Pre-Seed Grant as an Enabler of Learning

Ragnhild Nordeng Fauchald, Lise Aaboen and Dag Håkon Haneberg
Department of Industrial Economics and Technology Management,
Engage – Centre for Engaged Education through Entrepreneurship,
Norwegian University of Science and Technology, Trondheim, Norway

Corresponding author: Ragnhild Nordeng Fauchald can be contacted at:
ragnhild.n.fauchald@ntnu.no

Citation: Fauchald, R.N., Aaboen, L. and Haneberg, D.H. (2023), "Pre-seed grant as an enabler of learning", *International Journal of Entrepreneurial Behavior & Research,* Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/IJEBR-01-2022-0070

Pre-Seed Grant as an Enabler of Learning

Abstract

Purpose
The paper focuses on how student entrepreneurs learn from the process of applying for low-threshold seed capital grants of about €2500.

Design/methodology/approach
An in-depth inductive study was conducted on the seed capital grant initiative TrønderEnergi–Bidraget (TEB). The research design was based on the Zaltman metaphor elicitation technique (ZMET) to capture the interviewees' perceptions about TEB. From the interviews, 596 codes were identified and grouped into 54 categories. The results are illustrated in a consensus map.

Findings
TEB is an enabler of student venture creation processes through both the money awarded and activities fostering learning and development. Learning by doing is visible through two processes: 1) repeated writing of applications and 2) "forced" reflective thinking through the steps in the application process. The iterativeness of these processes due to repeated applications to the low threshold initiative is important for learning.

Originality
This paper extends the discussion on the additionality of receiving grants by focusing on the process of applying for a grant. This research contributes to the student entrepreneurship literature by suggesting that the design of the application process and forced reflections are important for learning, as well as specifying the antecedents for student motivation for continued entrepreneurial activity in the application process.

Implications: We recommend that university managers and policymakers offer seed funding to student entrepreneurs to ensure that the offering is a low threshold. A low threshold is decisive for generating a positive learning outcome from the application process. The seed funding initiatives should require students to put time and energy into all the integrated processes to make value out of the iterativeness of the processes.

Keywords: Pre-Seed Grant; Student Entrepreneurs; Extracurricular; Learning; ZMET

Paper type: Research paper

Introduction

Grant funding has received little scholarly attention (Stevenson *et al*., 2021). Later-stage venture capital has received more attention, with the venture capital literature showing that venture capitalists may act as investors, coaches, and partners (Berglund, 2011). Thus, the literature has focused more on the relationship between the investor and new venture, along with the signaling (e.g., Huynh, 2016) that attracts the investor to the new venture. In contrast, the grant literature has focused on the early stage of the new venture and the additionality of *receiving the grant* rather than on the relationship with the grant provider or what the grant is used for. Stevenson *et al.* (2021) found that initial grants increase the rate of private investment capital, but not the revenue for new ventures over time. Similarly, Söderblom *et al.* (2015) reported that, although early stage government subsidies have only a marginal effect, the access to additional human and financial capital they generate through the signaling effect to other stakeholders has a substantial influence on long-term performance. Accordingly, Söderblom *et al*. (2015) argued that subsidies should be awarded as early as possible because of imprinting and path dependency and that the value of certification is the greatest during the early existence of the new venture.

Microfinance and seed capital grants of around €2500 have been proven to be important in entrepreneurial universities because they provide funding earlier than other actors (Pittaway *et al*., 2021). Seed funding can enable students to identify the commercial applicability of their ideas (Wright *et al*., 2012) and develop them into more tangible ventures, often involving prototypes and a deeper analysis of the market potential (Ndonzuau *et al*., 2002). The seed grant then contributes to the development of the students' new ventures, in turn supporting their entrepreneurial learning, as demonstrated in the literature on students' venture creation (e.g., Aaboen *et al*., 2021; Pocek *et al*., 2022). Previous research has investigated seed-stage financing, such as grants, through, for example, pitch competitions (Smith and Muldoon, 2021). However, less is known about the process leading to receiving a grant and how that process is connected to learning. Thus, the present paper asks the following research question: How do students learn from the process of applying for seed funding grants? We approach this question inductively from the students' perspective to capture the learning process as they experience it. Thereby, the current paper extends the discussion on the additionality of receiving a grant by focusing on the process of applying and reapplying for a grant and answering the recent calls for additional studies on new financing sources for university-based ventures (Bellavitis *et al*., 2017).

The present paper contributes to research on pre-seed grants and entrepreneurship education by showing how student entrepreneurs learn from the application process leading up to the pre-seed grant through iteration and forced reflection, along with how the feedback from the panel enables emotions and motivation for further entrepreneurial activities. Further, it illustrates the importance of viewing pre-seed grants as an integrated part of the ecosystem in which student entrepreneurs develop their ventures and learn. The literature section introduces a frame of reference based on the research on pre-seed grants and learning from doing venture creation by engaging with ecosystem actors within a university context. In section three, the applied methodology for the in-depth study of eight student entrepreneurs who received seed funding through an extracurricular initiative is introduced. To analyze the data, we used the Zaltman Metaphor Elicitation Technique (ZMET) (Zaltman and Coulter, 1995) to understand how important constructs are connected to each other in the consensus of the interviewees' perceptions of the process of applying for seed funding. The following sections present and discuss the findings and offer conclusions regarding the research question.

Frame of reference

The value of pre-seed grants for venture creation

In the early stage of venture creation, grants are important for new ventures because entrepreneurs need resources to identify the commercial applicability of their idea (Wright *et al*., 2012) and, for example, to conduct prototyping and market analysis (Ndonzuau *et al*., 2002). The costs at this stage are usually not high and are often covered by internal sources (Politis *et al*., 2012), such as family and friends (De Clercq *et al*., 2006) or bootstrapping (Brush *et al*., 2006). Stevenson *et al.* (2021) showed that previous studies on grants tend to go in two directions: grants may help new ventures overcome the liabilities of newness and signal legitimacy, but they may also be crowding out other viable alternatives and incentivizing unintended behavior focused on securing grants instead of market value. In recent years, the financing literature has followed the technology transfer literature in exploring new

sources of funding in the development paths of new ventures. Regarding accelerators, proof-of-concept centers, university-based seed funds, and crowdfunding platforms, previous financing literature has only scratched the surface of what it means for the entrepreneurial environment to have access to these new resources at different points in the venture development process (Bellavitis *et al*., 2017). Klofsten *et al.* (1999) emphasized the importance of providing grants and subsidies to the *right* new ventures; they offered an example in which the panel awarding the subsidies had good contact with the science park where the new ventures were located, which helped in obtaining additional information and ensuring that the entrepreneurs know what to present. In other words, grants should not be viewed in isolation but as part of the ecosystem where the students develop their ventures.

Support in the ecosystem for students creating ventures

Students who create ventures are receiving increased research attention because of their contributions to university entrepreneurial activities (Aaboen *et al*., 2021). Students can create ventures through curricular activities such as venture creation programs (VCPs) (Haneberg *et al.*, 2022). Venture creation as an integrated activity in entrepreneurship education foster action –and experience-based learning (Rasmussen and Sørheim, 2006) and educational activities that are organized as action –and experience-based learning are found appropriate to learn entrepreneurship (Neck *et al.,* 2014; Neck and Corbett, 2018). One of the premises for such educational approaches to work is that the students need to find the teaching approaches relevant for their own entrepreneurial projects (Haneberg et al., 2022). Even though students do create ventures through e.g. venture creation programs, the primary focus of the present paper is entrepreneurship extracurricular activities (EECAs). The aim of EECAs is to support student entrepreneurs' venture creation processes (Hayter *et al*., 2017) and their development of entrepreneurial and enterprising competencies (Pocek *et al*., 2022) through *practicing and experiencing* to do entrepreneurship (Jones *et al.*, 2015; Preedy et al., 2020). EECAs are motivational learning activities created for—and often driven by—the students themselves, with engagement from ecosystem actors (Claudia, 2014; Pittaway *et al.*, 2011). Hence, it is important that motivation comes from the students themselves to ensure that the activities are relevant to them (Hasche and Linton, 2021).

Broadly speaking, venture creation in EECAs involves interaction with other actors in a larger social context (Williams Middleton *et al.*, 2020) and leads to experience-based learning activities (Fayolle, 2013). Several ecosystem actors are involved in these experience-based processes (Brush, 2014); for example, people in the ecosystem serve as role models (Bosma *et al.*, 2012). Experience-based learning enables the student entrepreneurs to solve problems, face difficulties and interact, in turn putting the emphasis on the student as a reflective thinker to make sense of the experiences and transform them into knowledge (Hägg, 2018; Haneberg *et al.*, 2022). Student entrepreneurs not only acquire business and technical skills, but they also develop their perceptions of themselves as entrepreneurs and of how others see them as entrepreneurs in EECAs (Pocek *et al.*, 2022). The learning takes place through adaptive processes in which the student entrepreneurs engage with several different communities (Haneberg and Aaboen, 2022) through communication and observation as well as peer feedback that postulates that the students need to engage to learn (Pocek *et al.*, 2022), thus emphasizing the social and situated nature and a more practice-based perspective (Macpherson *et al.*, 2022) of learning. However, despite EECAs involve experience-based learning activities that potentially can foster reflective thinking, research also suggests that EECAs enable limited reflection opportunities (Preedy et al., 2020), most likely because of how they are organized as informal and need-driven initiatives for entrepreneurship students (Haneberg and Aaboen, 2020). This may affect the potential learning outcome, since reflection is a crucial part of turning experiences into knowledge (Kolb, 1984; Hägg, 2018).

