Venture Creation Programs: entrepreneurial education through real-life content

Paper presented at interactive paper session BCERC 2011 Conference, Syracuse NY, USA

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Abstract

Principal topic
Students with the intent to be self-employed require more action-based approaches to entrepreneurial learning, in comparison to traditional methods (Mwasalwiba, 2010). Action-based pedagogies potentially allow for learning from highly emotional critical incidents in the venture creation process, provided that action is paired with reflection activities (Cope and Watts, 2000). The aim of our study is to investigate a specific type of action-based education programs – higher education programs providing entrepreneurial education utilizing active creation of new ventures as the primary learning vessel. The purpose is to better understand the structure, components, impact and learning outcomes of these programs. Thus, the paper asks the question: What are the defining characteristics of a venture creation program?

Method
Building from previously conducted research reviewing entrepreneurial education programs in Northern Europe, a definition for venture creation program (VCP) is proposed as *entrepreneurship or business educations at a higher education level with the on-going creation of a real-life venture as their primary learning vessel and thus part of formal curriculum*. Using this definition, a study is designed to identify and investigate potential VCPs from the regions of Europe, North America and Asia-Pacific. Through literature, verbal reference, internet resources and snowball sampling, a population of VCPs are identified and then interviewed via telephone in order to further assess applicability relative to the proposed VCP definition. In addition, a website is created as a receiving point for programs self-identifying as VCPs. Documentation and interview data of the initial population is then used to compare and contrast characteristics, methods and practice of the programs relative to the definition and to each other in an attempt to identify defining characteristics of VCPs.

Results and implications
The results show that VCPs are rare, and of those found, the majority are newly established. Some reasons for this scarcity and novelty have been identified, related to obstacles such as design complexity, legitimacy difficulties and resource requirements when establishing and facilitating VCPs. The results suggest that it could be beneficial to complement the initially proposed definition with a definition based on three constructs cognition, affection and conation as proposed by Gibb (2005) and Kyrö (2008). These insights have the potential of aiding both researchers and practitioners engaged in developing entrepreneurial learning and entrepreneurship education.

1.0 Introduction and Purpose

Entrepreneurship education has seen an explosive growth, both in number of courses and programs available world-wide and in amount of different approaches in the educational set-up (Mwasalwiba, 2010, Henry et al., 2005a, Henry et al., 2005b). According to a recent literature study (Mwasalwiba, 2010) the reasons are based in both demand- and supply-side perspectives. On the demand side, policymakers, academia and students are realizing that an entrepreneurial culture is an increasing demand in today's globalized, hypercompetitive, uncertain and complex society (Gibb, 1998). Many of these actors also see entrepreneurship education more specifically as a means to spur graduate start-ups (Bager, 2011). On the supply side, scholars and practitioners continue to uphold their task of advancing academia and satisfying students and policymakers requirements and expectations. Currently, educational approaches designed to meet these needs are achieved in a diverse set of ways, indicating perhaps that the field of entrepreneurship education might still be in an adolescent phase.

Mwasalwiba (2010) argues that students destined for self-employment need more action-based approaches to entrepreneurial learning, in comparison to traditional methods. However, action-based approaches utilizing the creation of real-life ventures as formal part of the curriculum are still relatively uncommon. One reason for this is that entrepreneurship education with a substantial practical ingredient, such as venture creation, often contains many unusual, novel, and resource intensive and therefore expensive teaching methods. Consequently, action-based entrepreneurship education is not always well aligned to the conventional university system of teaching and awarding of degrees (Mwasalwiba, 2010).

