski, S. W. J. (2009). Toward a theory of learner-centered training design: An integrative framework of active learning. In S. W. J. Kozlowski & E. Salas (Eds.), *Learning, training, and development in organizations* (pp. 263–300). New York, NY: Routledge.

Blanchflower, D. G., & Oswald, A. J. (1998). What makes an entrepreneur? *Journal of Labor Economics*, *16*(1), 26–60. https://doi.org/10.1086/209881

Bradley, J. H., Paul, R., & Seeman, E. (2006). Analyzing the structure of expert knowledge. *Information & Management*, *43*, 77–91. https://doi.org/10.1016/j.im.2004.11.009

Bruton, G. D., Ketchen, D. J., Jr., & Ireland, R. D. (2013). Entrepreneurship as a solution to poverty. *Journal of Business Venturing*, *28*(6), 683–689. https://doi.org/10.1016/j.jbusvent.2013.05.002

Busenitz, L. W., & Barney, J. B. (1997). Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making. *Journal of Business Venturing*, *12*(1), 9–30. https://doi.org/10.1016/s0883-9026(96)00003-1

Campos, F., Frese, M., Goldstein, M., Iacovone, L., Johnson, H. C., McKenzie, D., & Mensmann, M. (2017). Teaching personal initiative beats traditional training in boosting small business in West Africa. *Science*, *357*(6357), 1287–1290. https://doi.org/10.1126/science.aan5329

Carree, M. A., & Thurik, A. R. (2008). The lag structure of the impact of business ownership on economic performance in OECD countries. *Small Business Economics*, *30*, 101–110. https://doi.org/10.1007/s11187-006-9007-0

Carver, C. S., & Scheier, M. F. (1982). Control theory: A useful conceptual framework for personality–social, clinical, and health psychology. *Psychological Bulletin*, *92*(1), 111–135. https://doi.org/10.1037/0033-2909.92.1.111

Chandler, G. N., & Hanks, S. H. (1998). An examination of the substitutability of founders human and financial capital in emerging business ventures. *Journal of Business Venturing*, *13*(5), 353–369. https://doi.org/10.1016/S0883-9026(97)00034-7

Chillarege, K. A., Nordstrom, C. R., & Williams, K. B. (2003). Learning from our mistakes: Error management training for mature learners. *Journal of Business and Psychology*, *17*(3), 369–385.

Chliova, M., Brinckmann, J., & Rosenbusch, N. (2015). Is microcredit a blessing for the poor? A meta-analysis examining development outcomes and contextual considerations. *Journal of Business Venturing*, *30*(3), 467–487. https://doi.org/10.1016/j.jbusvent.2014.10.003

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. https://doi.org/10.1016/j.intell.2003.12.002

Cook, T. D., Campbell, D. T., & Peracchio, L. (1990). Quasi experimentation. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 1, 2nd ed., pp. 491–576). Palo Alto, CA: Consulting Psychologists Press.

Corbett, A. C., & Hmieleski, K. M. (2007). The conflicting cognitions of corporate entrepreneurs. *Entrepreneurship Theory and Practice*, *31*(1), 103–121. https://doi.org/10.1111/j.1540-6520.2007.00165.x

Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, *18*(3), 301–331. https://doi.org/10.1016/S0883-9026(02)00097-6

De Mel, S., McKenzie, D., & Woodruff, C. (2008). Returns to capital in microenterprises: Evidence from a field experiment. *The Quarterly Journal of Economics*, *123*(4), 1329–1372. https://doi.org/10.1162/qjec.2008.123.4.1329

Drexler, A., Fischer, G., & Schoar, A. (2011). Keeping it simple: Financial literacy and rules of thumb. *American Economic Journal: Applied Economics*, *6*(2), 1–31. https://doi.org/10.1257/app.6.2.1

Duflo, E., Glennerster, R., & Kremer, M. (2007). Using randomization in development economics research: A toolkit. In T. Schultz & J. Strauss (Eds.), *Handbook of Development Economics*, 4, 3895–3962. Oxford and Amsterdam: Elsevier, North-Holland

Evans, D. S., & Jovanovic, B. (1989). An estimated model of entrepreneurial choice under liquidity constraints. *Journal of Political Economy*, *97*(4), 808–827. https://doi.org/10.1086/261629

Fabiani, M., Buckley, J., Gratton, G., Coles, M. G. H., Donchin, E., & Logie, R. (1989). The training of complex task performance. *Acta Psychologica*, *71*(1–3), 259–299. https://doi.org/10.1016/0001-6918(89)90012-7