Learning in EECAs is also connected to emotions because students who create ventures become emotionally committed to the process (Pittaway and Cope, 2007); indeed, there are several links between emotional events and the development of entrepreneurial competencies (Lackéus, 2014). Emotional events are linked to development of self-efficacy, entrepreneurial identity and self-insight in addition to the processes of learning to handle uncertainty and ambiguity (Lackéus, 2014). Students are forced to take ownership and engage to make the venture creation process meaningful. Students who feel that they are doing something valuable for the world outside the venture develop an entrepreneurial passion, which further leads to their entrepreneurial identity (Lackéus, 2014). Conversely, Haneberg and Aadland (2020) found learning outcomes and personal development to be sources of personal motivation for entrepreneurship. Motivation for venture creation often relies on having positive experiences during the process because emotions influence the evaluation and exploitation of opportunities (Grichnik *et al*., 2010).

The EECA literature covered how activities, such as peer mentoring and funding initiatives, contribute to students' development of ventures and entrepreneurial competences (Pocek *et al*., 2022) and identity (Lackéus, 2014; Rigg and O'Dwyer, 2012). However, seed-funding activities have only been investigated as a resource for student ventures. Previous studies have tended to focus on seed funding as the end result, but the process leading to potential funding may be equally interesting from an EECA perspective as an enabler of students' venture creation (Pocek *et al*., 2022).

Methods

The present paper has investigated how students learn from applying for pre-seed grants, which calls for a holistic and inclusive investigation of the subject. Thus, we applied the Zaltman Metaphor Elicitation Technique (ZMET) (Zaltman and Coulter, 1995), allowing us to obtain rich insights into the deeper meaning of a concept and the structures of thoughts and feelings related to the object (Christensen and Olson, 2002). Hence, ZMET enabled a thorough and in-depth investigation of students' understanding of the processes of applying for—and receiving—seed grants. This is approached through a rigorous and stepwise data collection and analysis process (Zaltman and Coulter, 1995) based on the mapping of individuals' thoughts and feelings related to phenomena and a process where these are linked. ZMET makes it possible to "[…] elicit customers' meaning about the personal relevance of a topic and then map those meanings in mental models" (Christensen and Olson, 2002, p. 478). The technique was originally developed as a user-centric method for marketers to understand how advertising and promotion engage and affect consumers. ZMET was later adopted in research beyond advertising, such as within education (Shearer *et al.*, 2020) and studies on entrepreneurship education and entrepreneurial learning (e.g., Haneberg and Aadland, 2020; Haneberg and Aaboen, 2022).

The ZMET approach makes it possible to collect richer data than ordinary retrospective interviews (Christensen and Olson, 2002). The inclusion of meaning representations other than direct words to communicate viewpoints and beliefs is a strength of a metaphor-based technique (Zaltman, 1997; Geary, 2011). ZMET involves in-depth interviews based on illustrations or images selected by informants. Research within cognitive neuroscience marketing argued that thoughts are image-based and humans use language to communicate their mental images to each other (Zaltman, 1997). Zaltman (1997) built on the argument that humans are unconscious of the content of mental images and the structures of mental models. Interviews are based on illustrations the informants bring to the interviews when utilizing ZMET because they represent thoughts and feelings and enable the communication of metaphors and then deeper meanings. Mental models illustrate the connection or relation between objects or activities and the valued state of the objects or activities (Gutman, 1982). ZMET uses images—metaphors—to help individuals communicate experiences through their thoughts and feelings (Geary, 2011). In the mapped mental models, meaning representations of feelings, actions, images, goals, personal values, and sensory experiences such as smell and taste can be represented (Christensen and Olson, 2002). Therefore, a metaphor-based approach such as ZMET offers more depth and rich qualitative data because initially unconscious feelings and thoughts—and the thought- and reflection process of explaining these—are revealed to the researcher (Calder and Aitken, 2008; Mulvey and Kavalam, 2010). In this paper, we find ZMET to be particularly suitable for obtaining rich insights into the student entrepreneurs' experiences from the processes of applying for—and receiving—seed grants.

Furthermore, ZMET follows an analysis process based on grounded theory principles (Corbin and Strauss, 1990); this enables rigor in two coding stage processes where researchers are forced to ensure all interpretations are evidentially in the data material. The mental models are built on means–end chain analysis (Reynolds and Gutman, 1988). Thus, means are often the objects or activities people engage with or in while the ends are often the valued state of the object. For instance, can the means be lavender perfume that leads to different kinds of benefits as the functional benefit of fragrance, which leads to the psychosocial benefit of social acceptance and thereafter self-confidence. The categories from the axial coding process represent the constructs on which the means–end analysis builds. The means–end analysis and paired construct relationships identified through the analysis result in a consensus map, which is the basis for further analysis and discussion of how students learn from applying for pre-seed grants.

The seed grant initiative and application process

The selected context was a seed grant initiative called TrønderEnergi–Bidraget (TEB). TrønderEnergi is the major regional energy company supporting local organizations in creating activities within sports, culture, and education, as well as social initiatives for youths and students. TEB supports student entrepreneurs with grants of up to 25,000NOK (approximately €2500). TrønderEnergi has supported student entrepreneurs with pre-seed grants since 2013. During that time, approximately 400 student entrepreneurs or teams applied for money from TEB. In total, TrønderEnergi has provided €490,000 in support of early stage student entrepreneurs within the university during the first eight and a half years of TEB. TEB is a result of student and faculty engagement and the need for early stage financial support for student entrepreneurs. The seed funding is intended to help student entrepreneurs develop new venture ideas. Consequently, entrepreneurial activity at the university increases.

Even though TrønderEnergi is a commercial actor, they have not demanded any ownership of the ideas and potential ventures supported in the grant process. However, TrønderEnergi is represented in the panel that decides if students should get a grant, and they have a total amount of money allocated for TEB each year. A student-driven program, a so-called extracurricular student venture incubator, is in charge of the TEB initiative, coordinating and preparing each round of grant funding. They are responsible for screening applications and putting together and coordinating a competent panel. Those students involved in the incubator provide mentoring to student entrepreneurs on how to perform feasibility studies and other early stage entrepreneur advice, in addition to guiding them through the TEB application process. The student-driven incubator organizing TEB is closely linked to the university venture creation program (VCP), which is a two-year master's program. The VCP is the core of student engagement within the university entrepreneurship ecosystem. Indeed, VCP students are overrepresented in the student-driven incubator and other student-driven entrepreneurship initiatives compared with students from all other study programs. Mentoring and experience sharing within the incubator related to applying for TEB and other grant and/or funding initiatives are based on experiences and knowledge from the VCP.

Approximately 50% of applicants for TEB are VCP students. Early stage VCP students can apply for seed funding through TEB under the same conditions as other student entrepreneurs. However, VCP students are not required to get mentoring support from the student-driven incubator because they go through feasibility studies and are offered formal entrepreneurship education and guidance as VCP students. Besides entrepreneurship students with multidisciplinary backgrounds, it is mostly students from economics, engineering, natural sciences, and social sciences who apply. Because TEB operates in a technical university, the majority of students and their ideas are related to technology. However, ideas not related to technology are also welcome. In most cases, the applicants consist of two or more team members, but it is not unusual for students to apply for TEB without a team. Single applicants get people on board and form a team after receiving grants. In total, TEB has received 600 applications since 2013. Because TEB's process is iterative and allows the opportunity to apply several times, a total of approximately 380 unique student teams have applied. Of these, 308 new venture ideas received grants. TEB is a low-threshold seed grant initiative, meaning that it is quite easy to get funding to test a new idea. The idea itself does not need to be revolutionary or well tested, but the panel expects some reflection on the idea's potential. Hence, TEB is not only an initiative for supporting revolutionary ideas, but also for recruiting new students to entrepreneurship. Furthermore, TEB does not give less money to students if the panel thinks, for instance, that the students should try other marketing strategies; rather, students are given the chance to try their ideas.

TEB is organized so that it is possible to apply for money once a month. Students can apply for a maximum of €2500 either once or through several smaller grants. The candidates first write a three-page application describing what the student venture does, its objectives, how the objectives may be achieved, and why a grant from TEB is necessary for achieving the objectives. Completing the application and preparing for giving the presentation can be time-consuming. In the application, candidates must describe 1) what the idea is, 2) who the team members and person(s) behind the idea are, 3) if the team/idea has received funding from TEB before and, if so, how much, 4) which goals the team will reach with the money, 5) which project activities have been completed so far, 6) the potential market (including the planned business model), 7) what competing solutions are on the market, 8) milestones and timeline, 9) a brief explanation of how this idea contributes to the UN's sustainability goals, 10) the budget for how the money will be used, and 11) the signature of a student from the student-driven incubator who has provided mentoring to the applicants during the application process to ensure that the application meets the guidelines and standards expected by the organizers and

panelists. The last point is not necessary for VCP students since VCP faculty will qualify the applications from students in the VCP. In addition, TEB has criteria for what they do not support, such as advertising or expenses related to hiring other students as “consultants” to make them part of the team.

