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Shadow Dancing:
Utilizing the Strength of Paradoxes in Entrepreneuring Education

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Abstract

There is an ever-existing discourse regarding whether entrepreneurs are born or made; whether they have natural and instinctive tendencies towards the risk-taking endeavor of entrepreneurship, or that they have been nurtured, through education and experience, to accept and appreciate the entrepreneurial process. Based on the premise that entrepreneurs can be "made", the paper focuses on the need for entrepreneurial education to incorporate both an academic side and a business (or practice) side in order to facilitate teaching individuals how to mitigate risk, ask key questions and make critical decisions in order to maneuver and succeed in entrepreneurial creation. Teaching entrepreneurship is a process, called entrepreneuring, requiring the continuing balance and juxtaposition of varying learning style theories, both academic and pragmatic. The theoretical framework of the paper is based on finding a balance between the problem-oriented thinking processes that are often related to academic reasoning and the solution-focused thinking processes that are utilized on a daily basis within industry, to develop new market strategies and models for commercial success. The combination of these theories have been and continue to be explored and tested in a case study of a master-level, high-technology focused entrepreneurship school that produces both entrepreneurial individuals and start-up ventures. The case study analysis includes discussion of the individual and societal costs and benefits that can result from conducting education in such a dynamic, and somewhat polarized, environment. Problem-oriented thinking processes, if taken to extremes, could potentially kill the confidence and motivation of the student entrepreneur, thus limiting creativity and performance metrics. Extreme solution-focused thinking could lead to the creation of "bubble" industries, and draws attention away from personal development and learning that can be critical for long-term success and sustainability. The potentially polarized environment envelopes both the "light" and "dark" sides of these thinking processes, allowing for various levels of risk, success, shared learning, burn-out and innovation. Combining these perceived paradoxes is both challenging and crucial in an entrepreneurial education, requiring the ability to force students to reflect upon their experiences while also providing them concrete tools to apply within a real-world entrepreneurial context.

Key words: *entrepreneuring, problem-oriented, solution-focused, learning process*

Introduction

National Economic Growth is a core objective of national policy in most countries. There is recognition of entrepreneurial activity as a major contributor to the development of national economic growth, through both job creation and new innovations, as illustrated in the Figure 1. Entrepreneurial activity is studied around the world (e.g. GEM[1]), and many countries have established incentive systems, both formal and informal and at various levels, meant to encourage the increase of such activity. Within the model presented in Figure 1, Entrepreneurial Framework Conditions have been identified as including: financial, government policies, government programs, education and training, R&D transfer, commercial/legal infrastructure, internal market openness, access to physical infrastructure, and cultural/social norms. One key arena has been the educational development of entrepreneurial activity – introduction of entrepreneurship into schools. However, this has lead to the fundamental question - can the conduct of entrepreneurial activity, a.k.a. entrepreneuring, be taught? Does education support the entrepreneurial ambition or might higher education instead hamper an individual's confidence in being entrepreneurial?
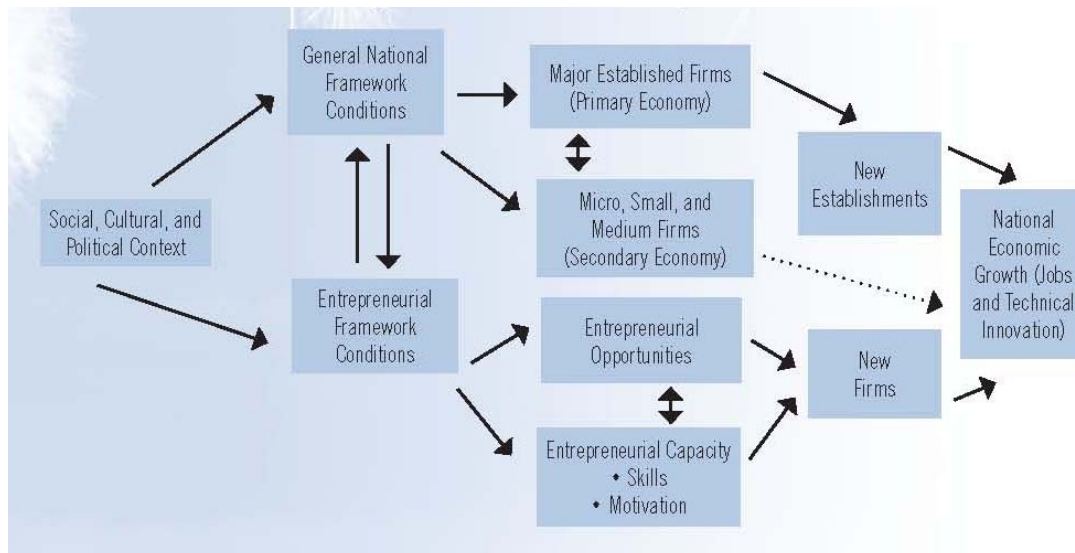

Figure 1. GEM Conceptual Model (*from GEM Executive Report 2005*).