The benefits of action-based entrepreneurship education built upon a venture creation approach have been discussed in previous research, along with the challenges of facilitating such learning experiences (Gibb, 1993, Ollila and Williams Middleton, 2011, Rasmussen and Sorheim, 2006, Siegel et al., 2005). Learning by doing (Cope and Watts, 2000) is argued as essential for achieving important learning outcomes such as tacit learning, personal development and self-awareness. One important benefit of this pedagogy is that it allows for higher-level learning from highly emotional critical incidents in the venture creation process, provided that action is also paired with opportunity for reflection together with experienced mentors. In some instances a real-life learning environment can provide for what Fayolle (Fayolle et al., 2006) terms as an emergency learning situation, especially when economical and personal stakes are high. Timmons et al. (1986) even suggest that the only way to learn entrepreneurship is through one's own personal experience.

The aim of our study is to investigate a specific type of action-based entrepreneurship education programs – higher education programs providing entrepreneurial education utilizing active creation of new ventures as the primary learning vessel. The purpose is to better understand the structure, components, impact and learning outcomes of these programs. The main research question for this paper is: What are the characteristics of an entrepreneurship education program focused on venture creation – a 'venture creation program'?

2.0 An attitude-based view on entrepreneurship education

Most entrepreneurship education scholars have abandoned a strictly personality-traits-based view, as this view supports a premise that entrepreneurship cannot be taught; a view which has been rejected through both theoretical and empirical evidence (Charney and Libecap, 2000, Neck and Greene, 2011). One common alternative has been to adopt an attitude-based view on entrepreneurship. Mwasalwiba (2010) states that there is currently a shift within

entrepreneurship education towards attitude-changing perspectives and objectives, directing focus towards active/action-based teaching methods.

Attitudes are less static than traits, and are therefore easier to influence (Robinson et al., 1991) In the domain of psychology the nature of attitudes is often explored using the tripartite model consisting of the three constructs cognition, affection and conation– i.e. knowledge, feelings and actions respectively; the core domains of mental life. Individual's attitudes and judgments are affected by all these three domains. This classification was developed in the German faculty psychology in the 18th century (Hilgard, 1980) and the three constructs have been further explored by contemporary psychology scholars. Rae (2005) proposes usage of a theory of entrepreneurial learning that draws on social constructionist theories, supporting the progression from "teaching about" towards "learning for" entrepreneurship. Kyrö (2008) states that action pedagogies, in the form of affection and conation, are fundamental to learning and thus should be at the core of entrepreneurship education, in contrast to the cognitive learning paradigm prevalent at most universities. Krueger (2005) states that if we understand the thought processes around entrepreneurial thinking and action, we at least have a tentative "blueprint" towards influencing behavior, which is one of the most common goals of entrepreneurship education.

It has been argued that the emphasis in current university policy is almost exclusively on the cognitive aspect, thus neglecting affective and conative aspects of mental development (Gibb, 2005). This cognitive paradigm dominance has been pointed out by many scholars within entrepreneurship as a major hurdle to efficiently educating within entrepreneurship (Rae, 2005, Kyrö, 2008, Gibb, 2002, Taatila, 2010). Therefore we assume that the cognitive domain of learning is well catered for in the university setting, including within entrepreneurial education, and thus turn to the other key constructs impacting attitude: conation and affection.

2.1 The conative and affective constructs

Conation has been used extensively in the corporate world (Berry, 1996), through, for example, the Kolbe Index A® (Kolbe, 1991) as a way of measuring natural tendencies to act. Within educational theory the notion of conation is amply represented by approaches such as "learning by doing" (Dewey, 1916), action learning (Revans, 1971), reflective practice (Schön, 1983), and experiential learning (Kolb, 1984). An increasing number of scholars argue for action-based approach when designing entrepreneurship courses and programs (Bager, 2011, Gibb, 2002, Tan and Ng, 2006, Kyrö, 2005, Neck and Greene, 2011). However, fewer explicitly argue for a strong focus on affective aspects in entrepreneurial education, or in education in general. According to Boud et al (1985), most research on learning has failed to take into account its intrinsically affective dimension. Nonetheless, affective aspects in education are omnipresent (Boler, 1999), often in the form of emotion.

