Missing links between lean startup, design thinking, and experiential learning approaches in entrepreneurship education

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Abstract
Questions we care about
- How do different pedagogical teaching approaches in entrepreneurship education construct learning outcome when comparing the underlying pedagogical models?
- Where can unidentified fields and correlations of pedagogical insights between the approaches of lean startup, design thinking, and experiential learning be identified?
- How can new concepts of learning models, taking lean startup, design thinking and experiential learning approaches into account, be developed in entrepreneurship education?

Approach
This conference paper begins as a conceptual paper highlighting the theories and underlying learning models behind three pedagogical approaches within entrepreneurship education, namely lean startup, design thinking and experiential learning. The paper builds this knowledge framework in order to set the design for an empirical investigation of the proposed topics through a later case study.

The research project will develop empirical qualitative data to further elaborate the discussion. Qualitative interviews with five entrepreneurship educators from three educational institutions will shape the platform for condensation of meaning and new knowledge valuable for research in entrepreneurship education. In-depth interviews will provide data to be analyzed in combination with vignette methods that seeks to test the following research question: How do entrepreneurship educators reflect upon the three approaches lean startup, design thinking, and experiential learning, and what facilitators and barriers can be identified to these approaches?

Implications
The project can have an impact into the way entrepreneurship education is developed, performed, and evaluated besides influencing the mindset of entrepreneurial education among educators. Subsequently the study can also have an impact on the motivation among students and educators in terms of working with the approaches in focus by highlighting how this intersection of approaches can contribute to developing enterprise education.

Value/Originality
By comparison of widely used pedagogical approaches within entrepreneurship education, the current project aims to contribute to the understanding of the applied pedagogical approaches within entrepreneurship education. The contribution will be advancing the pedagogical aspect of planning, running, and evaluating entrepreneurship education activities.

Key words
Entrepreneurial learning, entrepreneurship education, pedagogical approaches.

Theme
Pedagogical theories in entrepreneurship education
Introduction

This paper is a work in progress.

This current paper seeks to contribute to the entrepreneurship education debate and literature by demonstrating how different approaches to entrepreneurship education provide valuable frameworks for educators in entrepreneurship education. However, literature still lacks a comparison of learning models even though the approaches in focus are widely used. This paper is positioned in the pedagogical debates about the application of entrepreneurship education in the classroom. It is a work in progress and the current conference paper establishes the theoretical framework and proposed research design in order to receive feedback before advancement of the project with data-collection.

The paper discusses and deals with the pedagogical aspects of three trending approaches, namely lean startup, design thinking and experiential learning. Until now, none of these approaches have been supported with appropriate insights into their pedagogical aspect of entrepreneurship education. The purpose of the paper is to investigate the underlying pedagogical learning models and to combine these insights into proposing new understandings of the learning experience and accompanying facilitation techniques. The overall purpose of writing this conceptual paper is to provide new understandings of entrepreneurial learning contexts in higher education, and the contribution will hopefully stimulate the debate on entrepreneurship education amongst scholars.

Theoretical framework

Educators in entrepreneurship education tend to use various pre-described methods, models and pedagogical approaches (Neergaard, Tanggaard, Krueger, & Robinson, 2012). Using one specific approach makes the educator subscribe to all underlying learning models and facilitation guidelines within the specific approach (Krueger, 2007). Lean startup, design thinking and experiential learning are recent trends within entrepreneurship education, and all three approaches draw upon dynamic modes of thinking (Cope, 2005).

Research focusing on all three approaches has until now neglected the benefits in combining the underlying learning models in order to develop new modes of thinking within entrepreneurship education (Roberts, Hoy, Katz, & Neck, 2014). Perspectives from each approach are in previous research found useful in the facilitation of processes and interventions in entrepreneurship education. E.g. lean startup (Blank, 2013; Silva & Nascimento, 2013; Winkler, 2014), design thinking (Dorst, 2011; Johansson-Sköldberg, Woodilla, & Çetinkaya, 2013; Løwe Nielsen, Lassen, Nielsen, & Mikkelsen, 2013; Nielsen & Christensen, 2014) and experiential learning (A. Y. Kolb & Kolb, 2005; Middleton, Mueller, Blenker, Neergaard, & Tunstall, 2014; Pittaway, 2004).