In the Nordic countries, there are limited incentives at the national level to stimulate entrepreneurial activity amongst young individuals. Sweden in particular has struggled to motivate entrepreneurial activity, ranking in the bottom five of 35 nations studied, according to the 2005 TEA-index (Minniti et. al., 2005). The largest in-roads towards entrepreneurship have been within the educational arena, in order to develop interest and motivation among students while also creating demands upon further development of incubators and innovation systems. Even so, becoming an entrepreneur is still a relatively non-favoured career choice for Swedes aged between 18 and 30 (Lundström, 2005). While lacking an incorporated national policy, an increasing number of Swedish institutions are recognizing the importance of learning by doing, which leads to learning in different formats. In some cases, education is based in the subject area of entrepreneurship, looking at historical definitions and development. Select university programs have created platforms with start-up venture

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[1] The Global Entrepreneurial Monitor (GEM) is a global study conducted in over 40-countries around the world each year by a research consortium, with the purpose of collecting data on entrepreneurship and entrepreneurial activity.

development intertwined, in some cases providing project ideas to the students, in others, relying on the students to develop ideas independently. Still other programs rely on external networks or actors further down the innovation pipeline to provide specified training. Our intention is to focus on the university, exploring education programs that endeavour to educate both academically and pragmatically, with the objective of developing individuals and start-up ventures that will have entrepreneurial sustainability.

Many scholars agree that higher entrepreneurial education has to have an experiential learning perspective together with some kind of interactive pedagogy to enhance learning and innovative capacity (Barett & Peterson, 2000; Collins, Smith, & Hannon, 2006; Vinten & Alcock, 2004; Lundström and Stevenson, 2002; Yballe & O'Connor, 2000). We would like to argue that teaching entrepreneuring in higher education is even more challenging. The two main domains of high culture - the arts and the sciences – (often presented as polar opposites and thus strictly complimentary) have to form a unity of culture in the education. This unity of culture requires an environment that incorporates both learning that facilitates creative work and learning based upon theoretical constructs. The challenge could also be described by using Glassman et al's (2003) discussion of academic entrepreneurship as balancing the Acropolis i.e. the temple of accepted approaches to universities and scholarship and the Agora i.e. the market of materialistic pursuits led by ungodly commercial interests. Mirroring these seemingly polarized locales is a paradox of learning and development based on two thinking processes: traditional academic learning and scientific work strongly connected with problem oriented thinking processes, and business creation and artistic work as more of a solutions focused thinking process. We agree upon the point Glassman et al (2003) are making regarding the need of academic entrepreneurship in order to build and improve colleges and universities, although we would like to discuss the need of this entrepreneurial behaviour in the case of teaching entrepreneuring.

The Purpose
Becoming an entrepreneur is an iterative and evolving process. Placing entrepreneurial activity within the university setting creates a paradox, in which there exist tensions at multiple levels. Developing the entrepreneurial capacity, i.e. facilitating the learning process of shaping entrepreneurial identities, together with providing entrepreneurial opportunities (as seen in the GEM model in Figure 1) puts both educators and students in challenging situations. This paper argues that in order to educate entrepreneuring, teachers themselves need to be entrepreneurial in order to balance and utilize the tensions mentioned. The tensions are investigated by discussing the case of the Chalmers School of Entrepreneurship as built upon the fundaments of both problem oriented and solutions focused learning perspectives in tandem. We want to contribute to the ongoing discussion around learning entrepreunership by focusing on the challenge that the entrepreneurship educators struggle with. First we will present a theoretical framework of problem orientation and solutions focused philosophies. Second, we will discuss the entrepreneuring dynamics within CSE, with examples of the need to balance tensions between the entrepreneurial capacity and opportunity, as mentioned in the GEM model. Following the case study, we discuss some challenges, how the two learning philosophies are combined, and the impact on teaching entrepreneuring.

Philosophies of learning and learning approaches

Traditional academic learning is strongly related with the ability to rationally identify and analyze situations and problems in order to give a specific answer (Collins et al, 2006, Gibb, 1998). Students are repeatedly tested in noticing when there is a problem, what the problem

entails, searching for causes and/or reasons for the problem, and then, based on analysis, proposing answers. It is known that entrepreneurs are action oriented and many entrepreneurship educations are adapting experiential learning approaches (Barett & Peterson, 2000; Collins, Smith, & Hannon, 2006; Vinten & Alcock, 2004; Lundström and Stevenson, 2002; Yballe & O'Connor, 2000; Gibb; 1993). However, the main challenge educations face is, as Gibb (1993) states, "to create an enterprising environment". There is a significant difference between the business school approach (which probably is not valid just for business school but also other higher educations such as engineering schools) and the entrepreneur real world approach, according to Gibb as presented in Collin et al (2006).

Table 1: Contrasting learning approaches: the business school approach versus the entrepreneur real world approach.

Business school approach	Entrepreneur real world approach
Analysis of large amounts of data taking a critically evaluative approach	'Gut feel' decision-making with limited information
Understanding and recalling the information gathered for its own sake	Understanding the underlying values and motivations of those who supply, transmit and evaluate/filter the information
Finding and gathering information from 'approved' sources and from 'proscribed experts'	Finding and gathering information from multiple sources, in different ways and evaluating it
Studying information to gain verification of truth	Verification of decisions made on the basis of own judgements about people
Evaluation of competence through completion of written or oral assessment	Evaluation through direct feedback from multiple sources, including people and events
Learning in the classroom	Learning while and through doing

Source: Gibb as presented in Collins et al (2006).

