Entrepreneurship Education: Methods and Tools to Increase Successful Academic Venture Creation

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Abstract: Higher Education Institutions (HEIs) face a high degree of complexity when designing entrepreneurial education programmes at the level of University Business Incubators (UBIs) and beyond. Our paper addresses these concerns by answering the question: "What are the entrepreneurial and pedagogical methods, templates and tools that a new academic venture needs to be exposed to in order to not only raise awareness but also increase the level of successful start-up creation?". To this end, we seek to build a framework that delineates different entrepreneurial education (EE) approaches along the lifecycle of new venture creation at universities. Moreover, we reflect our theory-based framework with a case study of different EE education provided to different target groups (students, academic venture teams) at a German university, i.e. the Ruhr-Universität Bochum and its excellence start-up centre "Worldfactory". This study will provide new insights into EE and higher education, and the dynamics of new ventures and their entrepreneurs in the awareness EE stage.

Keywords: Entrepreneurship Education, Academic New Ventures, Life Cycle, Incubator

1. Introduction

Universities, entrepreneurship education (EE) and their university business incubators (UBIs) have gained importance since the 1990s, when the link between UBIs and the entrepreneurial ecosystem was recognised as an important element for economic growth (Plaschka and Welsch, 1990). In order to promote economic growth, many EE programmes have been developed and it has been recognised that programme designers should provide training that corresponds to the different stages of the business life cycle of a new venture. The training needs of an entrepreneur starting a new venture are different from those of a mature entrepreneur seeking funding for product development. In addition, different career stages, regional or cultural requirements need to be taken into account (Maresch et al. 2016). Higher education institutions (HEIs) face a high degree of complexity in designing EE programmes at the UBI level and beyond. Starting with the question of how to integrate EE programmes into curricula (Plaschka and Welsch, 1990) or how entrepreneurial education should ideally evolve along the maturity of an academic venture. Our paper will address these concerns by answering the question: "What are the entrepreneurial and pedagogical methods and tools that different members of the university need to be exposed to in order to not only raise awareness, but also to increase the level of successful start-up formation?". This paper will review the Fisher et al. (2013) conceptual framework of new venture legitimacy acquisition over time, the European Entrepreneurship Competence Framework (EntreComp) (Bacigalupo et al. 2016) and the recommended entrepreneurial and pedagogical methods, templates and tools used by new venture coaches and courses. This review will highlight the weaknesses and strengths of the framework.

2. Theoretical Framework

Prior literature suggests that a new venture is unlikely to attract resources if it is perceived as illegitimate (Zimmerman and Zeitz 2002). The acquisition of legitimacy by a new venture may also be non-linear, as for a new venture to be perceived as legitimate, its identity must be aligned with the norms, values, beliefs and definitions of the social ecosystem in which it is embedded. Change may occur over time as the new venture gains autonomy and must meet the expectations of changing audiences (Fisher et al. 2013). In their conceptual framework, Fisher et al. (2013) suggest that the achievement of legitimacy is in line with norms, values, beliefs and definitions and occurs throughout the lifecycle of a technology venture from conception through to commercialisation and the growth phase. EntreComp is the European reference framework developed by the Joint Research Centre and the European Commission's Directorate-General for Employment, Social Affairs and Inclusion to support the promotion of entrepreneurial competences in Europe (Bacigalupo et al. 2016). The framework identifies three areas of competences (Into Action, Resources, Ideas and Opportunities). These competences are all interrelated; there is no particular order or level of importance. Depending on the context, one area of competence may be more important than others. The EntreComp progression model has been designed on the basis that The development of entrepreneurial learning leads to increased autonomy and

responsibility in transforming opportunities to create value for others. The model does not predict a linear sequence of steps for an individual to develop his or her entrepreneurial competencies, but rather a progression of skills through external support to transformative value creation. It consists of four stages of maturity: Foundation, Intermediate, Advanced and Expert (Bacigalupo et al. 2016). EE was one of the first fields to introduce the use of design thinking, defined as 'the combination of tools, processes and mindsets that designers use to solve problems', which was seen as a productive approach for learners to experience the entrepreneurial journey (Sarooghi et al. 2019). The Lean Startup (Ries, 2009) contextualised the principles of design thinking in EE. The first set of tools (customer development, agile engineering and minimum viable product (MVP)) were created to find a problem-solution fit, focusing on the smallest solution that provides maximum value to customer problems. The business model canvas and value proposition canvas (Osterwalder et al. 2015) are conceptual tools that describe the value a firm provides to one or more customer segments and the architecture of the firm and its network of partners to create, market and deliver that value and relationship capital to generate profitable and sustainable revenue streams. With the rise of established entrepreneurship programmes, 'business plan competitions' are typically offered. (Laud, Betts and Basu, 2015). Business plans are seen as experiential learning, and it is agreed that entrepreneurial learning needs to provide experiential components. In Figure 1, we propose that the teaching of EE should be progressive, using the first three levels of competence found in the EntreComp progression model: basic, intermediate and advanced. Taking into account the evolution of competences along the stages: relying on the support of others, building independence and taking responsibility, we propose, based on the progressive competence of the audience, "what to teach" at each of the stages. The set of tools to be used at each stage of the entrepreneurial education progression can be divided into: tools to be used at the individual level and at the level of the venture idea. The importance of the multidimensional aspects of new venture creation should not overlook the individual expertise as a key element for new venture creation, as well as the organisational entity that develops the idea and evolves over time within its context, resources and competencies in the market (Gartner, 1985). What tools should be used to build competences at both levels?