The student entrepreneurs present their application to the panel consisting of experienced student entrepreneurs, a representative from TrønderEnergi, and one or two faculty members from the entrepreneurship environment at the university. The presentation is organized as a pitch. Additionally, the student entrepreneurs are asked questions about their application and the potential of the idea and are given input and advice from the TEB-panel. After the presentation, the application is accepted or rejected. The students are given an explanation for the decision. The acceptance rate for the funding initiative indicates that students who follow the guidelines for the grant application receive funding. In most cases, when an application is not accepted, it is because the student did not follow the criteria and/or guidelines. Then, the students receive feedback on the points they need to improve and are encouraged to apply for grants next month or later. Most students do that. Only nine of the 52 applicants who were rejected in the time period between 1.1.2020-1.05.2023 did not apply again; seven of these students did not fulfill the criteria, terms, and conditions for applying for TEB. Furthermore, the TEB-panel can choose to give less than the students have applied for if some of the items are not necessary or within the terms. The grant initiative is organized to allow students to apply several times. As such, students are forced to go through the iterative process of doing market research and writing an application with support from mentors, presenting their ideas and applications to the panel and receiving feedback from the panel. They should then show the panel that they have taken the feedback into consideration and developed their ideas based on the previous grant when they apply again. An illustration of the application process is provided in Figure 1.

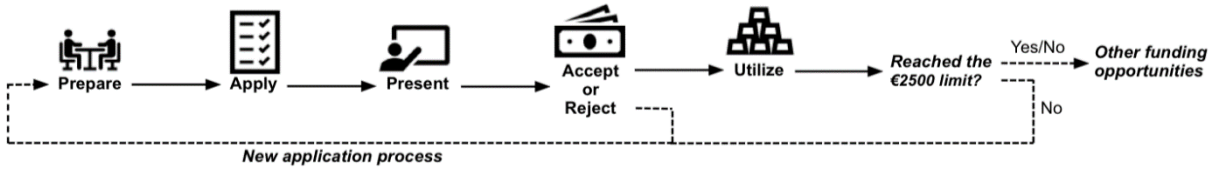

Figure 1: Illustration of the iterative process of applying TEB. Source: Author's own work.

About the informants and the data collection

Zaltman and Coulter (1995) recommended approximately six interviewees for consensus maps to reach consensus. Between 6 and 15 interviewees have been used in previous ZMET studies (Haneberg and Aadland, 2020, 2022; Lee *et al*., 2003; Shearer, 2020; Zaltman and Coulter, 1995). Accordingly, eight student entrepreneurs who had applied for TEB and received funding were interviewed. They were all project managers for the team applying. We chose to interview students who had succeeded in obtaining funding. We sought to identify the value of the process leading to acceptance and funding, and as shown in the description of the initiative, it is rare for students to not apply again in the event of rejection. All the students we interviewed applied for TEB in the second semester of 2020. All the interviewees were still students at the same university at the time of the interviews. Table 1 provides an overview of the student entrepreneurs interviewed. Because of the COVID-19 pandemic, all the students had virtually made their presentations to the TEB-panel.

Table 1: Characteristics of respondents and overview of the illustrations they brought to the interviews. Source: Author's own work.

Student	Study program	Gender	Awarded grant as applied for	Illustrations and metaphorical meaning of the illustrations according to the students
1	VCP	Male	Yes	1) Light bulb – Opportunity 2) Coding line – Their idea 3) Money – Use of the grant 4) Pitch-presentation – The panel presentation 5) A growing seed – Opportunities in the early stage
2	VCP	Male	Yes	1) Apple on low branch – Low-hanging fruit 2) Relieved person – Confirmation 3) Chutes and ladders – Ups, downs, and luck in venture creation

				4) Boat on a rock – Unknown challenges 5) Top of iceberg – The job behind vs. what others see 6) Dunning–Kruger curve – Value of inputs from panel
3	VCP	Male	Less than applied for the first time	1) Hands on pile of money – Receive funding 2) Person holding up a cup – Victory 3) Circuit board –Technology-based venture creation 4) Students studying – Being student entrepreneur 5) Seed – Support in early stage
4	VCP	Male	Yes	1) Luxury yacht – Luxury with money in early stage 2) Solar panel – Conscious utilization of resources 3) Eye examination – Eye opener 4) Post-it – Easy and clean process 5) Corona beer – Covid-19
5	VCP	Female	Less than applied for the first time	1) Sweaty person – Nervous 2) Person holding a baby – The strong love and belief in own idea 3) Person jumping over canyon – Challenging to reach goals 4) Money – Receive funding 5) Applause – Support and confirmation from panel
6	Engineering	Female	Yes	1) Group work – Team work with application 2) Workshop – Idea generation and brainstorming 3) High five in a team – Team spirit and happiness 4) Person watering a seed – Opportunities and support in early stage 5) Application form – Thorough work with application
7	Engineering	Male	Yes	1) Child in bottom of stairs – Early stage 2) A growing plant – Make idea real 3) Welcome-sign – Nice and pleasant experience 4) Business newspaper – Business-oriented panel 5) Charity – Easy access to money
8	VCP	Female	Not the first but second time they applied	1) Dialogue between two people – Opportunity to discuss idea 2) Dark stone wall – Challenging to succeed in market 3) Half-open room – Opportunities in difficult times 4) A scene lighten up – Be in center when presenting idea 5) Sunrise over power line – TrønderEnergi gives energy and hope

The interviews were arranged as individual interviews. During the scheduling conversation one week before the interview, the interviewees were given the task of finding five images or illustrations that represented their thoughts and/or feelings about TEB. The images were the basis for interviews when utilizing ZMET because they represent thoughts and feelings, thus enabling the communication of metaphors and deeper meanings (Geary, 2011; Zaltman, 1997; Zaltman and Coulter, 1995). One example related to a different research topic was sent to the informants as a guideline to help them pick images that communicated their feelings and thoughts and not explicit images of the research object, such as the application they sent to the TEB or the TEB logo. As the list in Table 1 shows, the students brought illustrations of positive and negative feelings (e.g., luxury yacht and dark walls or a boat crashing into a rock). All students brought illustrations related to the process of applying for TEB as such, but also illustrations that represented what TEB meant for their venture creation process without guidelines to do so. The authors found the interviewees to be well prepared for the task they had received one week before the interviews took place. The interviewees were concrete and reflected on what the participant wanted to emphasize. As a result, the interviews were quite short but with rich and clear content. The interviews lasted from 32 to 43 minutes. Because of national restrictions triggered by the COVID-19 pandemic, the interviews were conducted using the video conferencing tool Zoom[1]. One of the authors conducted and led all the interviews, and one other author attended the first three interviews to ensure that the interviewer followed the criteria for the ZMET data collection process and discussed adjustments. The interviewer started the interviews by asking one guiding question to allow the interviewees to present their images, thoughts, and feelings related to the images and, by implication, those related to TEB (Zaltman and Coulter, 1995). The guiding question was as follows: “What thoughts and feelings appear when you think about TEB?” The interviewer then asked open-ended, follow-up questions as the interviewees presented their images and commented on them, with the aim of gaining deep insights into their views. In the following example of the interview process, an interviewee (“D”) presents a picture of a boat that crashed into a rock in the ocean:

D: This picture illustrates what TEB helps you avoid.
R: What do you mean?
D: It visualizes how money doesn’t count in itself. You apply for smaller amounts every time, and 10,000NOK (€1000) doesn’t help you build a business. It is each of the application processes that is

valuable. They (the application processes) help you expose rocks, so you don't crash the boat—or translated, the business—at a later stage in the process.
R: How was that for you?
D: It was comfortable. The panel can be honest about the rocks because TEB is such a low-hanging fruit as it is […].
…

Analysis of the data

The interviews were transcribed by a research assistant and then coded by the three authors together using NVivo 12 software. To ensure quality and reliability, all three authors participated in the first analysis process. This analysis of the eight interviews in NVivo 12 followed the grounded theory approach (Corbin and Strauss, 1990). The authors worked thoroughly through all the data and discussed possible disagreements on the terms used to describe each of the codes emerging. The open coding of approximately five hours of interviews resulted in 596 codes. In the axial coding process, these codes were combined into subcategories based on their similarities. These subcategories were then combined into a total of 54 categories representing the constructs in the mental map based on the means–end analysis (Reynolds and Gutman, 1988; Zaltman and Coulter, 1995). This latter process was done manually, with each code written on a Post-it note to provide a visual overview of all the codes. Two authors performed this coding process. The last author overviewed the codes and categories when the categorization was finished. Then, the authors discussed and justified some of the categories.