We would like to argue that higher entrepreneuring education needs both the business and real world learning perspectives and hence educators need to facilitate both ways of learning. Even with this combination, one could argue that there are still very important factors missing to create an enterprising environment. There is a need for an educators perspective facilitating and supporting student visioning and creating as this a fundamental part of entrepreneuring activity. The solutions oriented approach could be such a perspective.

Solutions orientation
The solutions focus approach is starting to be widely used in different settings such as therapy, management and education. This approach values simplicity and practicality. The focus on solutions rather than on problems, the future not the past and what is going well rather than what is going wrong leads to a positive and pragmatic way of learning how to act entrepreneurially.

The Solutions-Focused Brief Therapy (SFBT) approach was founded by Steve de Shazer and it is a paradigm shift from the traditional psychotherapy focus on problem formation and problem resolution (Tepper, Dolan, McCollum, & Nelson; 2006). Instead SFBT focuses on client strengths resiliencies. There has been an increased interest in applying this approach to

school settings (Franklin, Biever, Moore, Clemons, & Scamardo; 2001). In most cases solutions focused philosophies and skills are used to engage the students in taking responsibility for their own the learning process. Research shows that solutions focused principles and practices even motivate students included in the group of high-risk to drop out (Franklin & Streeter; 2004).

David Cooperrider (1990) differentiates between problem solving (PS) and appreciative inquiry (AI). PS includes identification of the problem, analysis of the causes, analysis and possible solutions and action planning. AI includes appreciating and valuing the best of what is, envisioning what might be, and dialoguing around what should be. AI focuses on the generative potential of positive images. Cooperrider (1990) argue that positive images, e.g. ideals and visions have a "heliotropic effect" that is they energize and orient human behaviour toward the realization of the ideal. People seem to put more energy and action when directed towards exploring what works rather than what does not.

Yballe and O'Connor (2000) present a pedagogical adaptation of AI called appreciative pedagogy (AP) by transferring AI's basic values into the classroom. They present their experience of using AP in organizational behaviour and management classes. When faculty stay focused on inquiring into the success stories of students; highlight factors that made things work; identify the skills and know-how needed to repeat successful episodes and encourage students to focus on developing a few skills and acquiring the knowledge critical to success the "heliotropic" power of positive imagery leads to positive action. Yballe and O'Connor (2000) believe that AP has generated a number of good results regarding student learning, i.e. they have observed more energized and sustained interactions between students, students have a fuller and hopeful view of the future and images of what they (students) can be, and students gain a greater trust in self and heightened confidence in their experience.

Barrett and Peterson (2000) claim that in the post industrial era it is of extreme importance to have an organizational culture that promotes learning, renewal and innovation. Organisation must master the art of ongoing learning. The challenge is to promote the capacity to learn while doing, to jump into action without a pre-scripted plan, and to improvise new solutions to ill-formed problems. Barrett and Peterson (2000) presents generative learning as different from adaptive learning that relies on traditional skills of problem solving. Generative learning involves an appreciative approach, an ability to see radical possibilities beyond the boundaries of problems as they present themselves. High performing systems understand and value this capacity. They transcend the limitations of what looks like reasonable solutions and consider possibilities that cannot be considered when using a conventional analysis as in a problem solving approach. Barrett and Peterson (2000) state that when living in an appreciative framework, human systems develop this capacity. It is the challenge of teachers to facilitate the creation of such a culture for learning.

Thus we have the problem orientation and solutions focused philosophies and both should be used by the educators to facilitate the learning of entrepreneuring. In the following case we will describe how we as educators or rather as facilitators of learning at The Chalmers School of Entrepreneurship constantly have to balance and utilize both problem oriented as well as solutions focused perspectives.

The Chalmers School of Entrepreneurship: A case study
Chalmers School of Entrepreneurship (CSE) is used as a case study for analyzing both the dynamic between and combination of problem-oriented and solutions-focused learning

structures within entrepreneurial education. The case represents ten years of design, development and evolution of entrepreneurial education attempting to balance and integrate academic learning with entrepreneurial venture creation. In presenting CSE as a case study, it is important to note that both of the authors have an internal perspective of the educational and operative process of the School, as either faculty and/or coordinating managers of the education and structure.

Description

> *"Before 2005, Sweden had no national strategy on entrepreneurship education... Interest in stimulating entrepreneurship in Sweden started at the end of the 1990s and has primarily been an industrial and trade policy question, also concerning stimulation of entrepreneurship in school."[2]*

At Chalmers University of Technology, in the mid-1990's, the need for stimulating entrepreneurship and bridging the innovation gap was recognized, and a discussion ensued regarding methods and structure that could facilitate filling the gap. It was perceived that a large number of inventions and potential innovations were being lost within the university structure because of a lack of ambition by the majority of professors/researchers to take ideas to fruition on the academic side, and conversely, the risk aversion of small and large companies alike to invest time and money into unproven ideas. It was proposed that a sufficient number of individuals and/or groups capable of bridging this gap did not exist, either within or outside the university structure. Furthermore, there did not seem to be any environment from which to attract such individuals and/or groups. Thus, it was determined that certain individuals could be taught and shaped into entrepreneurs, through a process of educating them while teaming them together with a researcher providing a potentially innovative or technically-viable idea, and supporting them with a network of educators and business professionals.

