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Burst bubbles or build steam? Entrepreneurship education,  
entrepreneurial self-efficacy, and entrepreneurial intentions.

Panagiotis Piperopoulos

Dimo Dimov

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**Abstract**

This paper contextualizes the relationship between student's self-efficacy beliefs and entrepreneurial intentions in the content and pedagogy of the entrepreneurship course. Using the logic of regulatory focus theory, we argue that the nature of the entrepreneurship course – whether theoretically - or practically-oriented – creates a distinct motivational frame for entrepreneurship in promotion or prevention terms. When coupled with students' self-efficacy beliefs, this frame can strengthen or weaken their intentions for future entrepreneurial efforts. We test this hypothesis through a survey of 114 students enrolled in different entrepreneurship courses at a major British university. Our results show that higher self-efficacy is associated with lower entrepreneurial intentions in the theoretically oriented courses, and higher entrepreneurial intentions in the practically oriented courses. We draw a number of implications for the theory and practice of entrepreneurship education.

**Keywords:** entrepreneurship education; entrepreneurial intentions; entrepreneurial pedagogy; entrepreneurial self-efficacy; regulatory focus theory.

## 1. Introduction

Over the past three decades, the rise of entrepreneurship as an academic discipline has followed a proliferation of entrepreneurship courses and programs in institutions of higher education (Peterman and Kennedy, 2003; Dickson and Solomon, 2008; Katz, 2008; Piperopoulos, 2012). This growth has been based on the implicit premise that entrepreneurship education can contribute to the development of students' entrepreneurial attitudes, abilities, and skills, and hence enhance their intentions to launch new ventures. Indeed, scholars have offered valuable insights into how entrepreneurship education can make a difference (Gorman, Hanlon and King, 1997; Gibb, 2002; Mitra and Matlay, 2004; Kuratko, 2005; Neck and Greene, 2011).

Amidst such positive perceptions of entrepreneurship education and some positive overall assessment (Pittaway and Cope, 2007), in many cases its actual impact on students' entrepreneurial intentions remains unclear (Krueger and Brazeal, 1994; Souitaris, Zerbati and Al-Laham, 2007; Walter, Parboteeah, and Walter, 2011); in some cases it appears to be negative (Oosterbeek, van Praag and Ijsselstein, 2010). This warrants a closer look at the mechanism through which entrepreneurial education may affect entrepreneurial intentions, and particularly the way it interplays with individual's self-efficacy beliefs (Wilson, Kickul and Marlino, 2007). Recent evidence suggests that the nature of the signals received by students in an entrepreneurship course matters for their self-efficacy beliefs (Graevenitz, Harhoff, Weber, 2010). Yet, the lack of consensus on what entrepreneurship education actually involves in practice (Pittaway and Cope, 2007), suggests that prior empirical studies have largely treated entrepreneurial education as an undifferentiated whole.

In this study, we address this gap by examining how different approaches to teaching entrepreneurship engage with and channel self-efficacy into entrepreneurial intentions. From a pedagogical perspective, the methods of teaching entrepreneurship vary extensively, as do the content and context of entrepreneurship courses (Fiet, 2001; Neck and Greene, 2011; Solomon, 2007). We draw a basic distinction between theoretically - and practically-oriented courses and use regulatory focus theory (Higgins, 1989, 1997) to shed light on how such courses dispose students towards entrepreneurial endeavors. Readily applicable to the entrepreneurial process, regulatory focus theory proposes two distinct motivational dispositions towards tasks or objectives: promotion and prevention (Brockner, Higgins, and Low, 2004). We argue that, in an educational setting, the nature of the entrepreneurship course creates a contextual frame for entrepreneurship in promotion or prevention terms. When coupled with students' self-efficacy beliefs, this frame can strengthen or weaken their intentions for future entrepreneurial efforts.

We test our prediction in a survey of 114 students enrolled in different entrepreneurship courses at a major British university, some theoretically - and others practically-oriented. Our results show that the relationship between self-efficacy and entrepreneurial intentions is moderated by the nature of the course. In the theoretically oriented courses, which we see as instilling a prevention disposition, higher self-efficacy is associated with lower entrepreneurial intentions. In contrast, in the practically oriented courses, which we see as instilling a promotion disposition, higher self-efficacy is associated with higher entrepreneurial intentions.