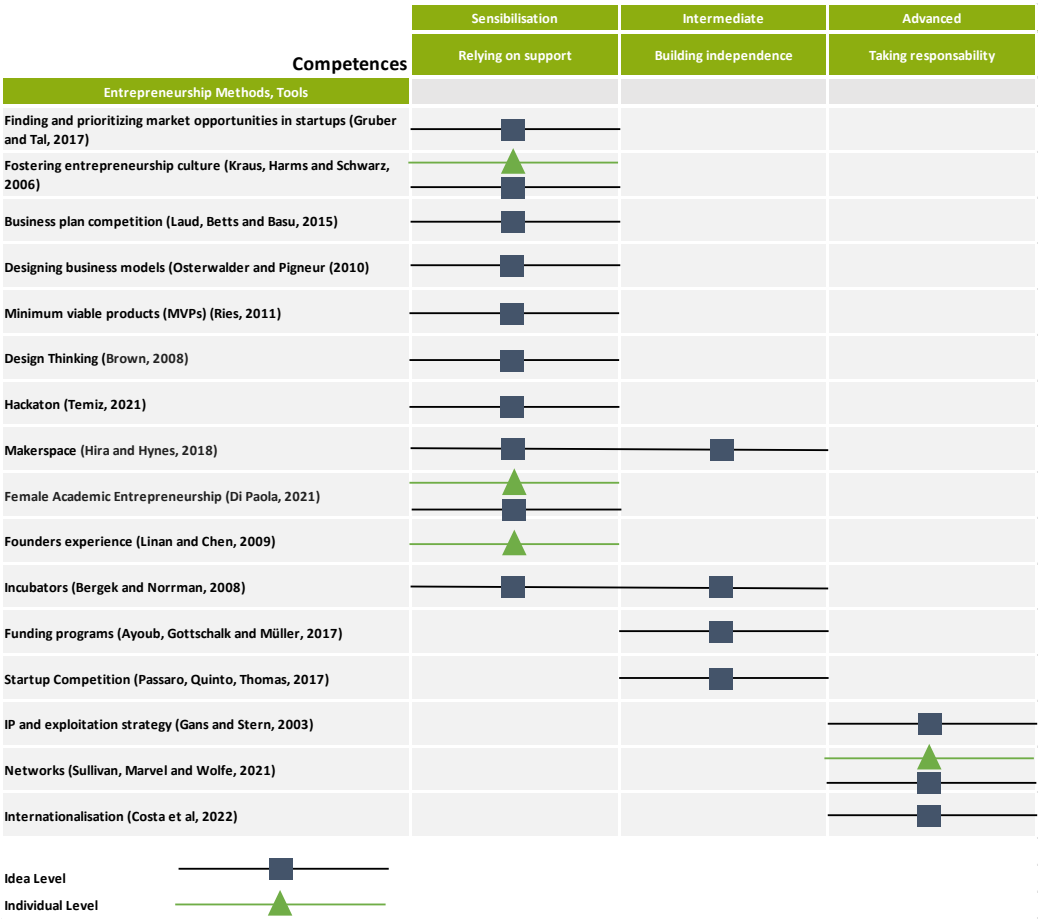

Figure 1: Entrepreneurship education tools along skill levels at individual and venture idea level

Source: own illustration

3. Method

The research is exploratory in nature, as there are no firm ideas about the exact behaviour and causal relationships of the concepts in practice. Case study research, which involves the examination of a contemporary phenomenon in its real-life context, is the recommended design for exploring a complex and under-explored area (Eisenhardt, 1989). Multiple cases allow a phenomenon to be observed in multiple settings. Multiple case studies also allow for replication logic as each case is treated as an independent experiment. (Eisenhardt, 1989). This research uses a multiple case study design, following a theoretical replication, to explore key socio-cultural factors and provide new theoretical insights. The theoretical framework is applied to a multiple case study, specifically cases selected from the Worldfactory Excellence Start-Up Center (WSC) at the Ruhr-University Bochum (Germany). One of the authors is currently employed as a research assistant at this university, which was important in gaining access to documents and sharing experiences with other academics at the institution, as well as gaining access to interviews with new venture founders. The selection process began with an analysis of the different start-ups that existed there. Informal contact was made with the central coordination team. In the second stage, 17 start-ups were selected from all the sustainable development goals. The selection was based on obtaining a diversity of cases and maturity levels of the start-ups. This selection process resulted in a list of 17 selected start-ups. The data were collected through semi-structured interviews over a period of 6 months, complemented by secondary sources consisting of five internal documents describing the structures and implementation of the EE strategies set by the university management per faculty and their implementation at the individual level as well as at the idea level. For the interviews, personal contacts were made and the interviews were recorded. The field notes included observations. We also interviewed experts in the field (researchers, project coordinators and incubator mentors). An inductive approach was used for coding. An inventory of open codes was created based on the themes that emerged from the interviews. To organise the codes, we created second-order themes based on the theoretical framework presented earlier.

4. Contribution

Our paper will contribute to the current understanding in the EE community by explaining the link and impact that EE has on EI in the specific context of an incubator. The WSC case studies will help by (a) understanding how best to organise (iteratively optimise) the different tools in EE, (b) understanding how the proposed reorganisation (assumed in advance) affects the level of success. The literature has identified the following criteria for the success of new venture creation: resource-based capability, competitive strategy, product characteristics, market characteristics and financial criteria (Kakati, 2003). In the WSCs process, the success criterion for incubated start-ups is the establishment as a German GmbH. In addition, this study will contribute to a better understanding of how design EE activities should be integrated into university curricula, helping not only academics but also entrepreneurs and practitioners with a more comprehensive contextual analysis of this growing topic.

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