The result, in 1997, was the creation of the Chalmers School of Entrepreneurship (CSE); a school which has evolved to delivering a 1½ year masters-level program in entrepreneurship and innovation by teaming traditional academic course learning, through delivery of papers, reports and exams, with hands-on, action-based learning, through the development and delivery of innovation projects (and thus all the non-classroom based activities that result). Over the past decade, various pedagogic methodologies have been introduced to mutually reinforce the two core objectives of establishing companies and delivering a full time academic education. Delivering this duality requires a unique and complex network of stakeholders involved in the "entrepreneuring" process championed by CSE.

Stakeholders

To start, students are, of course, key stakeholders that are guided and empowered (managed and given the responsibility) to go "entrepreneuring". Supporting this first group of key stakeholders are the educators. Educators come in two main forms: those directly linked to the school – working at the school on a day to day basis with a cognitive understanding of the complexity in which the students act – and those that are partners to the school – operating in other educational departments or in industry, capable of providing experience- or academic-based knowledge in specific areas. To fulfill the ambition of creating high-tech companies, the students are formed into teams and linked with an idea provider; the third key stakeholder in the school. Idea providers are contractually conjoined to the school on a case by case basis,

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[2] Lundström, Anders. (2005) *Creating Opportunities for Young Entrepreneurship.* FSF 2005:2. p. 21.

ensuring both their participation in the project and student development while also protecting their interests in the ideas they initiate. Supporting this structure is then the fourth stakeholder in the process; the fund and fund representatives. Fund representatives take an active position in the board management of the projects during the course of the education, with the purpose of supporting the best interests of the project and upholding the perspective of the incubator. Each project establishes a board, including the fund representative and idea provider, and selects a chairperson of the board. The chairperson is chosen based on industry expertise, as relates to the project, business development experience as well as program interest (i.e. the individual is willing to allocate time and energy to the management processes as they are associated to an educational process). Extenuating from these key stakeholders is then a network of other actors, with various degrees of connectivity to the school, e.g. business angels, international advisors, mentors, other incubation actors, etc. This group provides information and support, through which the progress of the students and the potential companies is accessed and advanced. The plethora of stakeholders comes together from different areas of study and practice, with multiple, and sometimes diverging, perspectives on entrepreneuring. These perspectives stem from their experiences, learning and operating styles, backgrounds and objectives in business, engineering, law, technology, management, social sciences, etc.

Content
An important aspect of the education is that the program is focused on "high-technology entrepreneurship". Chalmers, being a university based in the engineering and technical sciences, naturally houses professors and researchers focusing on technical innovations. In addition, the Gothenburg region, and even Sweden as a whole, is rich in technologically-anchored research. The technical focus of the education places a requirement on both the entrepreneurial opportunities provided by the educational facilitators (early-stage patented, patentable or otherwise IP claimed ideas/innovations) and, directly correlated, the entrepreneurial capacity that must then be taught to enable development of the presented opportunities. The technical focus conjoined with the venture creation ambition starts to expand the skills required beyond the technical arena. A platform approach is necessary, in order to deliver the entrepreneurial skills required, starting with an integration of management, economics, law and technology (called MELT).

Testimonials
The core design at the inception of CSE was aligning a group of students, specifically admitted to the program because of their perceived predisposition and/or interest towards entrepreneurial activity, with technology-based projects recruited to the program with the purpose of being developed. In the current format, the first ½ year is preparatory, mixing theory with simulation exercises, under the pretext that the students build a basic entrepreneuring skill set prior to the action-based learning within the innovation projects. While this mixture of theory and application mirrors more traditional and accepted methodology of teaching, the tension between academic and pragmatic learning, through both the structure and facilitation of the education already elicits reaction from the students. Paraphrasing from a midterm talk with a student (Testimonial 1):

> *'I think the education is good but some things are a bit strange – feeling sometimes like too much trial and error regarding certain assignments. I would have liked to have more information about the lecture and assignment content prior to going through the process. At the same time, I appreciate the lectures, particularly those with external individuals with industry experience. ... I am*

struggling with frustration about certain educational deliverables, particularly related to my working group. I know how to write a case, but instead of just doing it, we have to discuss everything and I have to present argumentation. I just want to work on the assignment and prioritize my time, learning about the details of writing a business plan. I would prioritize writing the plan over attending the innovation system seminars, discussing and reflecting upon the reading.'

Each student comes to CSE with a pre-disposed skill and methodology for approaching problems or assignments, based upon learning styles and structures ingrained in the mind from previous educations. There is the expectation that the education will simply build upon that, providing additional tools and methods that can be applied to different situations of entrepreneurial development (often objectified as venture creation). Instead, it is often the case that the first dynamic facilitated by the educator is a process to break down and reflect upon these patterns and behaviors. This is attempted (and often accomplished) through the creation of diverse working groups for assignments and simulations. These groups are made up of students with distinct backgrounds, built upon differentiated learning styles and structures.