2.1.1 Emotional learning

Brown (2000) states that learning and emotion work in a tandem motion, and the famous philosopher of education John Dewey regarded emotions as an essential factor in learning (Kyrö, 2008). Entrepreneurship is no exception – the process of an entrepreneurial journey is commonly communicated as emotionally intense. Excitement is mixed with anxiety and fear, emotional commitment is high, and uncertainty, lack of control and making mistakes are common experiences. From a learning perspective, the dynamics of the entrepreneurial journey is seen as valuable, as the emotional intensity of an experience is believed to increase the resultant depth of reflection and learning (Cope, 2005, Cope and Watts, 2000). However, according to Boler (1999), many scholarly disciplines systematically omit and devalue

emotions, as they are perceived as equivalent to "subjective bias" in comparison to the prevailing positivistic values of "truth" and emotionally detached reasoning which are commonly championed.

We take the view that emotions can play a role in entrepreneurial education, particularly in regards to emotional engagement that can come with ownership association. Possession attachment literature (Zellweger and Astrachan, 2008) suggests that organizational ownership adds strong emotional bonds both to the firm itself and to the other team members in an entrepreneurial firm. For example, ownership is used as a means for expressing and extending one's self in social contexts and manifesting one's competence, mastery or achievement. Firm takeover literature includes formulas in which the emotional value of an equity stake can be calculated as the difference between minimum selling price and the financial value (Zellweger and Astrachan, 2008).

2.2 Entrepreneurship educations focusing on creating ventures

Reviewing literature on action-based entrepreneurship educations has illustrated that conative and affective learning are most prominent in programs in which students are creating real-life ventures. There are a handful of single case studies on these types of programs (Thursby et al., 2009, Haines, 1988, Laukkanen, 2000, Janssen et al., 2007, Barr et al., 2009, Berggren, 2011, Meyer et al., 2011, Ollila and Williams Middleton, 2011), as well as a multiple case study (Rasmussen and Sørheim, 2006). However in general, descriptions and references to these types of programs seem to be limited, with extremely few contributions before the turn of the millennium. Common themes in the identified literature are action-based learning, the venture creation process, university commercialization, importance of an external network of resources, and regional development aspects.

A few of these contributions investigate the affective aspects of programs with a venture creation basis. One implicit connection to affective content is described by Rasmussen & Sørheim (2006) Fig. 1 – University strategies for entrepreneurship education – in which they specify the degree of active involvement by the student towards idea development on the X-axis, ranging from case-based teaching through involving the students in real start-ups to letting the students start their own company, the latter representing the highest student involvement. The highest involvement is also categorized as students being "owners", which correlates with the possession attachment literature described earlier. Haines (1988) also discusses the use of a high-involvement approach, stating that it has dramatic effects that are mostly positive. However, some students are reported to being unable to perform in such a situation, leading to a loud and negative reaction.

Literature on 'venture creation' programs emphasizes the importance of connections with other entities both at and outside the university, such as technology transfer offices, incubators and business networks. Many scholars also emphasize the importance of a process perspective when handling venture creation in an educational setting. Meyer et al (2011, p 195) state that "only by replicating the organic technology commercialization process can educational and commercial objectives be achieved simultaneously". Gibb (2005, p 22) describes a generic venture creation process for use as a link to learning, stating that "the challenge to teachers is therefore to organize knowledge around organization development processes, radically different from the conventional functional paradigms".

Barr et al (2009) have described what they call "The Valley of Death", pointing at a gap between research and commercial application that can be bridged by training students in

technology entrepreneurship. In an attempt to summarize 14 years of experience in commercialization of technology through the Technology Entrepreneurship and Commercialization Program at North Carolina State University, they propose a process-based instruction for the students including the modules that represent significant steps in the commercialization process. They also note that their program is largely consistent with the five high-level design elements for creating university spin-offs suggested by van Burg et al (2008):

1. Screen entrepreneurs and ideas by creating university-wide awareness of entrepreneurship
2. Support the start-up teams - access to advice, coaching, training and office space
3. Create a collaborative network of investors, managers and advisors
4. Regulate the university spin-off process – equity, revenue sharing and balance between education and business
5. Shape a university culture that reinforces academic entrepreneurship