In view of these findings, the paper makes three important contributions to the existing entrepreneurship education literature. First, we highlight a mechanism through which the basic distinction between theoretically - and practically-oriented courses becomes both theoretically and practically meaningful. Viewed through the lenses of regulatory focus theory, an entrepreneurship course represents a context in

which different motivational dispositions for entrepreneurship may arise. Second, we show that the relationship between self-efficacy and entrepreneurial orientation is contextually sensitive, reflecting the motivational disposition instilled by the entrepreneurship course. The relationship can be positive or negative depending on whether self-efficacy is channeled towards the promotion or prevention aspects of entrepreneurial endeavors. Finally, our works holds important implications for the design and outreach of entrepreneurship courses. In terms of their ultimate impact on entrepreneurial behavior, they can ‘build steam’ or ‘burst bubbles’ depending on whether they steer students towards attaining the possible versus containing the probable.

## **2. Conceptual Framework**

### **2.1 Entrepreneurial Intention**

Based on the premise of intention as the single best predictor of ultimate behavior (Ajzen, 1991), there has been considerable interest in entrepreneurial intention, i.e. the intention to start a business at some point in the future, and its determinants (Boyd and Vozikis, 1994; Krueger, 2000). Two dominant models of entrepreneurial intention include Shapero’s Entrepreneurial Event Model (1975) and Ajzen’s Theory of Planned Behaviour (1991). In the first, entrepreneurial intention reflects the perceived desirability and feasibility of becoming an entrepreneur. In the second, entrepreneurial intention is determined by one’s personal attitude towards the behavior, perceived social norms and perceived behavioral control. The two models are quite compatible and overlapping, with direct correspondence between perceived feasibility and perceived behavioral control and with personal attitude and perceived social norms as social and cultural influences of perceived desirability (Krueger et al., 2000; Liñán et al., 2011).

Despite the fact that entrepreneurship education has been seen as a factor that can influence the entrepreneurial attitudes and intentions of students simple empirical comparisons are not particularly revealing (Peterman and Kennedy, 2003). For example, Kolvereid and Moen (1997) study of Norwegian business schools show that graduates with an entrepreneurship major are more likely to start a new venture and have significantly stronger entrepreneurial intentions and aspirations than other graduates. At the same time, Oosterbeek, van Praag and Ijsselstein’s (2010) study of an entrepreneurship course in Netherlands suggests an insignificant effect on students’ entrepreneurial skills and even a negative effect on their entrepreneurial intentions to launch a new venture. Furthermore, Souitaris, Zerbinati and Al-Laham (2007), examining the entrepreneurial intentions of students at two universities (London and Grenoble) after taking an entrepreneurship course, show that although the course increased the students’ subjective norms and intentions, this was attributed to the ‘inspirational’ part of the course rather than the knowledge and the resources it provided.

Reflecting on the above examples suggests that the term ‘entrepreneurship course’ cannot be treated as monolithic, inviting deeper examination of its nature and purpose. Indeed, a recent review of the impact of entrepreneurship education reveals that while there are grounds to conclude that it has an impact on entrepreneurial intentions, such conclusion is overshadowed by the apparent lack of consensus on what entrepreneurship education is in practice (Pittaway and Cope, 2007). In addition, viewed through the lenses of intention models, these results suggest that closer attention should be paid to how the elements of the model may play out in classroom settings. Below we review the construct of self-efficacy as major manifestation of

perceived feasibility and as central to entrepreneurial intentions (Shapero and Sokol, 1982), before turning to a discussion of the nature and implications of different pedagogical approaches to entrepreneurship.