Group dynamics, particularly amongst groups with diverse constructions, introduces a natural tension into the education. However, it is a tension that students at least readily adjust to, if not become comfortable with, within a short period of time, recognizing the valuable learning outcomes.   The next challenge (tension) the student experiences extends from written assignments and seminars that build from concrete theories or tools based in one subject area, then adding levels of complexity from the larger framework of subjects.

This tension often creates frustration, as seen in a question posed during a literature seminar, in which students are to discuss their answers to questions based on an academic paper discussing management theory, while also incorporating learning from other subject areas, experiences from their group, and reflections from personal background (Testimonial 2):

> *"What is the point of this lecture? The questions given do not have any answers! This assignment took much more time that I thought it would and I am not sure what I am supposed to be learning – I am really frustrated."*

After the first ½ year, the student project teams are formed, linking together students with projects they select as a class from a pre-screened group, taking into account their interest areas regarding the ideas as well as their desires regarding teammates. During the next year of the education, the student teams have a continual juxtaposition between theory, practical learning and application, synthesis and development of actual potential ventures. In the first part of the year the students spend approximately ½ of their work week time in the classroom or educational exercises (not including preparation time for assignments), and the remaining ½ of the work week on the innovation projects, onto which they often add many additional hours. In the second half of the year, the time balance shifts to $^1/_3$ classroom and $^2/_3$ project. Working on the innovation project includes many activities: preparing for and attending meetings[3], analyzing the functionality and utilization of the idea and its potential

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[3] Students and student teams attend meetings in multiple formats. There are meetings just within the project group, to organize work, discuss strategies and ideas, and make decisions, among other things. There are various meetings with educators and coaches (both on an individual and team basis) – to gain advice and guidance. Each

marketability, developing strategies and plans for the future business, engaging with stakeholders and other individuals in the business network, and seeking and obtaining financing, to name a few. This construction has always created a paradox for both the students and the educators: which activity should take precedence, the academic educational classroom lectures and assignments, or the reality sculpted issues that are associated with the development of a project into a company. A common viewpoint is reflected in the following student comment (Testimonial 3):

> *"I do think that (assignment X) would have done more good if the feedback got back before the (Business Plan) hand-in and that is something that we've experienced a lot earlier as well. For me, however, (assignment X) was a hand in that forced me to focus on important stuff that I wouldn't have prioritised since we have a lot of other things to do. When I think of it in that way the feedback is of less importance because the important part, forcing me, is already done and a lot of the thoughts ended up in the (Business Plan) anyway."*

The tension between the academic and business focus is both designed and organic. As educators, the challenge is always finding the balance between trying to integrate pragmatic activity with learning process while not sacrificing one too much to the other. Of course, this creates differences of opinions among students, when they react to different structures or processes set but by the facilitators. For example, as many of the projects are high- and/or early-stage technology, one design proposed was establishing Advisory Board stakeholders for the projects, including management and governance based lectures regarding why they are important. The proposal had various reactions (Testimonial 4):

> *"Meeting an Advisory Board sounds, spontaneously, like a good idea but perhaps one should also think that there already exists so much to do during the project year and maybe focus should be placed elsewhere." (translated from Swedish)*

> *"Maybe, though skeptical – not a large need just now. But I could consider being involved if it is something that can be related to the project." (translated from Swedish)*

> *"Great! Concrete tips are always good!" (translated from Swedish)*

Finding the balance can even enter into core activities such as project selection and development, pushing the boundaries that had previously be set or adhered to. This can create tensions, not only for the students, but for the educators as well, as they must make decisions that can be perceived as blurring pre-existing precedence (Testimonial 5).

> *"Students from Project Alpha came to me to discuss a strategic decision they wanted to make for their company. The technological functionality, upon which the innovation was based, while critical to the product outcome, was not the core customer value to be communicated. The way in which the team felt they needed to conduct their business was based upon an approach towards customers that did not necessarily care about how the product was actually created (and thus the technology behind that creation), instead of an approach that directly communicated the value of the project's IP and technology. This essentially*

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project formulates a board, which meets regularly to discuss the current and future interests of the projects. Then, of course, there are meetings with customers, potential investors, resource providers, etc.

changed the strategic direction of the business model for the company from the educational norm, which meant that many of the academic as well as real-world exercises had to take a dramatic shift. The student team communicated that they felt this was critical to the success of their project, though they wanted to find some security in going forward with a plan of action that would deviate from much of the advice they received from various stakeholders, though aligning with advice from other stakeholders. I sensed I had to, in a way, give them the push on the shoulder that they needed to proceed."

In other instances, a student takes on the entrepreneuring him/herself, reaching out to industry partners and contacts to help develop the project, an instead treats the core educators as the knowledge experts in particular arenas. In such cases, the challenge sometimes then to balance the very pragmatic activity of the student with a re-anchoring to the academic foundation, providing some time and space for analysis and reflection (Testimonial 6).