Debates on the value of learning outcome on the various approaches are ongoing (Byers, Seelig, Sheppard, & Weilerstein, Gibb, 2002; Harry Matlay, Jones, & Penaluna, 2013). Determining what activities in entrepreneurship education that are appropriate to make a difference on learning outcome is difficult but knowledge on the underlying learning models according to the approach chosen by the educator can be valuable for the debates on entrepreneurship education (Bliemel, 2014; Segal, Schoenfeld, & Borgia, 2007).

Research question

A detailed qualitative investigation will enhance the understanding of the educator’s experiences in entrepreneurship education. Specifically, the following research question is in focus:
- How do entrepreneurship educators reflect upon the three approaches lean startup, design thinking, and experiential learning, and what facilitators and barriers can be identified toward these approaches?

**Aim**

An in-depth qualitative inquiry is necessary to develop a thorough understanding of the application of entrepreneurship education and to explore the complexities of the actual use of various teaching approaches applied in entrepreneurship education. The aim of this study is to conduct a qualitative inquiry exploring the experiences with entrepreneurship education from the perspective of the educators themselves to develop a more in-depth understanding of the facilitators and barriers to the different approaches.

**Hypotheses**

- Different pedagogical teaching approaches in entrepreneurship education will influence the construction of learning outcomes
- Educators do not necessarily choose one approach in planning and execution of entrepreneurship education
- Educators will draw on previous teaching experiences and events in their reconceptualization of the approach

**Questions we care about**

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**Conceptual framework**

**Approaches in entrepreneurship education**

Paul Hannon’s notion between teaching about, for or through is accepted as a valid pathway for understanding a basic premise of entrepreneurship education (Hannon, 2005; Hannon, 2006). This paper also draws widely on the work by Luke Pittaway and Jason Cope who introduced a dynamic learning perspective into entrepreneurship education (Cope, 2005; Pittaway & Thorpe, 2012). Neergaard and Tangaard (2012) provided a comprehensive overview of the pedagogical interventions applied in entrepreneurship education (Neergaard et al., 2012) which also is seen as a valuable contribution in the conceptual framework of the current paper.

First part of the paper is a brief overview of the three approaches in order to be able to make a comparison of the underlying techniques and learning models.

**Lean startup**

Lean manufacturing principles were developed by Toyota Company as a way to optimize production methods and reducing waste in car production (Müller & Thoring, 2012). Since the development in the seventies the lean methods have been implemented in several other
organizational areas and following also in development of new ventures (Blank, 2013). Eric Ries founded the “lean startup” movement (Ries, 2011) and with Steve Blank’s work on costumer development the movement has developed as a widely used approach within entrepreneurship education (Harms, 2015). The pedagogical principles are based in the notions ‘build-measure-learn’ that has a customer focus implemented in the approach. As a helpful tool for educators “The Lean Launch Pad Teaching Handbook” has been developed and revised by Steve Blank (Blank, Engel, & Hornthal, 2013). Within the literature there still seems to be very little knowledge of the effects of applying a lean startup approach to entrepreneurship education.

**Design thinking**

Design thinking is a user-driven innovation strategy developed by the design consultancy IDEO (Kelley, 2007). Design thinking is based on a user-centered approach, which aims to solve wicked problems and at generating innovative solutions (Buchanan, 1992; Rittel, 1972). The strategy makes use of widespread user research, feedback loops and iterative cycles, and are not just processes but consist of tacit elements, such as practices, specific mindsets, previous experiences, and cultures. However these imperceptible elements are important (Thoring & Müller, 2011a). The model of the design thinking process consists of six steps. The process illustrates the iteration loops that result from the last step “test”. Specifically, the process does not begin with an idea, instead it starts with a problem or a question. These ideas are usually developed within the process, in the fourth step “ideation”. Just prior to this, there is a comprehensive focus on research, where “understand” means secondary research and “observe” means research of users. The archived knowledge is subsequently condensed into micro-theory about the problem or the user needs, the “point of view” that is afterwards used to develop solution concepts in the step of “ideation”. The innovative ideas aiming to solve the previously identified problem or address the users’ needs are developed in this step. These ideas are then visualized or built as prototypes (in the “prototype” step) in order to test it and gather feedback from potential users (in the “test” step). Since the process is iterative, the feedback given will be employed by returning to one of the previous steps (Thoring & Müller, 2011b).