Fatoki, O., & Chindoga, L. (2011). An investigation into the obstacles to youth entrepreneurship in South-Africa. *International Business Research*, *4*(2), 161–169. https://doi.org/10.5539/ibr.v4n2p161

Fiore, S. M., Cuevas, H. M., & Oser, R. L. (2003). A picture is worth a thousand connections: The facilitative effects of diagrams on mental model development and task performance. *Computers in Human Behavior*, *19*(2), 185–199. https://doi.org/10.1016/S0747-5632(02)00054-7

Foo, M., Uy, M. A., & Baron, R. A. (2009). How do feelings influence effort? An empirical study of entrepreneurs' affect and venture effort. *Journal of Applied Psychology*, *94*(4), 1086–1094. https://doi.org/10.1037/a0015599

Frese, M. (2009). Towards a psychology of entrepreneurship: An action theory perspective. *Foundations and Trends® in Entrepreneurship*, *5*(6), 437–496. https://doi.org/10.1561/0300000028

Frese, M., Albrecht, K., Altmann, A., Lang, J., Papstein, P. V., Peyerl, R., … Wendel, R. (1988). The effects of an active development of the mental model in the training process: Experimental results in a word processing system. *Behaviour & Information Technology*, *7*(3), 295–304. https://doi.org/10.1080/01449298808901879

Frese, M., Beimel, S., & Schoenborn, S. (2003). Action training for charismatic leadership: Two evaluations of studies of a commercial training module on inspirational communication of a vision. *Personnel Psychology*, *56*(3), 671–698. https://doi.org/10.1111/j.1744-6570.2003.tb00754.x

Frese, M., Gielnik, M., & Mensmann, M. (2016). Psychological training for entrepreneurs to take action: Contributing to poverty reduction in developing countries. *Current Directions in Psychological Science*, *25*(3), 196–202. https://doi.org/10.1177/0963721416636957

Frese, M., & Zapf, D. (1994). Action as the core of work psychology. 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.

Funken, R., Gielnik, M. M., & Foo, M. D. (2020). How can problems be turned into something good? The role of entrepreneurial learning and error mastery orientation. *Entrepreneurship Theory and Practice*, *44*(2), 1–24. https://doi.org/10.1177/1042258718801600

Gaglio, C. M., & Katz, J. A. (2001). The psychological basis of opportunity identification: Entrepreneurial alertness. *Small Business Economics*, *16*(2), 95–111. https://doi.org/10.1023/A:1011132102464

George, G., Corbishley, C., Khayesi, J. N., Haas, M. R., & Tihanyi, L. (2016). Bringing Africa in: Promising directions for management research. *Academy of Management Journal*, *59*(2), 377–393. https://doi.org/10.5465/amj.2016.4002

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, NY: Routledge. https://doi.org/10.4324/9780203069264

Gielnik, M. M., Frese, M., Kahara-Kawuki, A., Katono, I. W., Kyejjusa, S., Ngoma, M., … Dlugosch, T. J. (2015). Action and action-regulation in entrepreneurship: Evaluating a student training for promoting entrepreneurship. *Academy of Management Learning & Education*, *14*(1), 69–94. https://doi.org/10.5465/amle.2012.0107

Gielnik, M. M., Krämer, A. C., Kappel, B., & Frese, M. (2014). Antecedents of business opportunity identification and innovation: Investigating the interplay of information processing and information acquisition. *Applied Psychology: An International Review*, *63*(2), 344–381. https://doi.org/10.1111/j.1464-0597.2012.00528.x

Glass, H. L., & Holyoak, K. J. (1986). *Cognition*. New York, NY: Random House. https://doi.org/10.2307/1422126

Glaub, M., 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 & Education*, *13*(3), 354–379. https://doi.org/10.5465/amle.2013.0234

Grant, A. M., & Berry, J. W. (2011). The necessity of others is the mother of invention: Intrinsic and prosocial motivations, perspective taking, and creativity. *Academy of Management Journal*, *54*(1), 73–96. https://doi.org/10.5465/amj.2011.59215085

Grégoire, D. A., Corbett, A. C., & McMullen, J. S. (2011). The cognitive perspective in entrepreneurship: An agenda for future research. *Journal of Management Studies*, *48*(6), 1443–1477. https://doi.org/10.1111/j.1467-6486.2010.00922.x

Gries, T., & Naudé, W. (2010). Entrepreneurship and structural economic transformation. *Small Business Economics*, *34*(1), 13–29. https://doi.org/10.1007/s11187-009-9192-8

Hacker, W. (1998). *Allgemeine Arbeitspsychologie. Psychische Regulation von Arbeitstätigkeiten*. Bern, Switzerland: Huber.