"John was the core driving force behind Project Delta – there was no question of his entrepreneurial drive and vigour for the progression of the project. He was quite talented in networking and bringing together key personnel and really understanding the needs of making the business grow. However, he was so caught up in driving the project that it was consuming him. He became increasing reliant on his team-mates, Mary and Steve, to anchor his activities, help him capture and organize in written and illustrative form the critical needs, next steps, and longer term objectives of the project. We had countless talks through the course of the education, both one-on-one and in a group about how to attempt to balance activities, allow time for reflection and summarization while at the same time increasing efficiency and effectiveness of the project and educational activities. All the educators had to find ways to help Project Delta, with John in particular, align their daily deliverables to educational assignments, sometimes in specialized formats, with the hope that this allowed for some reflection and longer-term thinking without killing the entrepreneurial drive."

Discussion

The students are to fulfil both the role of an academic student as well as take on the role of an entrepreneur, thus manoeuvring through the environment, taking advantage of opportunities when possible, while also fulfilling the requirements of an education that results in a university degree. Utilizing Glassman et al (2003) terminology, this would mean that the student is operating in both the acropolis and the agora. The educator teaching entrepreneuring provides entrances into the acropolis and the agora: the acropolis through the development of entrepreneurial capacity and the agora by providing entrepreneurial opportunities (as shown in the GEM model in Figure 1). In the model, entrepreneurial capacity includes motivation and skills, which we interpret as the learning process. In turn, entrepreneurial opportunities could be represented by the ideas on which the students build the projects. The challenge for the educator is then engaging in the balancing of the tensions within the environment, often caused by the dynamic between the capacity and the opportunity.

The case of CSE illustrates that entrepreneuring requires education anchored in both academic theory and real world experience, where teaching is actually facilitating learning processes balanced between flexibility and structure, in which students achieve independent reflection and synthesis of ideas, as supported by Redding's concept of independent learners (Redding,

1990). In both Testimonial 1 and 2, the student is struggling with the new structural paradox facilitated in the education, particularly because of the fundamental differences that exist between different academic disciplines (Ghoshal, 2005). This paradox is created by design, the result of a conscious intent to create tensions within the student, in order to provoke reflection, risk taking and decision making.

The provocation of risk taking is of particular interest because of the difficult challenge in teaching how to take risks. Recognizing and appreciating what is required in order to take risks strongly suggests the need to integrate the acropolis and the agora (Glassman et al, 2003) – the theories around business and the real world application (Gibb in Collin et al, 2006). The purpose in an entrepreneuring education is not to learn how to minimalize potential risks, but instead use risk taking as a possibility to create opportunities, as discussed in regards to an appreciative culture for learning by Barrett and Peterson (2000). The dynamic between the two learning philosophies is illustrated in Testimonial 5. The student team has already recognized the need to change the business strategy, and thus made the decision that it is important step to take, thus recognizing the solution of changing the business strategy for the benefit of the project, instead of abandoning the project, because it does not adhere to the typical structure of projects in the education, which would be the probably result of a problem oriented conventional analysis (Barrett and Peterson, 2000). However, the students are not comfortable taking the risk to enact the change independently, but feel the need to anchor their decision with the educator, who must give the blessing to go forward.

Testimonial 3 represents how the educator utilizes the academic structure to facilitate a learning outcome from a perceived academic assignment towards a more opportunity focused deliverable, trying to build upon the "heliotropic effect" that Cooperrider (1990) describes. The student communicates the assignment as being something that he/she was forced to do, and implies that if not forced, the business plan would have been prioritized. However because the student is required to complete the academic assignment, the objective by the educator of facilitating a process where academic assignment aligns with the business plan is achieved, and in turn, the student comes to appreciate the value of the assignment as contributing towards the business plan. The educator has to be solutions oriented when describing how the assignment actually supports the development of the business plan and in doing so is acting entrepreneurially. The risk taken by the educator is that the assignment will indeed contribute to the business plan, which means that the project has learning aspects which can be addressed by the assignment.

Testimonial 3 represents how at the same time the educators are facilitating the learning process for the students, helping them to balance the tensions of the academic and business structures, so must they balance these tensions themselves. When discussing Testimonial 5, the students took the risk, supported by the educator, to change the business model away from the norm defined by the acropolis, to a structure "demanded" by the agora. In allowing the shift, the educator must have enough knowledge of the environment outside the academic platform to feel secure that the project may then cycle back to some of the core competencies required by the education – high technology and intellectual property valuation – but from a different perspective, such as branding, as opposed to the more common patent structure.

Contra to Testimonial 5, Project Delta, and especially John, in Testimonial 6 illustrates the need for the educator to increase the tension, restraining the student from focusing too much on the entrepreneurial opportunity, to the detriment of developing the entrepreneurial capacity through reflection and adaptation. At the same time, the educator has to almost take a SFBT

approach, focusing on the strength of John and determining how to align the education deliverables to his strengths to ensure that he completes the education (Tepper et al, 2006). The risk the educator takes is that the student does not in fact gain enough academic-based learning, such as the ability to communicate through reports, as is required in order to receive a degree. This poses a dilemma for the educator: should the student "fail" even if he/she is capable, together with other students, creating a company? Would these kinds of students be better off not taking a higher education program such as CSE?