## 2.2 Self-Efficacy

Self-efficacy pertains to individuals' conscious beliefs in their own abilities and skills to perform a particular task (Bandura, 1986). Individuals tend to avoid tasks about which they have low self-efficacy, while on the contrary they are drawn and perform better on tasks where they believe they have higher self-efficacy (Forbes, 2005). Prior research on self-efficacy in entrepreneurial contexts suggests that it can predict individuals' intentions to start new ventures as it reflects their beliefs that it is possible to do so (Krueger and Brazeal, 1994; Koh, 1996; Luthje and Franke, 2003; Pittaway et al., 2010). Many studies have shown it to be a similarly reliable predictor in educational settings, intertwined with the delivery of entrepreneurship courses to increase entrepreneurial intentions (Robinson and Sexton, 1994; Chen, Greene and Crick, 1998; Pittaway, et al., 2010; Zellweger, Sieger and Halter, 2011).

What remains to be seen, however, is whether this relationship is robust across different types of entrepreneurship course. Recent work suggests that in educational settings, students' self-efficacy beliefs are sensitive to the signals they receive from the entrepreneurship course (Graevenitz, Harhoff, and Weber, 2010). In some cases, they may decrease, possibly due to a revelation in the course that there is more to entrepreneurship than meets the eye (Oosterbeek, van Praag, and Ijsselstein, 2010). Other recent work suggests that self-efficacy is not always positively associated with performance when, for instance, environmental dynamism and the entrepreneur's dispositional optimism are taken into consideration (Hmieleski and Baron, 2008). In particular, in dynamic environments, self-efficacy contributes to performance when coupled with moderate optimism, but undermines it when coupled with high optimism. In addition, in stable environments the effect of self-efficacy on performance is weaker. These findings open up the possibility of a similarly nuanced relationship once educational environments become differentiated.

## 2.3 Entrepreneurial Pedagogy

Despite the spread and maturity of entrepreneurship education (Katz, 2008), the context and content of courses designed and delivered under its umbrella differ to such an extent that it becomes difficult to determine not only the effects of these programs on students' but more importantly if they even have the same purpose and goals (Gorman, Hanlon, and King, 1997; Fiet, 2001; Matlay, 2005; Solomon, 2007). Furthermore, from a pedagogical perspective, the methods of teaching entrepreneurship vary extensively, and often find entrepreneurship educators and practitioners at odds with each other (Neck and Greene, 2011) or even among themselves (Pittaway and Cope, 2007). As a result, the term entrepreneurship education becomes ambiguous and imprecise, thereby making it a weak link in empirical studies and inviting more substantive categorization.

Jamieson (1984) proposed a three-category framework for entrepreneurship education: (a) education about enterprise; (b) education for enterprise; and (c) education in enterprise. The first category of education deals mostly with educating the students with the theoretical aspects of setting-up and running a business. Education for enterprise deals with providing to aspiring entrepreneurs the practical skills and knowledge required to set-up and run a small business. The final category, education in enterprise, refers to training for established entrepreneurs in areas such as

for example management development, product development and marketing courses which aim on ensuring the survival and growth of their businesses. This definition is not restricted to the world of business alone. Education in enterprise can refer to courses aimed at helping individuals or groups to adopt an enterprising approach, irrespective of the type of organisation for which they work (Henry, Hill and Leitch, 2005, p.102).

The context and content of entrepreneurship courses can be encapsulated in terms of whether they are ‘for’ entrepreneurship as opposed to ‘about’ entrepreneurship (Levie, 1999). Traditional teaching methodology has its focus on the ‘about’, using the theory as a means of educating potential entrepreneurs in understanding the future and the consequences of their actions; providing the ‘ought’ in entrepreneurial action (Levie, 1999; Fiet, 2001; Gibb, 2002). Activity-based learning has its focus on the ‘for’, using practice and action as a means of developing the enterprise student and its behavior; providing inspiration and creativity in recognizing opportunities and coping with uncertainty and risk in entrepreneurial environments (Gibb, 2002; Harmeling and Sarasvathy, 2011; Heidi and Greene, 2011).