Headd, B. (2003). Business success: Redefining between distinguishing closure and failure. *Small Business Economics*, *21*(1), 51–61. https://doi.org/10.1023/A:1024433630958

Heimbeck, D., Frese, M., Sonnentag, S., & Keith, N. (2003). Integrating errors into the training process: The function of error management instructions and the role of goal orientation. *Personnel Psychology*, *56*(2), 333–361. https://doi.org/10.1111/j.1744-6570.2003.tb00153.x

Hmieleski, K. M., & Baron, R. A. (2009). Entrepreneurs' optimism and new venture performance: A social cognitive perspective. *Academy of Management Journal*, *52*(3), 473–488. https://doi.org/10.5465/amj.2009.41330755

Hmieleski, K. M., & Ensley, M. D. (2007). A contextual examination of new venture performance: Entrepreneur leadership behavior, top management team heterogeneity, and environmental dynamism. *Journal of Organizational Behavior*, *28*(7), 865–889. https://doi.org/10.1002/job.479

Ho, Y. P., & Wong, P. K. (2007). Financing, regulatory costs and entrepreneurial propensity. *Small Business Economics*, *28*(2), 187–204. https://doi.org/10.1007/s11187-006-9015-0

Holtz-Eakin, D., Joulfaian, D., & Rosen, H. S. (1994). Sticking it out: Entrepreneurial survival and liquidity constraints. *Journal of Political Economy*, *102*(1), 53–75. https://doi.org/10.1086/261921

International Labour Office. (2017). *ILO Work4Youth project: SWTS country brief Uganda*.

Johnson-Laird, P. N. (2001). Mental models and deduction. *Trends in Cognitive Sciences*, *5*(10), 434–442. https://doi.org/10.1016/S1364-6613(00)01751-4

Katono, I. W., Heintze, A., & Byabashaija, W. (2010). *Environmental factors and graduate start up in Uganda*. Paper presented at the Conference on Entrepreneurship in Africa. Whitman School of Management, Syracuse University, New York, NY.

Keith, N., & Frese, M. (2005). Self-regulation in error management training: Emotion control and metacognition as mediators of performance effects. *The Journal of Applied Psychology*, *90*(4), 677–691. https://doi.org/10.1037/0021-9010.90.4.677

Keith, N., & Frese, M. (2008). Effectiveness of error management training: A meta-analysis. *The Journal of Applied Psychology*, *93*(1), 59–69. https://doi.org/10.1037/0021-9010.93.1.59

Khavul, S. (2010). Microfinance: Creating opportunities for the poor? *Academy of Management Perspectives*, *24*(3), 58–72. https://doi.org/10.5465/amp.24.3.58

Kieras, D. E., & Bovair, S. (1984). The role of a mental model in learning to operate a device. *Cognitive Science*, *8*(3), 255–273. https://doi.org/10.1016/S0364-0213(84)80003-8

Klinger, B., Khwaja, A. I., & Del Carpio, C. (2013). *Enterprising psychometrics and poverty reduction*. New York, NY: Springer. https://doi.org/10.1007/978-1-4614-7227-8

Kraiger, K., Ford, K. J., & Salas, E. (1993). Application of cognitive, skill-based, and affective theories of learning outcomes to new methods of training evaluation. *Journal of Applied Psychology*, *78*(2), 311–328. https://doi.org/10.1037/0021-9010.78.2.311

Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, *15*(5), 411–432. https://doi.org/10.1016/S0883-9026(98)00033-0

Mackey, A., Adams, R., Stafford, C., & Winke, P. (2010). Exploring the relationship between modified output and working memory capacity. *Language Learning*, *60*(3), 501–533. https://doi.org/10.1111/j.1467-9922.2010.00565.x

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. https://doi.org/10.1016/j.jbusvent.2012.03.002

McKenzie, D., & Woodruff, C. (2007). Experimental evidence on returns to capital and access to finance in Mexico. *World Bank Economic Review*, *22*(3), 457–482. https://doi.org/10.1093/wber/lhn017

McKenzie, D., & Woodruff, C. (2014). What are we learning from business training and entrepreneurship evaluations around the developing world? *The World Bank Research Observer*, *29*(1), 48–82. https://doi.org/10.1093/wbro/lkt007