We are building from a standpoint of an action-based, emotion-engaged approach to entrepreneurship education, in part to address the development of entrepreneurial attitudes. Literature has shown that this kind of development can be facilitated through programs focusing on action-based education, often integrating real-venture creation. The integration of venture creation with education is argued to benefit from involvement of technology transfer or university spin-off processes, networks of business-minded individuals engaged to support the process, and frameworks to guide activities (in the guise of ownership structures and phases of development, among others). To further investigate the components of these types of 'venture creation programs', including the emotive learning that takes places, we developed an interview framework investigating ten main themes, as discussed in the following method section.

3.0 Method

A qualitative and explorative multiple-case-study approach has been chosen due to the perceived lack of systematic exploration into this area of research, in line with methodological recommendations by Edmondson et al (2007). Research is conducted by a research team, including an additional member in addition to the two authors of the paper. All members of the research team possess a decade or more of previous experience in championing entrepreneurial value creation both in academic and business contexts characterized by high levels of conative and affective aspects. As a first step and in line with the recommendations from Flick (2009), intuition has been used to form a sensitizing concept of what is to be studied, described as:

"Entrepreneurship or business educations at a higher education level with the on-going creation of a real-life venture as their primary learning vessel and thus part of formal curriculum, with intention to incorporate or in some other way indicate future operative status"

This program type has for communication purposes initially been labeled "Venture Creation Programs".

3.1 Initial thematic framework

In order to cope with the large amounts of empirical data that a qualitative approach can result in, the authors have developed an initial theoretical framework consisting of ten main themes.

These 'themes' were developed, from literature, to start and argued as relevant to 'venture creation' entrepreneurship education. It is expected as the research evolves that these ten themes will be revised as theoretical concepts emerge. To illustrate that qualitative research tends to view social life as processes (Bryman and Bell, 2007), the themes are labeled and viewed as "processes". The framework has been used when designing the semi-structured interview template, as well as when comparing the programs studied. It consists of the following:

Table 1. Initial Theoretical Framework

Process Theme	Description of activities / components
Marketing to and selection of students	Reaching and screening of prospective students, subsequent admission of students (Burg et al., 2008)
Establishing start-up teams in a creative environment	Composing of student teams with complementary skills and backgrounds, equipping them with office / phone, ensuring creative environment (Burg et al., 2008)
Establishing fair and motivating rules	Establishing rules regarding distribution of revenues (equity), establishing sense of real-life, ensuring correct level of expectations, creating motivational and emotional urgency learning setting (Burg et al., 2008, Cope and Watts, 2000)
Securing collaborative network	Establishing internal and external support for the start-up teams such as business coaches, financers, advisors, alumni, external entrepreneurs, etc (Burg et al., 2008)
Linking to external outreach activities	Multitude of activities such as but not limited to student consulting, conferences, external collaboration projects, newsletters, presentations, competitions (Burg et al., 2008, Mwasalwiba, 2010, Vesper and Gartner, 1997, Hynes and Richardson, 2007)
Maintaining good academic entrepreneurship environment	Ensuring high commitment staff, good research base, businesslike methods, quality improving culture, appropriate staff awarding systems, presence of role models, top management support (Burg et al., 2008, Gibb, 2005)
Supplying relevant theory content with the right mix	Selecting, developing and delivering educational content of high relevance regarding subjects and focus, delivered by faculty with relevant competence and experience (Mwasalwiba, 2010)
Delivering a well balanced mix of pedagogical methods used	Selecting, developing and delivering relevant and working pedagogical methods, with emphasis on action / active based methods, used by faculty in a well functioning manner (Mwasalwiba, 2010)
Influencing students' attitudes and intentions towards entrepreneurship	Various explicit and implicit personal development activities (Gibb, 1998)
Actual business start-up process (Core process)	The real-life venture creating steps of idea acquisition, idea validation, scale and resource identification, business planning, negotiation, company birth, survival (Barr et al., 2009, Gibb, 2002)

