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How education, stimulation, and incubation encourage student entrepreneurship: Observations from MIT, IIIT, and Utrecht University

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ABSTRACT

Universities across the world are increasingly trying to become more entrepreneurial, in order to stay competitive, generate new sources of income through licensing or contract research, and follow policy guidelines from governments. The most powerful resource universities have to stimulate entrepreneurship is their students. However, there is no evaluated theory on how to encourage students to become entrepreneurs. Through three case studies the entrepreneurial encouragement offerings applied at MIT in the United States, IIIT in India, and Utrecht University in the Netherlands are investigated. The offerings provided by these institutes have been surveyed, interviews about these offerings with university staff have been performed, and reflected upon through interviews with entrepreneurs that graduated from these institutes. The three case studies provide insight in how student entrepreneurship encouragement offerings contributed to students choosing a career as an entrepreneur. Several successful examples of student entrepreneurship encouragement offerings are presented, and a model is proposed on how to effectively encourage entrepreneurship among students. The model supports academic institutes in constructing an environment that encourages student entrepreneurship and aims to help universities convince students to continue their careers as entrepreneurs.

1. Introduction

Universities play an important role in the regional entrepreneurial climate. As institutes focus on creating new inventions and knowledge, they serve as an important output of knowledge and innovation, which can be exploited by new ventures (Edmondson & McManus, 2007; Shane, 2004). Etzkowitz (2001) calls it the second academic revolution: the first academic revolution added research as a mandate next to the education of students, now entrepreneurship has become a third mandate of universities. Academic entrepreneurship has therefore become a priority for policymakers from inside the universities as well as local governments everywhere (Potter & Storey, 2007). Universities and governments try to create highly innovative science parks where young entrepreneurs lead innovation and, ultimately, economic growth. For example, Stanford and MIT

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and their close links to industry and entrepreneurship were once seen as anomalies within the academic system, whereas currently they have become the model for other universities to emulate (Etzkowitz, Webster, Gebhardt, & Terra, 2000).

There is a significant body of evidence linking the level of entrepreneurial activity to desirable effects such as the competitiveness of an economy, job creation, unemployment reduction, innovation, and economic and social mobility (Rotger, Gørtz, & Storey, 2012; Van Praag & Versloot, 2007). Therefore, governments of virtually all developed countries have put the stimulation of entrepreneurship high on their agenda (Potter & Storey, 2007), all hoping and striving to become entrepreneurial economies that pick the fruits of dynamic capitalism (Thurik, Stam, & Audretsch, 2013). Universities are encouraged to observe and analyze their own entrepreneurial ecosystems: the organizations and climate that support starting students in building a successful enterprise. In a study assessing the effectiveness of a Danish entrepreneurship-stimulating program Henrekson and Rosenberg (2001) find that initiatives aimed at stimulating entrepreneurship contribute to the survival and growth of new ventures. Entrepreneurs that participated in the Danish program have a 3–12% higher survival rate (measured over two years) than entrepreneurs that did not participate in such a program.

Several studies concerning the fostering of student entrepreneurship have been conducted (Franke & Lüthje, 2004; Huffman & Quigley, 2002; Liñán, Urbano, & Guerrero, 2011; Lüthje & Franke, 2003; Nab, Pilot, Brinkkemper, & Ten Berge, 2010). Universities worldwide employ a combination of these initiatives in order to create an attractive entrepreneurial climate. However, the initiatives are not always successful, and not every science park becomes the next Silicon Valley. We identify the problem that universities do not have an overview of what instruments there are to stimulate students to choose a career as an entrepreneur. In this article we define Entrepreneurship Education and Support Offerings (EESO) as being instruments that universities can employ to stimulate students in an academic environment to follow a career as an entrepreneur. A university can employ several EESOs in order to stimulate and facilitate innovative entrepreneurship. Among such offerings are: education in entrepreneurship, hosting business plan competitions, setting up technology incubators, technology transfer offices, and appointing chairs for entrepreneurship (Lüthje & Franke, 2002). In this article we list fifteen EESOs and evaluate them in three international case studies.

There are excellent examples of universities that have had significant influence on start-up success, such as Stanford and MIT. However, it is unclear why one university succeeds in creating a fertile entrepreneurial climate while others, with similar initiatives, fail. Which initiatives have proven successful during new venture formation? Moreover, to what extent did they contribute to startup success? In Section 2 the literature is discussed and we find that this is a domain that is rapidly growing to a mature field of research. We continue to present our own Student Entrepreneurship Encouragement Model in Section 3. The model provides fifteen EESOs grouped into three categories: education (for awakening dormant entrepreneurs), stimulation (to support students in starting a business), and incubation (to support young companies to independence). We present the case study method and the three cases at MIT, IIIT, and Utrecht University in Section 4 and in Section 5 we discuss how the model is evaluated in the case studies. We compare entrepreneurship education offerings at three exemplary entrepreneurial universities in different regions of the world, and evaluate these offerings by interviewing business founders that graduated from these institutes. We end with a discussion on the consequences of our research in Section 6: we provide a complete list of offerings that universities can implement and we call for a further discussion on the responsibility of the university in entrepreneurship after students have graduated.

2. Background

Just like the prevalence of entrepreneurship education has increased enormously, the literature on entrepreneurship education has also expanded considerably over the last decade. Two main foci are the nature of entrepreneurship education and the entrepreneurial outcomes. This literature ranges from describing the nature of the programs to the various effects of these programs on entrepreneurial intentions, skills, technology commercialization, new business creation and success (Rideout & Gray, 2013).

The standard theoretical model to explain students entrepreneurial intentions and ultimately entrepreneurial behavior is theory of planned behavior (TPB) (Ajzen, 1991). Entrepreneurial intentions are seen as the product of an individuals self-efficacy, attitude and the subjective norms toward entrepreneurial behavior (Krueger, Reilly, & Carsrud, 2000; Schlaegel & Koenig, 2014). Entrepreneurship education is seen to be instrumental especially in raising entrepreneurial self-efficacy, i.e. the belief in having adequate skills and competencies for setting up a business. Subsequently, entrepreneurial intentions are seen as one of the strongest predictors of entrepreneurial behavior.

Studies based on the TPB show positive relations between entrepreneurship education and entrepreneurial intention (Zhang, Wang, & Owen, 2015). However, given that most of these studies are cross-sectional, one should be careful to infer causality from entrepreneurship education to entrepreneurial intentions. Research has shown that students enrolling for entrepreneurship education have higher self-efficacy and entrepreneurial intentions than other students. This suggests a sorting mechanism (Von Graevenitz, Harhoff, & Weber, 2010). A longitudinal study based on the experimental methodology by Oosterbeek, van Praag, and Ijsselstein (2010) even found a negative effect of (obligatory) entrepreneurship education on entrepreneurial intentions, and no significant effect on students self-assessed entrepreneurial skills. In a similar study Von Graevenitz et al. (2010) found no statistically significant effect of entrepreneurship education on entrepreneurial intention, but a positive effect on perceived entrepreneurial skills. Bae, Qian, Miao, and Fiet (2014) concluded from their meta-analytic study on the effect of entrepreneurship education on entrepreneurial intention, that the two are positively related, but that, after controlling for pre-education entrepreneurial intentions, the relationship between entrepreneurship education and