The case study gives us a window into the many tensions and paradoxes in an entrepreneuring education e.g. academy-industry, education-research, interaction with students-interaction with market (idea providers, capital, etc.), theoretical learning-action learning, memorizing key concepts-creating own understanding, time spent on individual deliverables-time spent on project team deliverables. These tensions and paradoxes create many challenges when teaching entrepreneuring. One is how to interact and adapt the educational framework to the specific needs and situations unique to each student and team, while still maintaining enough structure to ensure credibility within the academic forum. As teachers, we need to facilitate the students in balancing both the classes and the projects, sometimes supporting them in their interaction with the idea providers.

Conclusion
Proposing a concept of Shadow Dancing
Zemsky (1994) states that universities have to *dance with the change* in order to survive; we argue that entrepreneuring requires one to *dance in the shadow* in order to be able to not only cope with change, but sometimes also lead it. Balancing of the tensions is a key component in the entrepreneuring process, and can be conceptualized through the metaphor of shadow dancing. In each case, the student is building upon fundaments of business development, just as dancers build upon basic steps and movements. The verb to dance is defined by online Encyclopaedia Britannica as the movement of the body in a rhythmic way, usually to music and within a given space, for the purpose of expressing an idea or emotion, releasing energy, or simply taking delight in the movement.[4] Dancing requires need of agility to move and be flexible; the ability to both analyze the situation and then take the risk to act. In dance, one can be creative, improvising new movements, but usually building from a strong foundation of skills: a core set of positions and movements which can be combined and conjoined, building layer upon layer of complexity sometimes evolving into a new style or form. One example is the development of Krumping.[5] The creativity can then come from the synthesis of different moves or styles of movement. The synthesis requires testing combinations and taking risks; looking for something new (opportunity or solution) instead of figuring out how to fix something (problem).

Oxford dictionary defines shadow as: "a dark area or shape produced by an object coming between light rays and a surface…a position of relative inferiority or obscurity…".[6] The first part of the definition points to the need of light in order to have shadow. In the metaphor, the light could be the marketplace with the solutions oriented philosophy. Shadow then represents an area where light is obscured, thus if the light is the marketplace, then shadow is a place not completely in the marketplace. In the case of the entrepreneuring student, interested in reaching the marketplace, the shadow could represent the academic environment,

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[4] http://www.britannica.com/search?query=dance&ct=
[5] http://en.wikipedia.org/wiki/Krumping. Krumping is a form of street dance that has evolved from "clowning" also incorporating other components of street dance, such as popping.
[6] http://www.askoxford.com/concise_oed/shadow?view=uk

with problem oriented philosophy regarding learning (Collins et al, 2006). In terms of Glassman et al (2003), the light is represented by the agora, and the shadow by the acropolis.

In the metaphor, the dancers recognize the need for space outside of the spotlight in which to practice, but are also aware of the spotlight's current and future location in order to prepare for and then deliver the best performance possible, when in the spotlight. The same holds true for the students – they must have time to practice and hone their skills in the shadows, out of the direct light of the real marketplace, but at the same time, they must always be aware of where the shadows are and how they are shifting, relative to the light, so that when they are suddenly, or by design, in the light (i.e. in the marketplace), they can perform to the level necessary. Being caught, unprepared, in the light can lead to excessive energy loss or failure because certain skills were not completely developed. Too much time in the light, or being in the light without the proper tools or partners, can lead to burn-out, damage or exhaustion. Thus, teaching students elements of shadow dancing and facilitating an environment in which shadow dancing can occur becomes valuable for entrepreneurial development.

The process of entrepreneuring, as conceptualized in the shadow dancing metaphor, has the following elements: to recognize, to accept, to adjust, to utilize and to regulate tensions depending upon which generates the most value. Facilitating the structure in which this tension can exist and facilitating an environment in which the tension is openly communicated, suggests that teachers have to regulate the tension for the students as well as recognize when they need to adjust to this tension. One paradox resulting from this tension is finding the balance between the conceptual and the practical consequences. Allowing too much flexibility in the education, i.e. letting the student out of the shadows, loose in the agora, takes away from the credibility of the education system which allows for the creation of an educational degree. Too much flexibility could also, in fact, limit the availability of future entrepreneurial opportunity, because of the need of the educator to be a member in entrepreneurial community (the innovation system) and for the education to hold credibility among the stakeholders supplying the ideas. If the educator's time and attention is only focused on the student and teams, then the connection to the market network could be lost.