In Table 1, we present a dichotomy of theoretically vs. practically oriented entrepreneurship courses that summarizes what we teach and how we teach it. Despite the significant differences between the two types of course, prior empirical research has not incorporated these differences in its operationalizations of entrepreneurship course. We argue that treating entrepreneurship courses as an ‘undifferentiated whole’ provides (a) a limited and distorted view of the determinants of students’ entrepreneurial intentions, and (b) insufficient understanding of the process through which such intentions may arise in educational settings. In the next section, we discuss regulatory focus theory as a lens for understanding the implications of these different approaches to teaching entrepreneurship.

{Insert Table 1 here}

#### 2.4 Regulatory Focus Theory

Regulatory focus theory posits two distinct motivational dispositions through which people go about accomplishing their tasks or objectives: promotion and prevention (Higgins, 1997). The former emphasizes hopes and accomplishments and, more broadly, the seeking of gains, while the latter emphasizes safety and responsibility and, more broadly, the avoidance of losses. A fundamental tenet of regulatory focus theory is that people seek to approach pleasure and avoid pain in ways that are consistent with their motivational dispositions. While people can have chronic predispositions towards promotion or prevention focus, such orientations can also be situationally induced and thus affect an individual’s motivation and performance on particular tasks (Higgins, 1989; Roney, Higgins and Shah, 1995).

In decision or action situations, these two orientations are associated with specific strategic inclinations in making decisions: promotion focuses on achieving hits (presence of positive outcomes) and thus minimizing the error of omission, while prevention focuses on avoiding errors (felt absence of negative outcomes) and thus minimizing the error of commission (Crowe and Higgins, 1997). In other words, promotion-focused people are primarily concerned with advancement, growth, and accomplishment (hence are motivated by their ‘ideal’ selves to seek gains, opportunities and new achievements), while prevention-focused people are primarily concerned with protection, safety, and responsibility (hence are motivated by their

'ought' selves and tend to avoid losses or setbacks) (Brockner, Higgins and Low, 2004).

Recent research shows that promotion and prevention focus matter differently for entrepreneurial performance, based on the dynamism of the environment in which an entrepreneur operates: in dynamic environments, promotion focus enhances performance, while in stable environments it is prevention focus that does so (Hmieleski and Baron, 2009). Similarly, promotion and prevention focus matter differently in the different stages of the entrepreneurial process: promotion focus is more instrumental for the identification of opportunities to pursue, while prevention focus is instrumental in the evaluation of these opportunities (Brockner, Higgins, and Low, 2004). Under promotion focus individuals are more likely to pursue particularly opportunity signals, driven by their potential, while under prevention focus they are more likely to discount such signals, deterred by their potential risks (McMullen and Shepherd, 2004).

We argue that in the context of entrepreneurship education, theoretically- and practically-oriented courses induce distinct situational dispositions among students in regard to their motivation for entrepreneurship. Theoretically-oriented courses provide the 'ought' of entrepreneurial actions (Levie, 1999) and thus convey a sense of deterministic understanding of entrepreneurship, based on a set of "ideal" inputs. A student coming out of this setting is likely to perceive any deviation from the 'ideal' as detrimental for entrepreneurship. This represents a prevention focus. In contrast, practically-oriented courses provide the 'can' of entrepreneurial actions and thus convey a sense of the possibilities that emanate from a given set of entrepreneurial inputs. Students coming out of such a setting are likely to see their own entrepreneurial behavior as a starting point, to be developed further. This represents a promotion focus. The so induced promotion or prevention focus in turn create an immediate context in which the students' self-efficacy beliefs can operate.

### 3. Hypothesis

As theoretically- and practically-oriented entrepreneurship courses induce situational dispositions towards, respectively, the prevention and promotion aspects of entrepreneurial action, how do students' self-efficacy beliefs play out in such settings in driving the students' entrepreneurial intentions? While self-efficacy beliefs suggest that a student is well equipped to achieve a particular goal, the nature of the goal – to minimize risk or maximize success – can affect the degree to which self-efficacy beliefs can result in entrepreneurial intention. Put differently, a prevention or promotion orientation towards entrepreneurial behavior determines whether the students' perceived skills and abilities are juxtaposed against an ideal or appreciated on their own.