The next step in the analysis process was to identify paired construct relationships. Zaltman and Coulter (1995) argued that this is an important step in identifying "the causal relationship between two constructs*"* (p. 44). The identification of paired construct relationships was done after sorting codes into categories (constructs) in NVivo. The authors identified how one construct influenced—or was influenced by—others using the means–end technique (Reynolds and Gutman, 1988). According to Gutman, "A means-end chain is a model that seeks to explain how a product or service selection facilitates the achievement of desired end states" (1982, p. 60). The technique enabled us to sort what and how constructs were used to gain what end value. We reread the transcripts to identify the relationships between different constructs. Next, the constructs were identified as originator constructs influencing and leading to connector constructs, and the destination—or end constructs (Gutman, 1982)—through the laddering process, as visualized in the last example in Figure 2. Destination constructs do not lead to other constructs, and originator constructs are not influenced by other constructs. In the example on the bottom of Figure 2, an interviewee explained that the proudness of getting funding from TEB (the originator construct "Proud to have made it") led to a confirmation that they "understood we were onto something" (the end construct) through the confirmation TEB gave, the connector construct "TEB as confirmation".

How the constructs influenced or led to each other was visualized using a pen to draw arrows between the constructs in the interview transcripts. Laddering probes were used to identify the structural linkage between identified concepts (Christensen and Olson, 2002). An example of how the paired construct relationships were identified is given in Figure 2: the categories from the analysis process were visible beside the transcripts. In the upper example, the interviewee showed a picture of an apple hanging on a branch close to the ground—a low-hanging fruit—representing TEB as a low threshold and then elaborating on how TEB is the first support before aiming for other funding. The identified paired relation constructs were transferred manually into a Microsoft Excel spreadsheet used to calculate the number of interviews from which the same connections between the two constructs were made. The spreadsheet is presented in Appendix 1. The constructs and connections between them were only included in the map if they were found in two or more interviews. In this way, several individual mental maps were used to generate a resulting "consensus map" (see Figure 2), accentuating only the constructs and connections found in several interviews. According to Zaltman and Coulter (1995), it is criteria that a certain number of interviewees should talk about the different constructs and relate them. Hence, 11 of the 54 categories from the axial coding process have not been represented in the consensus map. Christensen and Olson (2002) argued for an inclusion cut-off level of about one-fourth to one-third. Hence, the constructs and connections illustrated in the consensus map were spoken about and related at least twice. The ones in bold were spoken about and related at least three times. An example of how the connections between constructs were transferred to Excel and how they were further illustrated in the consensus map are illustrated through the stippled arrows in the upper example in Figure 2. Further, the two examples from the transcripts in Figure 2 show how "Progression" is an end

construct leading from several means; originator constructs “Opportunities based on the money” and “TEB as low threshold” through the connector construct “TEB as the first support.”

Figure 2 shows how the different constructs and connections between them were identified and how situations, actors—or values as Gutman (1982) defined it—in the process of applying for seed grants led to other values related to learning and development. An overview of all constructs and connections has been given in the consensus map in Figure 3, which is the basis for further analysis and discussion of how students learn from applying for pre-seed grants. Two loops of connector constructs and two construct dyads have been identified, in addition to the connection between originator constructs, connector constructs, and end constructs.

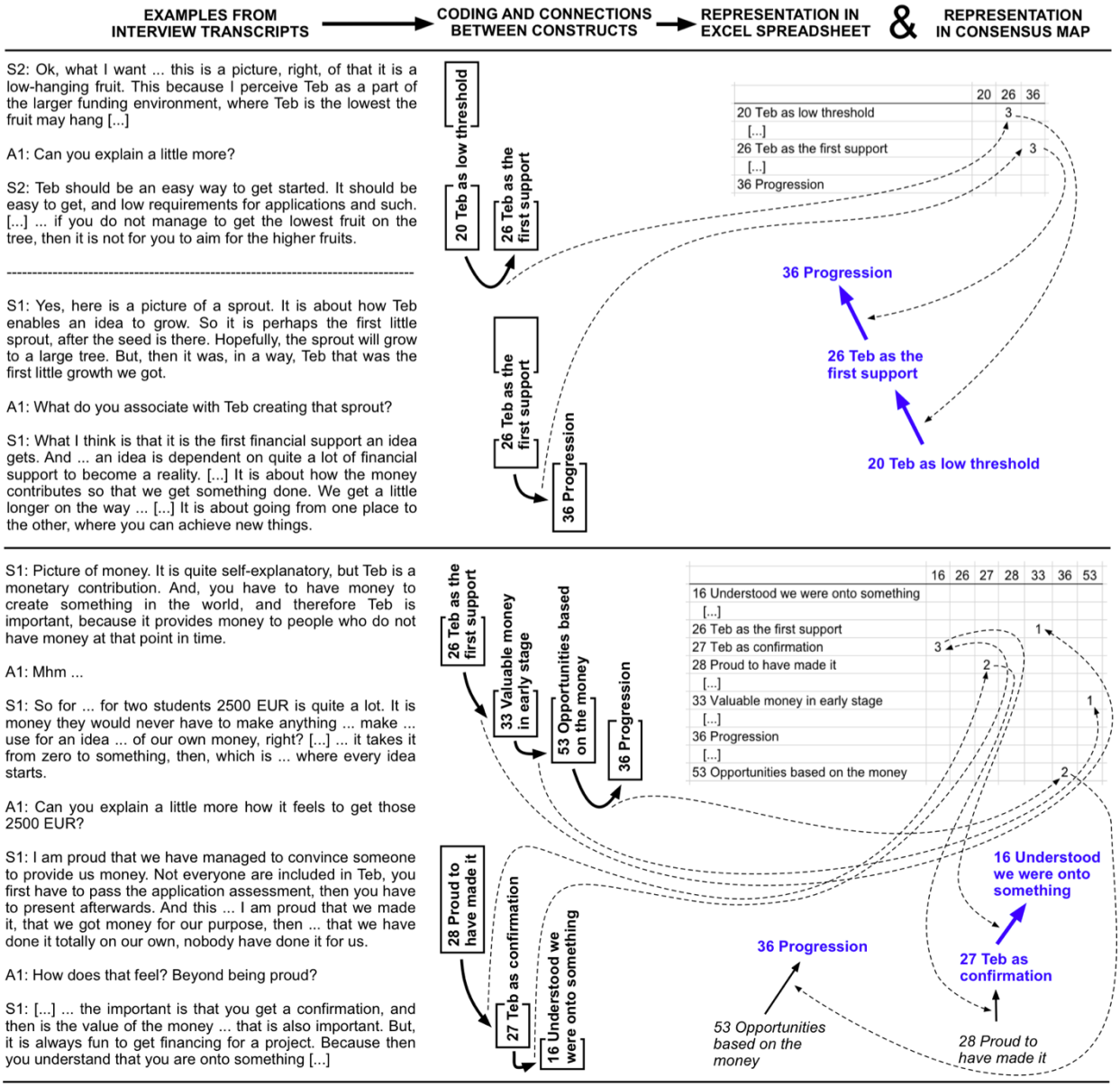

Figure 2: Illustration of the analysis process from the interview transcripts via coding and spreadsheet representation of how the results are illustrated in the consensus map (which can be found in Figure 3 below). S1=student 1, S2=student 2, A1=author 1. Source: Author's own work.

Results

In this section, the results from the means–end analysis process in Appendix 1 are presented as a consensus map illustrating the constructs and the ladders between them (Zaltman and Coulter, 1995). Figure 3 visualizes all constructs included in the consensus map, which are based on the calculations in the Excel spreadsheet and ladders uncovered in the laddering process (see Figure 2). To visualize the different constructs and the connections between them, originator constructs are placed at the bottom, connector constructs in the middle, and end constructs at the top of the map in Figure 3. The relationships between the constructs, the laddering, are visualized with arrows. One example is the originator construct “Positive questions from the panel,” leading to the connector constructs “Understood we were onto something” that again leads to the destination constructs “Motivation.” The full consensus map is presented in Figure 3. The constructs and ladders are described systematically before the results are discussed in the following section.

The consensus map consists of 12 originator constructs, 19 connector constructs, and 11 destination constructs. The constructs and connections between them were included on the map if they met the mentioned threshold level of two interviewees. Particularly strong constructs and connections that met or exceeded a threshold of three interviewees are presented in blue bold font.