**Experiential learning**

Research in entrepreneurship education has long investigated the theories of experiential learning (Cooper, Bottomley, & Gordon, 2004; Middleton et al., 2014; Sherman, Sebora, & Digman, 2008). With roots in David Kolb’s dynamic learning cycle (A. Y. Kolb & Kolb, 2005; D. A. Kolb, 1984) experiential learning provides a theoretical framework for design learning processes. Common for these activities is the active involvement of the learner (Austin & Hjorth, 2012; Rasmussen & Sorheim, 2006), experiments (Gartner & Vesper, 1994) and active reflection on the learning process (Jack & Anderson, 1999; Schön, 1991).

Learning through experience is not a new concept in learning theory. Notable educational scholars such as John Dewey, and Carl Rogers have also contributed to learning theories that focus on “learning through experience” or “learning by doing.” Topics that have been further explored within entrepreneurship education (Cope & Watts, 2000; Löhler, 2006). Dewey popularized experiential education widely with a focus on problem solving and critical thinking. Rogers referred to experiential learning as ‘significant’ in contrast to what he called ‘meaningless’ cognitive learning.

Where the above described approaches has a substantial knowledge base targeted practical application of these, then experiential learning lacks these guidelines.
Comparison

As part of the conceptual framework a comparison between the three approaches will follow in the full journal paper by means of a visual table in order to recognize unidentified fields and correlations between them.

Research design

Design

Two complementary techniques will be employed to fulfill the stated aims for this study. Firstly, a qualitative approach using face to face semi-structured interviews will be used in which participants can name, define, and contextualize their personal experiences within entrepreneurship education. The first author in consultation with the wider research team develops an interview guide containing open-ended questions. It is the intention of the interviewer to keep the interviews as open-ended as possible; however, prompts will be used if necessary to gain an in-depth understanding of the participants’ experiences. Secondly, vignettes will be employed to depict the three entrepreneurial approaches. Vignettes have been used to explore diverse social issues and problems by researchers from a wide range of disciplines (Barter & Renold, 2000). Vignettes are simulations of real events depicting hypothetical situations. In research studies they are employed as elicitation tools, facilitating an exploration of participants’ responses to hypothetical situations. Written accounts of such situations are often used, however, video material, audio recordings and variety of other ways of presenting materials have also been employed (Cohen & Strayer, 1996; Hughes & Huby, 2002). In qualitative research, vignettes can be used in ways that generate information, which is complex and multifaceted (Wilks, 2004). Typically, participants are asked to respond to the hypothetical situation by stating what they would do, or in this case, for example how they would apply the three entrepreneurial approaches in their educational practice.

Participants

Educators, who work continually with entrepreneurship education, will be contacted and invited to participate in an interview. Participation in this study is open to all educators working with entrepreneurship education. It is the ambition to recruit five educators from three institutions, 15 participants in total. One or two members of the research team will conduct the interviews. A full schedule of the semi-structured interview guide will be listed in a table. All interviews will be digitally audio-recorded and transcribed verbatim. Ethical approval will be obtained and each participant must complete standard informed consent procedures.

Analysis

Since the interviews are evaluative in nature, a General Inductive Approach (Thomas, 2006) will be used to identify categories from the original raw data, which will then be used to convey key meanings or themes. Category and theme identifications are then conducted, discussed, and checked by the members of the research team. Initially, multiple readings help to give an overall understanding of the participants’ experiences. Then categories of similar constructs will be grouped together. Lastly, theoretical linkages between the category groups is explored and themes
are identified. This process will be done through regular meetings in the research team in order to discuss, argue, and agree upon the themes.

**Implications**
The findings of this study have a number of practical implications. Given the large amount of expected qualitative data, this study will provide new insight into pedagogical teaching approaches in entrepreneurship education and identify possible facilitators and barriers. This knowledge will contribute to both practice and research in the future.

**Future perspectives**
With this conference paper the authors propose the above research project.

In order to obtain a broad and widely spread data collection we invite researchers and educators to a future collaboration.

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