Mitchell, R. K., Smith, B., Seawright, K. W., & Morse, E. A. (2000). Cross-cultural cognitions and the venture creation decision. *Academy of Management Journal*, *43*(5), 974–993. https://doi.org/10.5465/1556422

Mumford, M. D., Hester, K. S., Robledo, I. C., Peterson, D. R., Day, E. A., Hougen, D. F., & Barrett, J. D. (2012). Mental models and creative problem-solving: The relationship of objective and subjective model attributes. *Creativity Research Journal*, *24*(4), 311–330. https://doi.org/10.1080/10400419.2012.730008

Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systematic review and research agenda. *Academy of Management Learning & Education*, *16*(2), 277–299. https://doi.org/10.5465/amle.2015.0026

Naudé, W., Gries, T., Wood, E., & Meintjies, A. (2008). Regional determinants of entrepreneurial start-ups in a developing country. *Entrepreneurship & Regional Development*, *20*(2), 111–124. https://doi.org/10.1080/08985620701631498

OECD (2017). Forecasting economic and social trends for long-term social protection planning. In *Social protection in East Africa: Harnessing the future*. Paris, France: OECD Publishing. https://doi.org/10.1787/9789264274228-en

Open Science Collaboration, Nosek, B. A., Aarts, A. A., Anderson, C. J., Anderson, J. E., Kappes, H. B., et al. (2015). Estimating the reproducibility of psychological science. *Science*, *349*(6251), aac4716. https://doi.org/10.1126/science.aac4716

Ovat, O. O. (2013). Liquidity constraints and entrepreneurial financing in Nigeria: The fate of fresh graduate entrepreneurs. *Global Journal of Management and Business Research Finance*, *13*(9), 34–42.

Oyugi, J. L. (2014). Effectiveness of the methods of teaching entrepreneurship courses to developing self-efficacy and intention among university students in Uganda. *International Journal of Social Sciences and Entrepreneurship*, *1*(11), 491–513.

Plattner, I. E., Lechaena, M., Mmolawa, W., & Mzingwane, B. (2009). Are university students psychologically ready for entrepreneurship? A Botswana study. *Africa Journal of Business Management*, *3*(7), 305–310. https://doi.org/10.5897/AJBM09.072

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. https://doi.org/10.3758/BF03206553

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891. https://doi.org/10.3758/BRM.40.3.879

Rasmussen, E. A., & Sørheim, R. (2006). Action-based entrepreneurship education. *Technovation*, *26*(2), 185–194. https://doi.org/10.1016/j.technovation.2005.06.012

Reynolds, P. D., Bosma, N., Autio, E., Hunt, S., De Bono, N., Servais, I., … Chin, N. (2005). Global entrepreneurship monitor: Data collection design and implementation 1998–2003. *Small Business Economics*, *24*(3), 205–231. https://doi.org/10.1007/s11187-005-1980-1

Santos, S. C., Caetano, A., Baron, R., & Curral, L. (2015). Prototype models of opportunity recognition and the decision to launch a new venture. *International Journal of Entrepreneurial Behavior & Research*, *21*(4), 510–538. https://doi.org/10.1108/ijebr-04-2014-0058

Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, *26*(2), 243–263. https://doi.org/10.5465/amr.2001.4378020

Seelos, C., & Mair, J. (2016). Profitable business models and market creation in the context of deep poverty: A strategic view. *Academy of Management Perspcetives*, *21*(4), 49–63. https://doi.org/10.5465/amp.2007.27895339

Shepherd, D. A., Williams, T. A., & Patzelt, H. (2015). Thinking about entrepreneurial decision making: Review and research agenda. *Journal of Management*, *41*(1), 11–46. https://doi.org/10.1177/0149206314541153

Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin*, *86*(2), 420–428. https://doi.org/10.1037/0033-2909.86.2.420

Singer, S., Amorós, J. E., & Arreola, D. M. (2015). *Global entrepreneurship monitor: 2014 global report*. Babson Park, MA: Babson College.