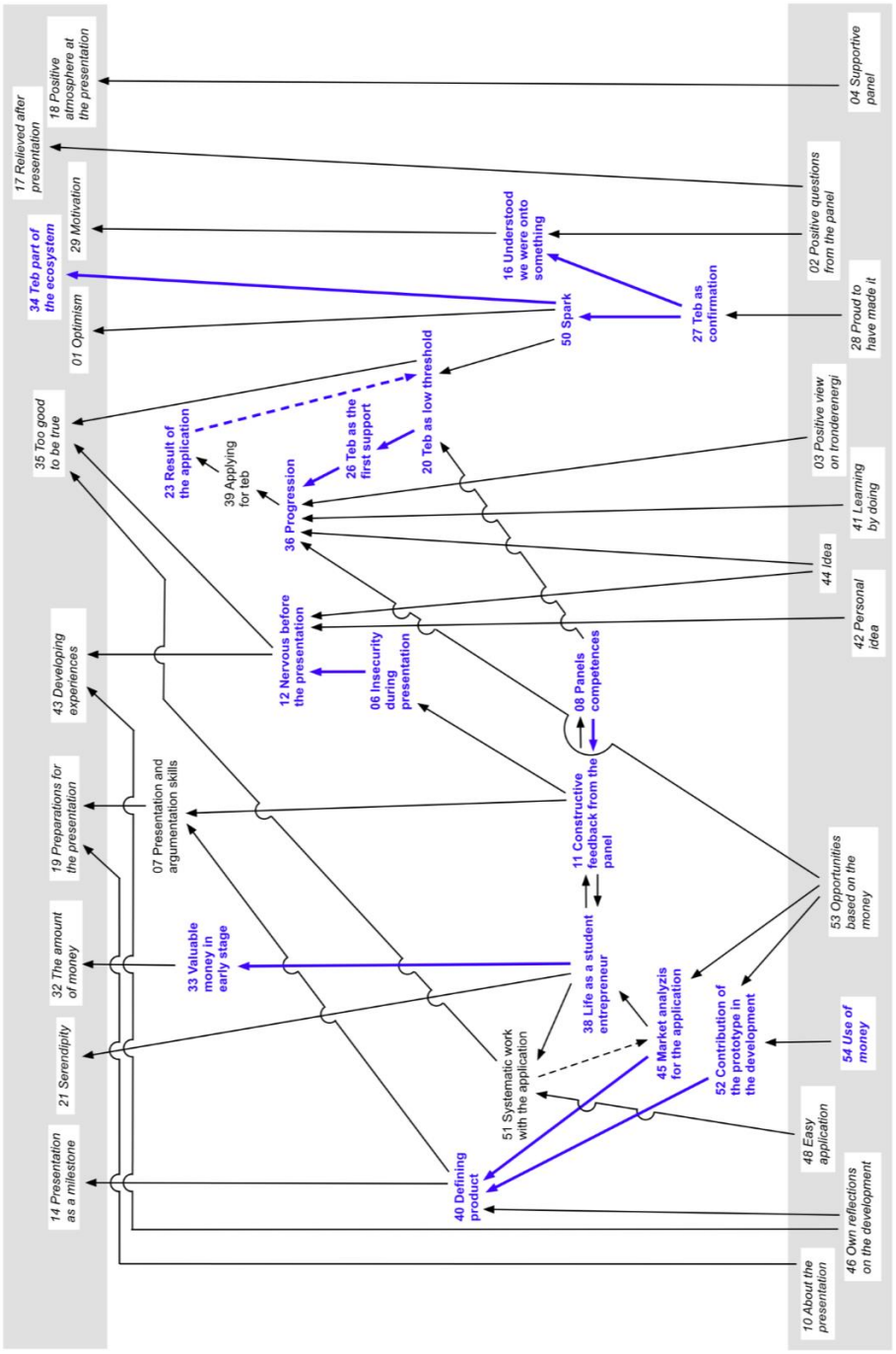

Figure 3: Consensus map from the ZMET method. The lower lines of constructs are originator constructs, the upper lines of constructs are destination constructs, and the constructs between those lines are connector constructs. Source: Author's own work.

The following paragraphs elaborate on the information provided by the consensus map, including how the connections between constructs can be understood. It is notable that only 4 of the 44 constructs on the consensus map (*The amount of money*, *Valuable money in early stage*, *Opportunities based on the money,* and *Use of money*) revolve around money, even though TEB focuses on seed funding.

Originator and Destination constructs

The originator constructs consist of *Positive questions from the panel*, *Easy application*, *Own reflections on the development*, *About the presentation*, *Proud to have made it*, *Opportunities based on the money*, *Use of money*, *Personal idea*, *Idea*, *Learning by doing*, *Positive view on TrønderEnergi*, and *Supporting panel*. The destination constructs include *Relieved after presentation*, *Motivation*, *Serendipity*, *The*

amount of money, *Developing experience*, *Too good to be true*, *Preparation for presentation*, *Optimism*, *TEB part of the ecosystem*, *Presentation as a milestone*, and *Positive atmosphere at the presentation*. The destination constructs show that TEB provides more than funding. In addition to the money, the students have developed experience, reached the milestone of presenting their ideas, and gained motivation, optimism, and a too-good-to-be-true feeling that may be a good starting point for their future endeavors as entrepreneurs. Developing experience is an important destination construct, and Figure 2 shows that *Constructive feedback from the panel* and *Nervous before the presentation,* together with many other constructs, indirectly lead to *Developing experience*.

Connector constructs, Construct ladders, Dyads and Loops

Two loops were identified in the mental map, as illustrated in Figures 3 and 4. These consist of ladders leading back to other connector constructs, together forming a loop. The first loop (left side of Figure 4) consists of *TEB as the low threshold*, *TEB as the first support*, *Progression*, *Applying for TEB*, *Result of the application,* and then back again to *TEB as the low threshold*.

This loop shows the dynamics behind why the same students apply for small amounts several times instead of the full €2500. It also shows that TEB contributes to progressing with the entrepreneurial venture and that this progress enables students to see new needs for funding. In other words, the loop pinpoints how progress and TEB applications are interrelated in student venture processes. An important connector construct in this loop is *TEB as a low threshold* because it makes TEB easily accessible, and the construct ladders show that *Panel's competencies* and *Spark* (the student-driven incubator) ensure that TEB is viewed as a low threshold and continues to be viewed in that way. Another important connector construct in the loop is *Progression*, and the construct ladders show that in addition to the loop, *TEB as confirmation*, *Idea*, *Opportunities based on the money*, *Learning by doing*, and *Positive view on TrønderEnergi* all lead to *Progression*. The second loop (right side of Figure 4) consists of *Systematic work with the application*, *Market analysis for the application*, and *Life as a student entrepreneur*. This is an important loop because *Market analysis for the application* also leads to *Defining product* and indirectly to *Developing experience* and *Presentation and argumentation skills*. Related to this, the informants emphasized the low threshold as a key to gaining experience:

> *Most often, the first business ideas [students come up with] are "crap." But to get the opportunity to make a prototype and test the market, no matter how bad or good it goes, we build an entrepreneurial mindset. It is important to experience support during this process. (Interviewee 5)*

Interviewee 3 highlighted the importance of the professionality of TEB, even though it provides easy access to money for testing highly undeveloped ideas: "You do not need to have a complete business model. It can be unfinished, but it is still important that you do not waste the money."

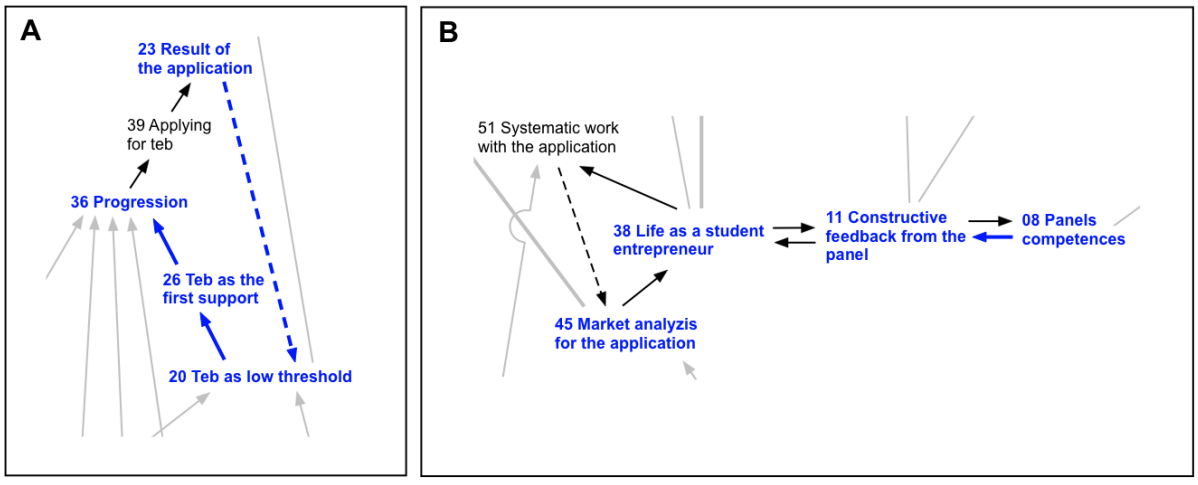

Figure 4: Loop and dyads of connector constructs from the consensus map. Source: Author's own work.

Two connected dyads were identified in the consensus map, as illustrated on the right side of Figure 4. These consist of connector constructs directly connected, pointing back at each other both ways and forming part of the second loop. *Life as a student entrepreneur* and *Constructive feedback from the panel* comprise the first dyad, while *Constructive feedback from the panel* and *Panel's competences* comprise the second. This means that these constructs are highly interconnected and that the events taking place during the presentation and feedback are not only important, but also highly dependent on the student entrepreneurs and the panelists present in the room.