Theoretically-oriented courses, emphasize the 'ought' of entrepreneurial action in terms of a set of factors that have been shown to contribute to entrepreneurial success. Such a rigid ideal induces prevention orientation towards entrepreneurial action, in the sense that any deviation from the ideal can be detrimental, especially when seen in the context of the risks associated with entrepreneurship and the high rates of failure that characterize entrepreneurial ventures. Let's consider how a student with high self-efficacy beliefs might act in such a context. The looming possibility that he or she might fall short of the ideal profile can sow doubt in regard to his or her eventual success as entrepreneur. This doubt represents a hurdle for the translation of the self-efficacy beliefs in entrepreneurial intentions. In other words, under a prevention orientation, self-

efficacy beliefs can propel a student to reflect upon and identify as many risks as possible associated with starting a new venture. As a result, the more risks are identified that in turn have to be avoided, the more likely it is that the individual's entrepreneurial intention will become subdued.

Practically-oriented courses emphasize the 'can' of entrepreneurial actions in terms of how existing ideas can be developed and the approaches and strategies that can be taken to achieve gains and growth. This induces a promotion orientation, with the student's own position as a starting point. Such an orientation can reinforce the student's own self-efficacy beliefs as it essentially bestows the student with a *carte blanche* to act. Therefore, under a promotion orientation, self-efficacy beliefs can propel a student to identify different possible courses of action to pursue a particular opportunity. This increases the likelihood that at least some of these actions would be perceived as feasible, thereby strengthening the student's entrepreneurial intention.

Put together, the above arguments suggest the following hypothesis:

**Hypothesis:** The nature of the course moderates the relationship between *students'* self-efficacy beliefs and entrepreneurial intentions, such that the relationship is weaker in 'theory' courses and stronger in 'practice' courses.

#### 4. Method

In order to test our hypothesis, we conducted a survey of 114 undergraduate and postgraduate business students at a major British university during the 2010-2011 academic year. Participation in the survey was voluntary and anonymous. The students were fully informed by the authors at the beginning of the survey about its nature. To conduct the survey, we chose four elective courses in entrepreneurship – two undergraduate and two graduate – in which a total of 243 students were enrolled. The survey was conducted at the last session of each course without prior notification, which meant that 141 students were present in class at the time of the survey was conducted. Of these, 132 students completed and returned the questionnaires, and 114 of these responses were usable. As shown in table 2, undergraduate students comprised 81.6 per cent of the sample population and postgraduates accounted for the remaining 18.4 percent. There is an equal distribution of male and female students. Participants ranged in age from 19 to 40 years old, with an average age of 21.1 years.

{ Insert table 2 here }

A major consideration in this research design concerns the nature and possible confounding influence of the students' self-selection into the courses in question. In the particular academic year (2010-11), there were no compulsory entrepreneurship courses in any of the Business School's degree programs and the four courses chosen for the study were the only available entrepreneurship courses at both the undergraduate and graduate levels. At the undergraduate level the courses were offered in the second year of a typical three or four year business degree, along with a broad range of other electives which cover business related subjects, such as marketing, management, human resources, statistics, etc. At the postgraduate level the courses were also offered as electives for students to choose from a broad range of other courses which cover topics in technology innovation, finance, marketing, human resources, media and communications, etc.

Given that the courses were chosen among a wide range of business electives, it is possible that the students in our sample were generally more interested or disposed towards entrepreneurship. This is consistent with prior studies of entrepreneurship education that also involve elective courses (e.g. Chen et al., 1998;

Walter et al., 2011). This type of self-selection bias has implications for the generalizability of our findings but not necessarily for their internal validity. Another relevant factor is the possible selection of the theory course as a forum for learning about entrepreneurship as an academic discipline, as is sometimes done in research training programs in preparation for doctoral study. This was not the case in our setting, as none of the programs in question were research oriented and as they were all marketed in terms of their ability to enhance the students' professional careers. Finally, important considerations for the validity of the study are the possible differences in the students' choices of theory vs. practice courses due to the students' entrepreneurial motivation and skills profile. We take explicit steps to check and correct for such differences in our analysis.