3.2 Data collection and analysis

In order to identify programs relevant to a terminology not standardized or utilized in practice – 'venture creation programs', an initial investigation was conducted of potential programs from the regions of Europe and North America using previously available research, internet resources and snowball sampling. Programs initially identified as having 'venture creation as the learning vessel of the educational program' were further assessed through initial email or telephone contact, resulting in a refined group of programs. Of these, individuals at six programs were interviewed utilizing the designed interview template building upon the framework presented in Table 1. Prior to conducting the interviews with the six programs, a pilot interview was held with an inside actor at the Gothenburg-based programs, from which

adjustments were made. The three members of the research team conducted interviews independently. Interviews were recorded and then transcribed, and complemented by notes taken during the interviews. Data collected through interviews was also supplemented by available documentation and/or public data found online. Follow-up interviews were conducted (or will be) as necessary to clarify or complement responses.

The six interviewed programs were then compared in order to identify and explore common characteristics, methods and practice. Data from the interviews was compiled into a matrix, again building upon the theoretical framework of Table 1, but separated into categories of basic information, components and establishments/challenges. Each of the interviewers then focused on specific a category, listening and reading the interview data, in order to reduce individual bias or focused interpretation of data. The compiled data was then discussed by all three interviewers in order to both provide clarification of findings drawn from the interviews and identify potential patterns across the initial six programs. An additional seven programs have been identified with interviews planned with at least half of these programs within the next month.

4.0 Findings

Summaries of findings from the initial interviews are presented in two tables. Table 2. *Basic Information of Select Venture Creation Programs* presents facts about the age, size and scope of the program, and of the university at which the program is held. Table 3. *Components of Select Venture Creation Programs* gives details about the programs regarding the theoretical framework presented in Table 1.

Table 2 illustrates some similarities across the programs. All the programs are, thus far, masters level programs or higher – either one or two years in length – with the number of students per year ranging from 20 to 40 (the average being approximately 30 students per year). Four of the six programs were started around the turn of the millennium, with the two oldest programs starting in 1997. All of the programs exist at universities/colleges with multiple faculties, with four of the six integrating business students with students having different educational backgrounds. All but one of the programs collaborates, to a greater or lesser extent, with an organization involved with technology transfer at the university/college. Furthermore, every program has successfully facilitated creation of new companies [this is to be confirmed in regards to Lund University].