As the loops show, money itself was not necessarily the key to progression alone. The process of applying and getting feedback from the TEB-panel were important factors. Several interviewees emphasized this, including informant 2 and 5:

> *It (a picture of a boat crashing into a rock) visualizes how the money doesn't count in itself. You apply for smaller amounts every time, and […] 10,000NOK (€1000) doesn't help you build a business. It is each of the application processes that is valuable. They (the application processes) help you expose rocks […]. (Interviewee 2)*

> *No matter if I had received money or not, I was happy I had done it (pitching the idea for the panel). The feedback from the panel was valuable. I got the confirmation I needed and disproved a fear I had regarding whether my idea was good or not. Pitching the idea for the panel was important for evaluating my idea itself and for me to trust the idea. (Interviewee 5)*

Interviewee 2 and Interviewee 8, who was rejected on their first application, confirmed this statement:

> *Money is not important in itself. It is the application process that is valuable. […] You get better on applications and communicate your idea. […] With TEB, you can practice this really early. (Interviewee 2)*

> *TEB itself, the money, is not the enabler. It is the system around. […] The feedback and questions from the panel were important […]. We had to ask critical questions to push ourselves to work systematically and develop the idea further. (Interviewee 8)*

Hence, the consensus map shows how TEB was viewed as something primarily improving student entrepreneurs over time through two loops that improve applications, hence improving the feedback from the panel and through progression, which in turn leading to new applications. Two processes can be identified in the second loop. One shows an arrow from *Systematic work on the application* to *Market analysis for the application*, which leads to *Life as a student entrepreneur*. The second includes how the panel was relevant to achieving a *Life as a student entrepreneur* through that process with support from the panel. The low threshold of the TEB initiative and learning enabled through the initiative are closely related to the student-driven incubator (*Spark**), which is a connector construct connected to the loop. This illustrates how TEB enables an iterative learning process by providing the opportunity to apply it several times. The student-driven incubator also leads to the destination constructing *TEB as part of the ecosystem* and *Motivation*.

TEB provides student entrepreneurs with an opportunity to receive a pre-seed grant, enabling them to develop prototypes and test their ideas. These functional benefits for students' venture creation are shown through the following constructs and ladders: *Opportunities based on the money* and *Use of money* are originator constructs leading to *Contribution of the prototype in the development*, which then leads to *Defining product*. The ladders, including the constructs *Preparations for the presentation, Presentation and argumentation skills,* and *Presentation as a milestone,* indicate the importance of the applicants presenting their thoughts about their ventures and/or ideas. The originator construct *Positive questions from the panel* leads to the connector construct *Understood we were onto something*, which in turn leads to M*otivation*. The panelists played an important role in confirming the students' venture creation processes and providing motivation. Additionally, students receiving *Constructive feedback from the panel* led to *Positive feelings*. However, students felt both nervous and insecure before and during the presentation. The connector constructs *Constructive feedback from the panel* led to a *Too-good-to-be-true feeling and Developing experiences* through *Insecurity during the presentation* and *Nervous before the presentation*.

Discussion

This study confirms previous research focusing on how grants enable prototyping and market analysis (Ndonzuau *et al*., 2002) and allow students to identify the commercial applicability of their ideas (Wright *et al*., 2012). Further, the results indicate that the applicants found both presentation preparation and presenting their early-stage thoughts about their ventures and/or ideas to be important processes for developing their presentation and argumentation skills. These processes were seen as both a milestone and an opportunity to articulate their ideas and receive feedback. Thus, the results support previous studies on how students develop entrepreneurial and enterprising competencies through *practicing and experiencing* entrepreneurship (Rasmussen and Sørheim, 2006; Jones *et al.*, 2015; Neck and Corbett, 2018). Additionally, the paper provides novel insights on how ecosystem actors can be involved in—and the potential value of engaging ecosystem actors in—students' experience-based learning processes (Brush, 2014).

The current paper also confirms the literature arguing that practice-based learning occurs in EECAs through, for example, engaging with different communities, communicating, observing, and peer learning (Macpherson *et al.*, 2022). The findings support research on how EECAs support entrepreneurial learning, motivation, and skill development through activities and practical exercises (Claudia, 2014). Further, the paper specifically contributes to the discussion on how student entrepreneurs learn skills and develop as entrepreneurs through EECAs (Pocek *et al.*, 2022) by elaborating on how TEB is perceived to provide resources, milestones, and learning processes—and opportunities in the process leading to the grant. The elaborations are visible within the loops in the consensus map: 1) the process of writing applications and 2) the development of an identity as student entrepreneurs through interaction with the panelists. Working thoroughly through the TEB application one or more times was a learning process. Two loops were identified in the mental map, which describes the process of working with the application. The application process was the basis for the panel presentation and discussion and, hence, for the peer feedback. Because the *Life as a student entrepreneur* construct is part of the loop, the process of working thoroughly with the application seems to have provided insights into many relevant aspects of what venture creation and the entrepreneurial process entail for a student entrepreneur. As such, TEB enables numerous opportunities to learn through experience (Fayolle, 2013) and opportunities to obtain practical, entrepreneurial skills (Preedy et al., 2020; Pocek *et al.*, 2022). This includes the enterprising process and inputs from panelists regarding how to define the product, which may also contribute to the development of students' entrepreneurial self-efficacy (Bosma *et al*., 2012) and entrepreneurial mindset and identity (Lackéus, 2014), as student entrepreneurs may become more serious about their start-ups, causing them to view entrepreneurship as a viable option (Lackéus, 2014; Pittaway and Cope, 2007).

The consensus map shows that emotional reactions are trigged through the processes of applying for TEB. The destination constructs suggest that TEB provided psychosocial and personal benefits, such as motivation, good feelings, optimism, and experience. The findings expand the literature by suggesting that motivation did not come from participation in the EECA but rather from the processes through which students understood they were onto something. Additionally, receiving constructive feedback from the panel led to positive feelings. While the students felt nervous and insecure before and during the presentations, the process resulted in both positive feelings and new experiences. These findings support those of Lackéus (2014), who demonstrated the importance of outside confirmation as a basis for developing entrepreneurial passion and identity and suggested that the presentation may be an emotional experience contributing to the development of entrepreneurial competencies. Pitching to the panel made the students nervous, but it resulted in new experiences and positive feelings. Further, the findings suggest that receiving constructive feedback from the panel led students to work systematically on the application and the market analysis supporting it. Thus, the findings show how emotions influence the evaluation and exploitation of opportunities (Grichnik *et al.*, 2010). However, emotions, such as insecurity and nervousness, could also be interpreted negatively, even though the students perceived them as leading to positive feelings and the development of experiences. It is important to get the student entrepreneurs to take the application and presentation seriously enough to learn from them without becoming painful. Similarly, a rejected application or receiving less than applied for could also be interpreted as a negative experience, although almost all student entrepreneurs apply again instead of giving up. Figure 3 suggests that the student-driven incubator Spark*, which offers peer mentoring for nascent student entrepreneurs, may help to balance the perception of the result of the application. In

the loop described in Figure 4, TEB is seen as having a low threshold while contributing to progression. The incubator ensures that TEB has a low threshold. Further, the *Panel's competencies* is an important contributor in the loop. Hence, TEB can be described as an extracurricular initiative providing easy access to funding while being part of a larger socially situated learning context including other easily accessible EECAs (Williams Middleton *et al.,* 2020).

Although the surrounding EECAs can be seen as balancing TEB so that they become a low threshold and enable student entrepreneurs to learn from other student entrepreneurs as part of the application process, TEB could be seen as a vehicle for improving learning in the EECA ecosystem. The thorough application process involves working with numerous entrepreneurial aspects in depth. Preparations before the presentation and the presentation process itself, including critical questions, led to reflective thinking. The student entrepreneurs were forced to reflect on their own entrepreneurial activities and venture creation processes through their work with the application, especially the market analysis. Importantly, reflective thinking can contribute to a critical view and better understanding of an individual's experience-based venture creation process (Hägg, 2018). Hence, TEB and the systematic conditions of the TEB process forced the students to reflect on their own process of learning by doing.

This study extends previous research on how students learn from doing entrepreneurship (Rasmussen and Sørheim, 2006; Jones *et al.*, 2015; Neck and Corbett, 2018) by providing insights on the roles of the students, TEB panelists, the student organization Spark*, and the systematic conditions in the iterative process of applying for money. Both identified loops illustrate processes of reflective thinking during the learning process. In contrast to Preedy et al. (2020), this study uncovers structural conditions integrated in the EECA initiative that force reflection, even though the initiative was not intended as an experiential learning initiative by design.

In the context of learning, the application process is an understudied topic in the literature on pre-seed grants and entrepreneurship education, hence opening new avenues for research. The findings from this inductive study show that EECAs and other entrepreneurial activities not intended as learning initiatives can enable learning processes. The structural conditions and participant engagement are crucial to whether such activities can foster learning and knowledge development. This research has revealed how learning emerges from a pre-seed grant. Students find the activity relevant to their entrepreneurial project and thus engage in the integrated processes, leading to learning. Thus, this study adds to previous research on how to facilitate action-based learning (Haneberg et al., 2022; Rasmussen and Sørheim, 2006; Jones *et al.*, 2015; Neck and Corbett, 2018) by identifying how organizational and structural conditions of the seed-grant initiative create iterative processes that force students to reflect on their actions. Although the results show how EECAs can be organized to enable reflection processes—which previous research on EECAs has identified as challenging (Preedy et al., 2020)—the uniqueness and aim of EECAs must be considered when designing the activities, as their main purpose may not be learning. Rather, our study emphasizes the importance of not studying or evaluating pre-seed grants or other EECAs in isolation but rather as part of an ecosystem that includes other initiatives and ecosystem actors.