#### 4.1. Measures

Among the four courses in the study, we distinguished two theoretically- and two practically-oriented courses, with one of each offered at the undergraduate and graduate levels. The two theoretically-oriented courses were equivalent in focus and content and different only in the program level (undergraduate or graduate) at which they were available. The same applied for the two practically-oriented courses. The distinction between the theoretically- and practically-oriented courses follows the dichotomy we presented in section 2.3 and Table 1. We used an indicator variable with a value of zero for the theory-oriented courses and one for the practice-oriented courses.

According to the outline for the 'practically oriented' course: "this module provides the student with an opportunity to work in a team and run their own real-life business... The module is structured to provide effective support, but the student needs to take responsibility for their group's enterprise... Emphasis is placed upon the development of business skills, occupational awareness of new venture start-up, self employment and the small business sector. In teams, students will endeavor to originate, plan and manage an enterprise effectively within relevant legislation and regulations... The module is supported by the national Young Enterprise Program." This course is taught by a team of academics and practitioners, in a self-directed, learning-by-doing environment. In support of the teaching team, mentors and consultants assist student teams from the idea generation phase to the actual launch of their real-life businesses and throughout their learning and trading. The course content covers everything from idea generation, creativity, innovation, team-building, business-planning, pitching to real-life investors, selling, networking, as well as adapting to change and the unpredictability of the real world and creating 'plan-b and exit scenarios'.

The outline for the 'theoretically oriented' course states that: "this module provides an integrated approach to the study of enterprise, entrepreneurship and small business. The module adopts a critical and broad-ranging social science approach to the subject and aims to provide students with the ability to analyze enterprise from an international perspective within the context of a wide range of management, organization studies and social science debates. The module focuses on the conceptual aspects of enterprise and entrepreneurship." The course is taught by a single lecturer (who has a rich background in entrepreneurship research and has taught the subject for nearly a decade) in a stand-and-deliver approach. The teacher is the initiator of knowledge (the expert) and hence the student becomes a passive learner. Case studies are used to enrich the normal lecture delivery. The course content covers topics such as entrepreneurial traits, personality characteristics,

opportunity recognition, implementing ideas, the risks associated with entrepreneurship and exit.

We measured the entrepreneurial self-efficacy of the participating students using the scale developed and validated by Lucas and Cooper (2004) for use in educational settings. The measurement scale consists of seven items on a six-point scale that capture an individual's self-rated ability to perform various venture-related tasks such as persuading others in the merits of an idea, recognizing opportunities, and starting a business. The scale exhibited good reliability ( $\alpha = .83$ ).

Finally, we measured entrepreneurial intention as a response on a five-point scale, ranging from very unlikely to very likely, to the question of how likely the respondents were to set up their own company in the future. This question was presented as a part of a series of questions about various career options that the respondents might pursue and captures well the respondent's perception of entrepreneurship as a career choice. This approach is consistent with other studies that have measured entrepreneurial intentions with single items such as the perceived likelihood of becoming an entrepreneur within the next 15 years (Oosterbeek et al., 2010), interest in starting/ owning a business (Wilson et al., 2007), and indication of whether one has seriously considered to become an entrepreneur (Krueger et al., 2000).

#### 4.2. Control variables

We controlled for a variety of individual characteristics in order to rule them out as alternative explanations of the variation in entrepreneurial intentions. These included age, gender, average grade, race, entrepreneurial background (measured by whether the respondent's parents were business owners), and work experience. We also included other attitudinal measures such as enthusiasm for entrepreneurship (six items,  $\alpha = .78$ ), and self-assessment of business skills (10 items,  $\alpha = .91$ ), as introduced by Lucas and Cooper (2004).

#### 4.3. Self-selection differences

In approaching our formal analysis, we checked whether there were any systematic differences among the students choosing the theoretically- vs. practically-oriented courses. Such differences may be a source self-selection bias in the results. There were no differences between the two types of course in terms of the basic demographics of the participating students, namely age, gender, race, entrepreneurial background, and work experience. However, as might be expected in this type of setting, there were differences in self-efficacy, entrepreneurial enthusiasm, business skills, and average grade. In particular, students in the practically-oriented courses had higher self-efficacy (4.13 vs. 3.66,  $p < .01$ ), higher enthusiasm for entrepreneurship (5.08 vs. 4.46,  $p < .01$ ), and higher perceived business skills (6.20 vs. 5.58,  $p < .05$ ), while students in the theoretically-oriented courses had higher average grades (4.19 vs. 3.64,  $p < .001$ ).