Table 2. Basic Information of Select Venture Creation Programs

Basic Information	Chalmers/Univ. Göteborg	Lund University	University of Tromsö	Babson College	University of Oregon	University of Leuven
City, Country	Göteborg, Sweden	Lund, Sweden	Tromsö, Norway	Wellesley, MA USA	Eugene, OR USA	Leuven, Belgium
Students per year	35	40	20	25	20	35
Program name	Chalmers School of Entrepreneurship / Göteborg International Bioscience Business School (CSE/GIBBS)	Masters program in Entrepreneurship	Business Creation and Entrepreneurship	Entrepreneurs in Training (EIT)	Technology Entrepreneurship Program (TEP)	Formation Interdisciplinaire en création d'entreprise (CPME)
Start year	1997	2006	2008	2000	2001	1997
Length	2 years	1 year	2 years	1 year	1 year	2 years
University size	60.000 students [a]	47.000 students	9.000 students	3.300 students	24.000 students	21.000 students
Faculties	9 - engineering, business, economics, law, science, social sciences, humanities, fine arts, medicine, education, IT	8 - engineering, science, law, social sciences, economics, medicine, humanities, theology, fine arts, music and drama	6 - health sciences, law, fine arts, biosciences, fisheries, economics, humanities, social sciences, education, science and technology	9 –arts and humanities, law, economics, entrepreneurship, finance, social sciences, (technology) management marketing, math	7 – arts, science, business, education, law, music & dance, journalism	14 – law, economics, social sciences, arts, education, medicine, engineering, science
Business school	Yes	Yes	Yes	Yes	Yes	Yes
Engineering school	Yes	Yes	Yes	No	No	Yes
Medicine school	Yes	Yes	Yes	No	No	Yes
Business students	Yes	Yes	Yes	Yes	Yes	Yes
Engineering students	Yes	Yes	Yes	No	No	Yes
Medicine students	Yes	-	-	No	No	Yes
Level of degree	MSc	MSc	MSc/MBA	MBA	MBA / JD / PhD	MSc / MA
Alumni so far	300	90	25	200	400	350
Tech Transfer Mechanism	Encubator	LU Innovation	TTO Nord	N/A	Pacific NW Laboratory	Louvain-la-Neuve Science Park
Time to establish	1,5 year	(8 yrs)	1 year	1 year	6 months	1 year
Applicants per slot	2-4	~ 12	~ 10	~ 2	1-8 (varies with origin)	Varies with origin
Internal funding size	10.000 €	2.000 to 3.000€ from LU Innovation (discretionary)	2.600 €	None	None	Discretionary
Company examples	Vehco, Avinnode, Oxeon, Minesto, ICU Intelligence	~	Globesar, Deliver, Proselo, The Few Touch Mobile	Seahorse Scientific; Fossa Medical	Perpetua Powersource Technologies, Floragenex, Innovative Sports Strategies, Shady Peeps, Armozyme	Greenwatt, Creacorner, Mnemotique, Clickyourcar

[a] This is the combined population of two universities - Chalmers University of Technology and University of Gothenburg.

Table 3. Components of Select Venture Creation Programs

Components	Chalmers/Univ. Göteborg	Lund University	University of Tromsö	Babson College	University of Oregon	University of Leuven
Marketing & Screening	M: International/National (Swedish) mix Majority engineers Fairs and word of mouth	M: International/National (Swedish) mix Minority engineers	M: International/National (Norwegian) mix Internet	M: Internal only Event (1) and word of mouth	M: Internal only	M: Internal only Event (1) and word of mouth
	S: Multi-stage application process (written/interviews) Faculty and alumni selection committee	S: Multi-stage application process (written/pitch or idea evaluation)	S: Written application Faculty and TTO selection committee	S: Multi-stage application (pitch/interview) Faculty selection committee	S: Multi-stage application process (including idea screening)	S: Multi-stage application process (written/interview)
Teams	2-3 team (interdisciplinary) Faculty formed (w/ input) Idea provided Board and advisors Offices provided	2-3 team or individual Student formed Idea (optional) Mentor Facilities provided	2-3 team (interdisciplinary) Faculty formed (w/ input) Idea provided Facilities provided	Majority individual 2-3 team Student formed Mentor Facilities provided	4 team (interdisciplinary) Faculty formed Idea provided	2-3 team (interdisciplinary) Student formed Idea (optional) Offices provided
Rules & Motivation	R: Academic requirements Venture development compulsory Ownership distribution IP exchanged for equity	R: Academic requirements Venture development compulsory with intention to launch Ownership distribution	R: Academic requirements Venture development compulsory Ownership distribution IP exchanged for equity	R: Academic requirements Venture development compulsory with intention to launch	R: Venture development compulsory	R: Academic requirements
	M: Student ownership stake (10%) Mentorship (board) Funding (all)	M: Student ownership stake (depending upon idea origin) Funding (discretionary)	M: Student ownership stake (2%) Funding (all)	M: Mentorship	M: Student ownership stake (depending upon idea origin) Funding (discretionary)	M: Student ownership stake (depending upon idea origin) Funding (discretionary)
Network	Univ. research depts. Faculty network Incubator Alumni Financiers Regional service providers Regional innovation system	Incubator Holding company Mentors	Faculty network TTO Holding company	Faculty network Incubator (Entrepreneurial) Alumni Financiers	Univ. research depts.. Financiers	Univ. schools (8) Univ. research depts.. Faculty network Incubator TTO Holding company Student club
Outreach	University services Trade fairs Business plan competitions Regional network events Pitching to industry network	Pitches to industry network	University services Regional network events	Trade fairs Business plan competitions Regional network events Pitching to industry network	Regional network events Pitching to industry network	University services (including TTO) Trade fairs Regional network events Pitching to industry network