Conclusion

The present paper focused on how student entrepreneurs learn from the process of applying for low-threshold seed capital grants of about €2500. An inductive study was conducted to investigate the seed capital initiative TEB. The study applied the ZMET methodology (Zaltman and Coulter, 1995). The results show that TEB supports the testing of ideas and development of prototypes as a direct result of providing money, but even more visible on the consensus map are the learning processes it enables. Specifically, TEB enables the development of entrepreneurial skills, knowledge, and identity because of how it is iteratively organized. This paper provides new insights on how EECAs can force reflection as important factor for foster learning and skill development (Kolb, 1984; Hägg, 2018; Preedy et al., 2020) through structural conditions and the engagement of both students and other ecosystem actors (Brush, 2014). The present paper confirms and complements previous studies on pre-seed grants (e.g., Ndonzuau *et al*., 2002; Söderblom *et al*., 2015; Stevenson *et al*., 2021), which have primarily focused on additionality after the grant is received, by showing how the grant facilitates prototyping and market analysis. In addition, it shows how the design of the application process leading to the grant enables learning for student entrepreneurs through iteration and forced reflection. In particular, it is important that the process has a low threshold that is easy to access. Furthermore, the current paper contributes to the entrepreneurship education literature by suggesting that motivation, good feelings, and emotions,

which are important for continued learning and entrepreneurial activities and emphasized in EECA research (e.g., Preedy et al., 2020; Pocek *et al*., 2022), are supported by feedback and interest from the panel. Moreover, the results illustrate the importance of viewing pre-seed grants in tandem with other ecosystem initiatives promoting student entrepreneurs' learning (Pittaway *et al.,* 2011).

Practical implications

Based on the findings, we recommend that university managers, policymakers, or students who plan to initiate pre-seed grant initiatives targeting student entrepreneurs should ensure that the offerings have a low threshold, allowing student entrepreneurs to apply several times. The findings imply that such initiatives should require students to put time and energy into all of the integrated processes, including writing the application, preparations for the presentation, present for the panel, to make value out of the iterativeness of the processes. Additionally, the opportunity to apply several times enables multiple learning processes. Also, the findings show that the application process is central to students' learning and, therefore, requires careful design. Constructing a panel that can offer relevant feedback is also important to ensure a positive learning outcome and motivation for student entrepreneurs. Furthermore, it is important to consider the entire EECA ecosystem that the pre-seed grant is part of because the results have pointed to the embeddedness of the pre-seed grant initiative among the other EECA actors.

Limitations

Like other in-depth research studies, there are some limitations to this research. Because of the COVID-19 pandemic, the interviews were conducted online. The ZMET methodology involves facilitating a conversation based on pictures the interviewees bring to the interview. The online format made this challenging and was not optimal. However, this was the only option. We arranged the online interviews the best we could, using a platform ideal for sharing screens. We also let the informants speak their own language when presenting and talking about the pictures, allowing them to present the pictures themselves. The present paper provides the student entrepreneurs' perspectives on TEB; they may have provided a more positive view on the initiative compared with other stakeholders. However, the paper also did show important reasons for why these views were positive, such as the initiative being low threshold, which, in turn, generates practical implications for similar initiatives.

Further research

We recommend longitudinal studies to uncover student entrepreneurs' further venture creation processes after receiving seed grants and/or funding. Longitudinal studies are needed to uncover if and how the motivation and learning resulting from applying for pre-seed grants have similar imprinting and path dependency effects as receiving an early subsidy (Söderblom *et al*., 2015) on new ventures and student entrepreneurs in the long term. The two loops in the mental map describing the learning processes of applying for seed funding could also serve as foundations for further research investigating how those learning processes occur. Furthermore, the balancing interrelationship between TEB, as a provider of a structure that forces reflection, and the rest of the EECA ecosystem in providing experiential learning deserves further attention.

References

Aaboen, L., Sørheim, R., Haneberg, D.H. and Aadland, T. (2021), "Context, content and commitment in student venture processes", *International Journal of Entrepreneurial Behaviour and Research,* Vol. 27 No. 5, pp. 1105-1115.

Bellavitis, C., Filatotchev, I., Kamuriwo, D.S. and Vanacker, T. (2017), "Entrepreneurial finance: new frontiers of research and practice: Editorial for the special issue Embracing entrepreneurial funding innovations", *Venture Capital*, Vol. 19 Nos 1-2, pp. 1-16.

Berglund, H. (2011), "Early stage venture capital investing: comparing California and Scandinavia", *Venture Capital*, Vol. 13 No. 2, pp. 119-145, doi: 10.1080/13691066.2011.558366.

Brush, C.G. (2014), "Exploring the concept of an entrepreneurship education ecosystem*", Innovative Pathways for University Entrepreneurship in the 21st Century*, Emerald Group Publishing, Bingley, Vol. 24, pp. 25-39.

Bosma, N., Hessels, J., Schutjens, V., Van Praag, M. and Verheul, I. (2012), "Entrepreneurship and role models", *Journal of Economic Psychology*, Vol. 33 No. 2, pp. 410-424, doi: 10.1016/j.joep.2011. 03.004.

Brush, C.G., Carter, N.M., Gatewood, E.J., Greene, P.G. and Hart, M.M. (2006), "The use of bootstrapping by women entrepreneurs in positioning for growth", *Venture Capital*, Vol. 8 No. 1, pp. 15-31.

Calder, N. and Aitken, R. (2008), "An exploratory study of the influences that compromise the sun protection of young adults", *International Journal of Consumer Studies*, Vol. 32 No. 6, pp. 579-587.

Christensen, G.L. and Olson, J.C. (2002), "Mapping consumers' mental models with ZMET", *Psychology and Marketing*, Vol. 19 No. 6, pp. 477-501.

Claudia, C. (2014), "The role of extracurricular activities and their impact on learning process", *Economic Science Series*, Vol. 23 No. 1, pp. 1143-1148.

Corbin, J. and Strauss, A. (1990), "Grounded theory research: procedures, canons and evaluative criteria", *Qualitative Sociology*, Vol. 13 No. 1, pp. 3-21, doi: 10.1007/BF00988593.

De Clercq, D., Fried, V.H., Lehtonen, O. and Sapienza, H.J. (2006), "An entrepreneur's guide to the venture capital galaxy", *Academy of Management Perspectives*, Vol. 20 No. 3, pp. 90-112, doi: 10.5465/AMP.2006.21903483.

Fayolle, A. (2013), "Personal views on the future of entrepreneurship education", *Entrepreneurship and Regional Development*, Vol. 25 Nos 7-8, pp. 692-701, doi: 10.1080/08985626.2013.821318.

Geary, J. (2011), I Is an Other: the Secret Life of Metaphor and How it Shapes the Way We See the World, HarperCollins, New York, NY.

Grichnik, D., Smeja, A. and Welpe, I. (2010), "The importance of being emotional: how do emotions affect entrepreneurial opportunity evaluation and exploitation?", *Journal of Economic Behavior and Organization*, Vol. 76 No. 1, pp. 15-29.

Gutman, J. (1982), "A means–end chain model based on consumer categorization processes", *Journal of Marketing*, Vol. 46 No. 2, pp. 60-72.

Hägg, G. (2018), "The reflective novice entrepreneur: from habitual action to intelligent action using experience-based pedagogy as a vehicle for change", in Fayolle, A. (Ed.), *A Research Agenda for Entrepreneurship Education*, Edward Elgar Publishing, Cheltenham, pp. 189-223.

Haneberg, D.H. and Aaboen, L. (2020), "Incubation of technology-based student ventures: the importance of networking and team recruitment", *Technology in Society*, Vol. 63, doi: 10.1016/j. techsoc.2020.101402.

Haneberg, D.H. and Aaboen, L. (2022), "Entrepreneurial learning behavior of community insiders", *International Journal of Entrepreneurial Behavior and Research*, Preprint, doi: 10.1108/IJEBR-04- 2020-0255.

Haneberg, D.H. and Aadland, T. (2020), "Learning from venture creation in higher education*", Industry and Higher Education*, Vol. 34 No. 3, pp. 121-137, doi: 10.1177/0950422219884020.

Haneberg, D.H., Aaboen, L. and Middleton, K.W. (2022), "Teaching and facilitating action-based entrepreneurship education: addressing challenges towards a research agenda", *The International Journal of Management Education,* Vol. 20 No. 3, 100711.

Hasche, N. and Linton, G. (2021), "University-industry collaboration: constructing a business model lab for student venture creation", *International Journal of Entrepreneurial Behavior and Research*, Vol. 27 No. 5, pp. 1241-1263, doi: 10.1108/IJEBR-09-2020-0660.

Hayter, C.S., Lubynsky, R. and Maroulis, S. (2017), "Who is the academic entrepreneur? The role of graduate students in the development of university spinoffs", *The Journal of Technology Transfer,* Vol. 42 No. 6, pp. 1237-1254.