In revisiting the GEM Conceptual Model (see Figure 2), we recognize that entrepreneuring goes beyond the education and training condition of the entrepreneurial framework.
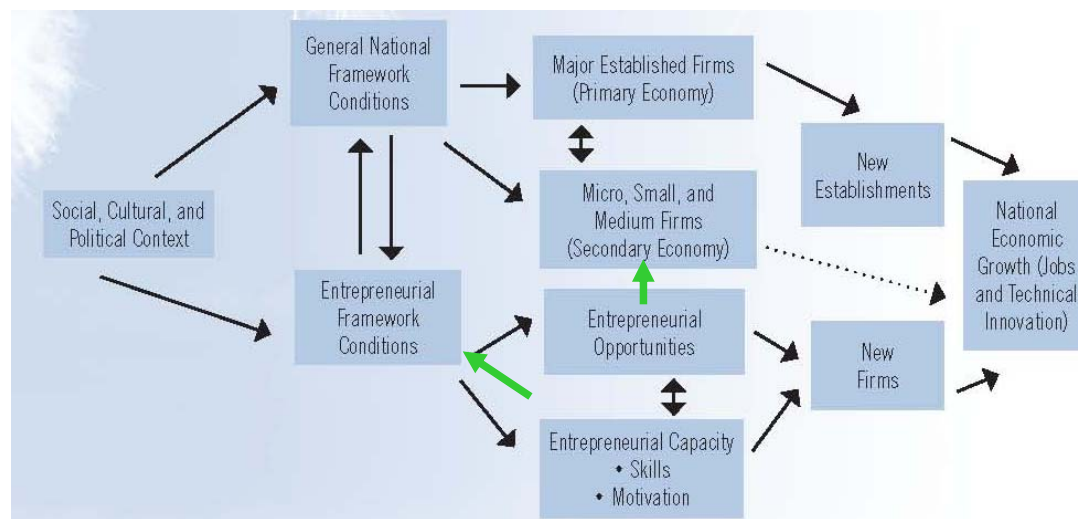

Figure 2: GEM Conceptual Model, augmented (*source GEM Executive Report 2005*).

To utilize the paradox, educators must understand how that tension exists in reality, meaning that we, as educators, must both partake in reality ourselves and also bring in different actors, such as different academics, investors, idea providers, practioners, etc. from other arenas than merely differentiated educational disciplines. This means that the educators are not merely engaged in the education and training condition of the entrepreneurial framework, but in fact in many of the other conditions as well, such as government policies, government programs, commercial/legal infrastructure, R&D transfer, access to physical and financial infrastructure, and cultural/social norms. This is represented by the green arrows in Figure 2, not only pointing back at the entrepreneurial framework conditions, but also linking the entrepreneurial activities to the secondary economy firms, which in turn would allow for a path progression to the primary economy firms.

Educators must then be able to operate not only in the academic arena, but also in the business, political and social arenas, connecting to professionals and practitioners with deeper knowledge and expertise in activities that are positioned more on the border of the educational framework. Then, through these connections, educators can facilitate another process of learning by linking students to these resources while at the same time, engaging these resources help to reinforce strategic focal points back to the core of the academic basis of the education. In addition to increasing the tension of the education through integration of so many actors, entrepreneuring educators also need to engage in communicating reflections and learning to actors outside the academic arena in order to facilitate political and social change.

References

Barett, F.J & Peterson, R., (2000), Appreciative learning cultures: developing competencies for global organizing, *Organization Development Journal,* Vol. 18(2), 10-20.

Coopperrider, D. (1990), Positive image, positive action: The affirmative basis of organizing. In S. Srivastva & D. L. Cooperrider (Eds.)., *Appreciate management and leadership: The power of positive thought and action in organizations* (91-125). San Francison: Jossey-Bass.

Collins, L.A., Smith, A.J. & Hannon, P.D., (2006), Applying a synergistic learning approach in Entrepreneurship education, *Management Learning,* Vol. 37(3), 335-354.

Ghoshal, S., (2005), Bad Management Theories are Destroying Good Management Practices, *Academy of Management Learning & Education,* Vol. 4(1), 75-91.

Glassman, A. M., Moore, R. W., Rossy G., L., Neupert, K., Napier, N., Jones, D. E., & Harvey, M. (2003), Academic Entrepreneurship: Views on Balancing the Acropolis and the Agora. *Journal of Management Inquiry.* Vol. 12(4), 353-374.

Lundström, A., (2005), Creating Opportunities for Young Entrepreneurship. *Forum för Småföretagsforskning* FSF 2005:2.

Lundström, A. & Stevenson, L., (2002), One the Road to Entrepreneurship – Volume 1 of the Entrepreneurship for the Future Series, *Forum för Småföretagsforskning.* FSF 2002:2.

Minniti, M., Bygrave, W. & Autio, E. (2005), GEM – Global Entrepreneurial Monitor. 2005 Executive Report., Babson College and London Business School.

Minniti, M., Bygrave, W., Zacharakis, A. & Cole, M., (2003), GEM – Global Entrepreneurial Monitor. National Entrepreneurship Assessment United States of America. 2003 Executive Report., Babson College and Kauffman Foundation.

Redding, R. E. (1990). Metacognitive Instruction: Trainers teaching thinking skills. *Performance Improvement Quarterly*, 3(1), 2741.

Vinten, G. & Alcock, S., (2004), Entrepreneuring in education, *The International Journal of Education,* Vol. 18(2/3),

Yballe, L. & O'Connor, D., (2000), Appreciative pedagogy: constructing positive models for learning, *Journal of Management Education,* Vol. 24(4), 474-483.

Zemsky, R., (1994), To dance with change. *Pew Policy Perspective*, 1A-12A.