Faculty	6-7 core Senior academics (Prof/lec) Junior academics (PhD) Pracademics	5 core Mainly Senior academics Junior academics	4 core Senior academics Visiting academics	4 core Senior academics Pracademics Research fellows	2 core Senior academics Pracademics	2½ core Senior academics Junior academics Pracademics
Content	Literature/cases Lectures Experiential Courses linked to venture Pitch presentations Masters Thesis (Venture)	Literature Lectures Courses linked to venture	Lectures Experiential Courses linked to venture Masters Thesis (Venture)	Literature/cases Lectures Experiential Courses linked to venture Pitch presentations	Lectures Experiential Pitch presentations	Experiential
Pedagogy	Foundation courses Action-based with venture as main learning vessel Specialized venture linked courses Integrated incubator	Theoretical learning is core Integration of theory-based and experience-based through action	Foundation courses Action-based with project as main learning vessel Specialized venture linked courses	Foundation courses Action-based with venture as main learning vessel Specialized venture linked courses	Action-based/experiential with venture as the main learning vessel Iterative	Interdisciplinary focus Action-based (externally described as vocational)
Attitudes	Engaged network Interaction Experience	Develop human capital	Engaged network Experience	Engaged network Interaction Experience	Develop human capital Interaction (pitching)	Develop human capital Inspiration
Start-up process	Multi-phase from initial evaluation to incorporation Presentation toll gates (4) Financial tollgates Final go/no go for incorporation at end or post education.	4 phases of development Educational tollgates (linked to courses)	Multi-phase from initial evaluation to incorporation Presentation toll gates (4) Financial tollgates Final go/no go for incorporation at end or post education	Two main phases, starting with opportunity development Final go/no go for incorporation at end or post education	Multi-phase from initial evaluation to incorporation starting with the idea. Presentation tollgates Final go/no go for incorporation at end or post education	Non-specific – mainly competency development

When looking more specifically at the components of the various programs, in relation to the ten themes as presented in Table 3, some differences across the programs appear. Half of the programs are marketed externally, while the other half are only open to students already enrolled at the university/college. Though most of the programs use a team-based format, with team sizes ranging from two to four, half of the programs allow the students to form the teams themselves, while the other half have designed structures for team formation, including mixing students from multiple disciplines. Also, designed team formation is more common for the programs that are also matching university technologies or external ideas with student teams. Programs allowing students to develop their own ideas are the only programs allowing for individual venture creation.

Engagement in the venture creation process is required by all but one of the programs – University of Leuven being the exception, allowing for an internship-type model instead – but intention to launch a business through the program is not a pre-requisite for all of the programs. Motivation to engage is supported through financial incentives, including funding available to the ventures even during the program, and access to networks of mentors, which not only include faculty, but practitioners, bringing reflections from 'real world' experience. Furthermore, in some cases practitioners are also alumni to the programs or the universities at which the programs are based, and are often driven by either the 'fun' of being involved in the entrepreneurial process without having to invest 'sweat equity', or the 'fun' of giving back to their community.

5.0 Discussion

Based on the findings illustrated in Tables 2 and 3, some broader initial observations are made. These are to be investigated further as additional program representatives are interviewed, and will potentially also guide future research areas.

First, we recognize some of the five high-level design elements suggested by van Burg et al (2008): the importance of the team focus, the integration of TTO and incubators as key partners, having a network of individuals that act as mentors (often including mentors, advisors as part of the designed team), rules around ownership structures and funding associated. Perhaps, of even greater interest, we observe that the origin of the idea upon which the venture is based is a variable that impacts many of the other characteristics. In particular, the idea origin has an effect on team size, structure and formation; ownership structure and distribution; network partners – particularly the relationship to the TTO; interdisciplinarity of the team and supporting network; and to some extent the start-up process. Thus we observe that a majority of the categories from initial theoretical framework seem to be impacted by the one characteristic of the idea origin.