Huynh, T. (2016), “Early-stage fundraising of university spin-offs: a study through demand-site perspectives”, *Venture Capital,* Vol. 18 No. 4, pp. 345-367, doi: 10.1080/13691066.2016. 1229772.

Jones, P., Forbes-Simpson, K., Maas, G. and Newbery, R. (2015), “Beta: an experiment in funded undergraduate start-up”, *Industry and Higher Education*, Vol. 29 No. 5, pp. 405-418, doi: 10.5367/ ihe.2015.0271.

Klofsten, M., Jonsson, M. and Simón, J. (1999), “Supporting the pre-commercialization stages of technology-based firms: the effects of small-scale venture capital”, *Venture Capital*, Vol. 1 No. 1, pp. 83-93, doi: 10.1080/136910699296009.

Kolb, D.A. (1984), *Experiential Learning: Experiences as the Source of Learning and Development*, Prentice-Hall, Englewood Cliffs, NJ.

Lackéus, M. (2014), “An emotion based approach to assessing entrepreneurial education”, *The International Journal of Management Education*, Vol. 12 No. 3, pp. 374-396.

Lee, M.S.Y., McGoldrick, P.J., Keeling, K.A. and Doherty, J. (2003), “Using ZMET to explore barriers to the adoption of 3G mobile banking services”, *International Journal of Retail and Distribution Management*, Vol. 31 No. 6, pp. 340-348, doi: 10.1108/09590550310476079.

Macpherson, A., Anderson, L., Trehan, K. and Jayawarna, D. (2022), “Editorial: entrepreneurial learning: a situated and contextual process”, *International Journal of Entrepreneurial Behavior and Research*, Vol. 28 No. 2, pp. 277-282.

Mulvey, M.S. and Kavalam, B.E. (2010), “Mining deeper meaning in consumer decision maps”, *Qualitative Market Research: An International Journal*, Vol. 13 No. 4, pp. 372-388.

Ndonzuau, F.N., Pirnay, F. and Surlemont, B. (2002), “A stage model of academic spin-off creation”, *Technovation,* Vol. 22 No. 5, pp. 281-289.

Neck, H.M. and Corbett, A.C. (2018), “The scholarship of teaching and learning entrepreneurship”, *Entrepreneurship Education and Pedagogy*, Vol. 1 No. 1, pp. 8-41, doi: 10.1177/ 2515127417737286.

Neck, H.M., Greene, P.G. and Brush, C.G. (2014), *Teaching Entrepreneurship: A Practice-based Approach,* Edward Elgar Publishing, Northampton, MA.

Pittaway, L., Benedict, P., Bedö, Z. and Erdö, K. (2021), “Venture funding in the entrepreneurial university”,Preprint, available at: https://www.researchgate.net/publication/350886931_Venture_Funding_in_the_Entrepreneurial_University.

Pittaway, L. and Cope, J. (2007), “Simulating entrepreneurial learning: integrating experiential and collaborative approaches to learning”, *Management Learning,* Vol. 38 No. 2, pp. 211-233, doi: 10.1177/1350507607075776.

Pittaway, L., Rodriguez-Falcon, E., Aiyegbayo, O. and King, A. (2011), “The role of entrepreneurship clubs and societies in entrepreneurial learning”, *International Small Business Journal*, Vol. 29 No. 1, pp. 37-57, doi: 10.1177/0266242610369876.

Pocek, J., Politis, D. and Gabrielsson, J. (2022), “Entrepreneurial learning in extracurricular start-up programs for students”, *International Journal of Entrepreneurial Behavior and Research*, Preprint, doi: 10.1108/IJEBR-04-2020-0206. IJEBR

Politis, D., Winborg, J. and Dahlstrand, Å.L. (2012), “Exploring the resource logic of student entrepreneurs”, *International Small Business Journal*, Vol. 30 No. 6, pp. 659-683, doi: 10.1177/ 0266242610383445.

Preedy, S., Jones, P., Maas, G. and Duckett, H. (2020), “Examining the perceived value of extracurricular enterprise activities in relation to entrepreneurial learning processes”, *Journal of Small Business and Enterprise Development,* Vol. 27 No. 7, pp. 1085-1105, doi: 10.1108/JSBED-12-2019-0408.

Rasmussen, E.A. and Sørheim, R. (2006), “Action-based entrepreneurship education”, *Technovation*, Vol. 26 No. 2, pp. 185-194, doi: 10.1016/j.technovation.2005.06.012.

Reynolds, T.J. and Gutman, J. (1988), “Laddering theory, method, analysis, and interpretation”, *Journal of Advertising Research*, Vol. 28 No. 1, pp. 11-31, doi: 10.1017/CBO9781107415324.004.

Rigg, C. and O’Dwyer, B. (2012), “Becoming an entrepreneur: researching the role of mentors in identity construction*”, Education+Training*, Vol. 54 No. 4, pp. 319-329.

Shearer, R.L., Aldemir, T., Hitchcock, J., Resig, J., Driver, J. and Kohler, M. (2020), “What students want: a vision of a future online learning experience grounded in distance education theory”, *American Journal of Distance Education,* Vol. 34 No. 1, pp. 36-52.

Smith, D. and Muldoon, J. (2021), “Covid-19 and its impact on venture pitching competitions in higher education: a case study”, *Small Enterprise Research*, Vol. 0 No. 0, pp. 1-12, doi: 10.1080/ 13215906.2021.1962397.

Söderblom, A., Samuelsson, M., Wiklund, J. and Sandberg, R. (2015), “Inside the black box of outcome additionality: effects of early-stage government subsidies on resource accumulation and new venture performance”, *Research Policy,* Vol. 44 No. 8, pp. 1501-1512, doi: 10.1016/j.respol.2015. 05.009.

Stevenson, R., Kier, A.S. and Taylor, S.G. (2021), “Do policy makers take grants for granted? The efficacy of public sponsorship for innovative entrepreneurship”, *Strategic Entrepreneurship Journal,* Vol. 15 No. 2, pp. 231-253, doi: 10.1002/sej.1376.

Williams Middleton, K., Padilla-Melendez, A., Lockett, N., Quesada-Pallar es, C. and Jack, S. (2020), “The university as an entrepreneurial learning space: the role of socialized learning in developing entrepreneurial competence”, *International Journal of Entrepreneurial Behavior and Research*, Vol. 26 No. 5, pp. 887-909, doi: 10.1108/IJEBR-04-2018-0263.

Wright, M., Clarysse, B. and Mosey, S. (2012), “Strategic entrepreneurship, resource orchestration and growing spin-offs from universities”, *Technology Analysis and Strategic Management*, Vol. 24 No. 9, pp. 911-927, doi: n10.1080/09537325.2012.718665.

Zaltman, G. (1997), “Rethinking market research: putting people back in”, Journal of Marketing Research, Vol. 34 No. 4, pp. 424-437.

Zaltman, G. and Coulter, R.H. (1995), “Seeing the voice of the consumer: metaphor-based advertising research”, *Journal of Advertising Research*, Vol. 35 No. 4, pp. 35-52.

Appendix 1

Results from the means–end analysis. Source: Author's own work.

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
01 Optimism																																																						
02 Positive questions from the panel															1	1																																				
03 Positive view on TrønderEnergi																																			1																	
04 Supportive panel																	1																																			
05 Panel's contribution to networking																																																						
06 Insecurity during presentation											1																																									
07 Presentation and argumentation skills																		1																																		
08 Panel's competences										1									1																																	
09 Quality issues in the panel																																																						
10 About the presentation																		1																																		
11 Constructive feedback from the panel					1	1	1																														1					1											
12 Nervous before the presentation																																		1								1											
13 Reasons for applying TEB																																																						
14 Presentation as a milestone																																																						
15 Exciting process																																																						
16 Understood we were onto something																												1																									
17 Relieved after presentation																																																						
18 Positive atmosphere at the presentation																																																						
19 Preparations for the presentation																																																						
20 TEB as low threshold																									1									1																			
21 Serendipity																																																						
22 The money is not important																																																						
23 Result of the application																			1																																	
24 Indifference to TEB																																																						
25 Introduction to life as an entrepreneur																																																						
26 TEB as the first support																																			1																	
27 TEB as confirmation															1																				1														1				
28 Proud to have made it																										1																											
29 Motivation																																																						
30 Disappointment if you don't get the money																																																						
31 TEB as a safety																																																						
32 The amount of money																																																						
33 Valuable money in early stage																															1																					
34 TEB part of the ecosystem																																																						
35 Too good to be true																																																						
36 Progression																																						1														
37 Team																																																						
38 Life as a student entrepreneur										1									1											1																	1			
39 Applying for TEB																						1																														
40 Defining product						1						1																																							
41 Learning by doing																																			1																	
42 Personal idea											1																																									
43 Developing experiences																																																						
44 Idea											1																										1														
45 Market analysis for the application																																					1		1			1											
46 Own reflections on the development																																							1			1											
47 Challenges																																																						
48 Easy application																																																		1			
49 TEB as a booster																																																						
50 Spark	1																			1														1																				
51 Systematic work with the application																																		1										1									
52 Contribution of the prototype in the development																																							1														
53 Opportunities based on the money																																			1									1							1		
54 Use of money																																							1												1		