These differences suggest that students who are more disposed and confident about entrepreneurship are more likely to enroll in the practically-oriented course and thus have higher entrepreneurial intentions at the start. This is evident in the differences in entrepreneurial intentions between the two types of course (3.65 vs. 3.12,  $p < .05$ ). As our focus is not on the direct effect of the type of course on entrepreneurial intentions, but on its moderation of the effect of self-efficacy, it is important to consider that the same factors that drive the choice of course may also shape the relationship between self-efficacy and entrepreneurial intentions. To

account for this possibility, we ran a two-stage selection model (Heckman, 1979). In the first stage we estimated a probit model of choice of theoretically- vs. practically-oriented course as a function of our independent variables. We also included one additional variable, level of student (undergraduate vs. graduate), that was not to be present in our second-stage model. Using the predicted probabilities from the probit model, we calculated the inverse Mills ratios for each observation to include as control variable in our main model (Hamilton and Nickerson, 2003).

## 5. Results

The descriptive statistics and correlations are shown in Table 3. We used OLS regression to test our hypothesis. The results of the regression estimation of entrepreneurial intention are shown in Table 4. In Model 1 we enter all control variables; in Model 2 we enter the main effects for self-efficacy and type of course; in Model 3 we enter their interaction effect. All models are significant. We note that in all models, the effect of the course selection correction is not significant. This suggests that there is no self-selection bias related to the choice of course in the estimation of entrepreneurial intentions.

In Model 2, the introduction of the effects of self-efficacy and type of course does not improve the fit of the model as neither of the two coefficients is significant. In Model 3, the addition of the interaction term of self-efficacy and type of course significantly improves the fit of the model ( $\Delta R$ -square = 4.7%,  $p < .01$ ). The coefficient of the interaction term is positive and significant ( $\beta = 1.06$ ,  $p < .01$ ). In order to understand the nature of the interaction, we plot the interaction effect as illustrated in Figure 1. As the figure shows, the relationship between self-efficacy and entrepreneurial intentions is positive in the ‘practically oriented’ course and negative in the ‘theoretically oriented’ course. This is consistent with our hypothesis and thus provides strong support for it.

{ Insert Tables 3, 4 and Figure 1 here }

## 6. Conclusions and Discussion

### 6.1 Summary of findings

In this study, we set out to examine whether the nature of the entrepreneurship course matters for the development of students’ entrepreneurial intentions. In the context of long-standing research interest in whether entrepreneurship education can make a difference in the entrepreneurial behavior of the participating students, our work was motivated by the treatment of entrepreneurship education as undifferentiated whole. Understanding the systematic differences in the pedagogical context and context of entrepreneurial courses and unpacking their effects can make our understanding of the impact of entrepreneurship education more precise and nuanced. Using the logic of regulatory focus theory, we distinguish between theoretically- and practically-oriented courses as creating different motivational contexts for approaching entrepreneurship. Our results show that the nature of the course moderates the relationship between students’ self-efficacy beliefs and entrepreneurial intentions, such that the relationship is negative in ‘theoretically oriented’ courses and positive in ‘practically oriented’ courses, as illustrated in Figure 1.

### 6.2. Theoretical contribution

Our study makes some important contributions to the literature on entrepreneurship education and to our broader understanding of entrepreneurial intentions. First, we highlight a mechanism through which a basic distinction between theoretically- and

practically-oriented courses becomes theoretically meaningful. Theoretically-oriented courses focus on the ‘ought’ of entrepreneurial actions, while practically-oriented courses focus on the ‘can’ of entrepreneurial actions (Levie, 1999). Using the logic of regulatory focus theory (Higgins, 1989; 1997), we argue that such orientations of the entrepreneurship courses create distinct motivational frames, whereby students consider their engagement in entrepreneurship in promotion or prevention terms. The former emphasizes aspirations and achievement, and thus presents entrepreneurship as an art of the possible. In contrast, the latter emphasizes duty and responsibility, and thus presents entrepreneurship as science of the probable. Depending on the motivational frame, students coming out of entrepreneurship courses can see their stocks of skills as assets or liabilities for entrepreneurial pursuits.