Another core observation is the focus on interdisciplinarity. While the programs most often are anchored in the 'business' school, the programs often seek to integrate individuals with different educational backgrounds. Furthermore, some of the programs engage in boundary spanning across faculties in order to take advantage of integration with engineering, medicine, law and even social science with business as a basis for learning and development of the venture. Formation of the teams seems to be linked to the origin of the idea: if the idea to be developed into a venture is student-based, the student(s) often have the freedom to establish the team, including the ability to operate independently; if the idea is university- or externally-based, the project will most often be a team of three individuals, designed through a structured process often

led by faculty. Furthermore, university- or externally-based teams have more specific ownership structures rules associated to potential equity in the venture, should it be incorporated.

Ownership of the venture is experienced in two ways. The first type of ownership discussed is more commonly understood, particularly in relation to technology transfer activity. This is ownership understood as distributed equity, relative to the contribution of different parties involved. This type of ownership distribution can involve policy challenges relative to university position. The second and less commonly discussed aspect of ownership is engagement or personal and (potentially) emotional association to the venture. Some of the interviewed individuals speak of a 'tipping' point, after which the students are engaged in the venture process 'for real', or a point at which the students 'get the glint in their eyes' and start shifting the way in which they speak about the venture from 'it' to 'our'. We speculate that the first type of ownership is more a result of the majority of programs having associations to incubators and/or technology transfer operations, which make clarification of ownership a necessary part of the venture creation process. The second type seems to be more associated to the action-orientation, and potentially links to the final observation to be discussed.

The educational content/pedagogy of the programs tend to be more focused on process than subject – the program *is* the process and the key learning is how the knowledge is applied and with what consequences, more that what knowledge is to be learned. This relates to the Kolb (1984) learning cycle which builds upon both theory and experience, brought into a period of reflection in order to develop understanding and learning. A critical part of the action learning is creating time and space for reflection, particularly involving feedback between the entrepreneurs (students) and the network of the faculty, alumni and/or mentors. Action-learning in the venture creation programs seems to not only build upon 'pure doing', but also the interaction that takes place as part of the experiential process, that provides sounding boards for not only thoughts, but feelings as well.

6.0 Conclusions and Implications

To summarize, our initial investigations have illustrated four main characteristics of venture creation programs studied thus far: the origin typology of the idea upon which the venture is based, interdisciplinarity, the role of ownership, and a focus on the process rather than the 'conventional functional paradigms' as discussed by Gibb (2005). In addition, the programs studied thus far have shown the importance of developing entrepreneurial ecosystems that facilitate boundary spanning activities, not only across universities' schools, such as business, engineering and medical, but engagement of local networks, including regional actors and alumni. Access to business plan or comparable competitions for recognition and financial support also help to facilitate emotional aspects of learning, through illustration of ownership and attachment to the business idea.

The observations from our initial findings may help to explain why the programs are so few and far between. The initial interviews will be complemented with additional cases, as well as follow-up investigation of the first round. As the study unfolds, the authors hypothesize that commonalities and differences between comparable programs will emerge that will provide insight into design and operation of programs utilizing real-life ventures as learning vessels. This has the potential of aiding researchers and practitioners in the field regarding entrepreneurial learning, improving program quality, increasing legitimacy of programs within the university

setting, and initiating the creation of a growing community of venture creation programs globally. Additional research into the establishment and policy and organizational challenges of the programs is planned, in order to understand the development and sustainability of the programs. The researchers will also investigate action-based learning in forms other than venture creation, such as internship programs, in order to explore potential commonalities or differences. Future research may include investigation of pedagogic design and assessment of action-based learning involving the venture as the learning vessel.

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