Song, M., Podoynitsyna, K., van der Bij, H., & Halman, J. I. M. (2008). Success factors in new ventures: A meta-analysis. *Journal of Product Innovation Management*, *25*(1), 7–27. https://doi.org/10.1111/j.1540-5885.2007.00280.x

Sonnentag, S. (1998). Expertise in professional software design: A process study. *The American Economic Review*, *83*(5), 703–715. https://doi.org/10.1037/0021-9010.83.5.703

Sonnentag, S., & Kleine, B. M. (2000). Deliberate practice at work: A study with insurance agents. *Journal of Occupational and Organizational Psychology*, *73*(1), 87–102. https://doi.org/10.1348/096317900166895

Sonobe, T., Akoten, J. E., & Otsuka, K. (2011). The growth process of informal enterprises in sub-Saharan Africa: A case study of a metalworking cluster in Nairobi. *Small Business Economics*, *36*, 323–335. https://doi.org/10.1007/s11187-009-9222-6

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. https://doi.org/10.1016/j.jbusvent.2006.05.002

Stevenson, H., & Jarillo, J. (1990). A paradigm of entrepreneurship: Entrepreneurial management. *Strategic Management Journal*, *11*, 17–27. https://doi.org/10.1007/978-3-540-48543-8_7

Sutter, C., Bruton, G. D., & Chen, J. (2019). Entrepreneurship as a solution to extreme poverty: A review and future research directions. *Journal of Business Venturing*, *34*(1), 194–214. https://doi.org/10.1016/j.jbusvent.2018.06.003

The World Bank. (2019a). *Doing business 2019*. The World Bank, Washington, DC.

The World Bank. (2019b). *World development indicators database*. The World Bank, Washington, DC.

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. https://doi.org/10.1016/j.jbusvent.2008.01.007

Unger, J. M., Keith, N., Hilling, C., Gielnik, M. M., & Frese, M. (2009). Deliberate practice among south African small business owners: Relationships with education, cognitive ability, knowledge, and success. *Journal of Occupational and Organizational Psychology*, *82*(1), 21–44. https://doi.org/10.1348/096317908X304361

van Auken, H. E. (1999). Obstacles to business launch. *Journal of Development Entrepreneurship*, *4*, 175–187.

van Stel, A., Storey, D. J., & Thurik, A. R. (2007). The effect of business regulations on nascent and young business entrepreneurship. *Small Business Economics*, *28*(2–3), 171–186. https://doi.org/10.1007/s11187-006-9014-1

Van Waeyenberge, E., & Bargawi, H. (2018). *Macroeconomic policy, inclusive growth and productive employment in Uganda*. Geneva, Switzerland: International Labour Office.

Varamäki, E., Joensuu, S., Tornikoski, E., & Viljamaa, A. (2015). The development of entrepreneurial potential among higher education students. *Journal of Small Business and Enterprise Development*, *22*(3), 563–589. https://doi.org/10.1108/JSBED-02-2012-0027

Walter, S. G., & Block, J. H. (2016). Outcomes of entrepreneurship education: An institutional perspective. *Journal of Business Venturing*, *31*(2), 216–233. https://doi.org/10.1016/j.jbusvent.2015.10.003

Wang, C. K., & Wong, P. K. (2004). Entrepreneurial interest of university students in Singapore. *Technovation*, *24*(2), 163–172. https://doi.org/10.1016/S0166-4972(02)00016-0

Wechsler, D. (1997). *WAIS–III Administration and scoring manual*. San Antonio, TX: Psychological Corporation.

Welter, F. (2011). Contextualizing entrepreneurship—Conceptual challenges and ways forward. *Entrepreneurship Theory and Practice*, *35*(1), 165–184. https://doi.org/10.1111/j.1540-6520.2010.00427.x

Welter, F., & Smallbone, D. (2011). Institutional perspectives on entrepreneurial behavior in challenging environments. *Journal of Small Business Management*, *49*(1), 107–125. https://doi.org/10.1111/j.1540-627x.2010.00317.x

Wiklund, J., & Shepherd, D. (2003). Aspiring for, and achieving growth: The moderating role of resources and opportunities. *Journal of Management Studies*, *40*(8), 1919–1941. https://doi.org/10.1046/j.1467-6486.2003.00406.x

Yunus, M. (1999). *Banker to the poor: Micro-lending and the Battle against world poverty*. New York, NY: PublicAffairs.

Zacher, H., & Frese, M. (2018). Action regulation theory: Foundations, current knowledge and future directions. In N. Anderson, D. Ones, C. Viswesvaran, & H. Sinangil (Eds.), *The SAGE handbook of industrial, work & organizational psychology* (2nd ed., pp. 122–143). London, England: Sage. https://doi.org/10.4135/9781473914957.n7

How to cite this article: Bischoff KM, Gielnik MM, Frese M. When capital does not matter: How entrepreneurship training buffers the negative effect of capital constraints on business creation. *Strategic Entrepreneurship Journal*. 2020;14:369–395. https://doi.org/10.1002/sej.1364