Second, we show that the relationship between self-efficacy and entrepreneurial orientation is contextually sensitive, reflecting the motivational disposition instilled by the entrepreneurship course. Our results suggest that self-efficacy beliefs are activated in different ways depending on the nature of the course in terms of its context and pedagogical focus. Previous research highlights the lack of consensus regarding the impact of entrepreneurship education on students’ entrepreneurial intentions (Krueger and Brazeal, 1994; Souitaris, Zerbattini and Al-Laham, 2007; Oosterbeek, van Praag and Ijsselstein, 2010; Walter, Parboteeah, and Walter, 2011). Our study argued that this inconsistency lies in treating the term ‘entrepreneurship education’ as monolithic and revealed that the different approaches to teaching entrepreneurship (in terms of content/context and the adopted pedagogies) engage with and channel self-efficacy into entrepreneurial intentions with differing results. Therefore, by highlighting and unpacking the heterogeneous nature of entrepreneurship education, our study portrays prior findings as lumping together opposing effects that can be tipped in differed ways across studies.

The divergent effect of self-efficacy on entrepreneurial intentions contributes to the theory of planned a nuanced understanding of the notion of perceived behavioral control or perceived feasibility. While extant research has treated such perceptions as stable in reference to the behavior in question, our results show that these perceptions can be sensitized by the context in which the consideration of the behavior emerges. Thus, although self-efficacy beliefs suggest that students perceive themselves as well equipped to enact their entrepreneurial aspirations, framing entrepreneurial behavior in terms of what can be done versus what ought to be done will affect the degree to which self-efficacy beliefs can result in entrepreneurial intention.

Finally, our work enhances our understanding of the impact of entrepreneurial education. It raises conceptual issues in regard to studying entrepreneurial intentions of students across different entrepreneurship courses and encourages the use of regulatory focus as an intervention tool for explaining the differences in the relationship between entrepreneurial intentions and self-efficacy. Our study revealed that, in terms of their ultimate impact on entrepreneurial behavior, entrepreneurship courses they can ‘build steam’ or ‘burst bubbles’, depending on whether they steer students towards attaining the possible versus understanding the probable.

### 6.3 Limitations and future research

As an exploratory study, this research is not without limitations. First, our study addressed self-efficacy and intentions, but not actual behavior. Although intentions are believed to be the ‘best single predictors of an individual's behavior’ (Fishbein and Ajzen, 1975: 369), they are only predictors. It is therefore important to follow up our

work with actual tests of the intention-action link. For example, a study could be designed in which students' ESE, entrepreneurial intentions and regulatory focus are measured prior to the selection of the theoretically - or practically-oriented entrepreneurship courses, and again after taking the courses, and their real career choice after graduation can be documented to validate the entrepreneurial intention.

Second, in this study we reverted conceptually to the logic of regulatory focus theory, and argued that the nature of the entrepreneurship course – whether theory- or practice-oriented – creates a distinct motivational frame for entrepreneurship in promotion or prevention terms. However, we could not ascertain whether this was indeed the case among the students in the study. In future research we need to pragmatically measure the regulatory focus of students using established instruments, such as Higgins et al.'s (2001) RFQ questionnaire. By measuring the regulatory focus of students' prior and after taking a particular type of entrepreneurship course we can draw more reliable and potentially generalizable assumptions about, (a) how students' self-regulation dispositions affect their selection of a theoretically- or practically-oriented entrepreneurship course and (b) to what extent, at its completion, the type of the course and the adopted pedagogy alter the regulatory focus of students' and hence their entrepreneurial motivations.

Third, given that the entrepreneurship courses in our study were chosen among a range of electives, it is possible that the students in our sample were generally more interested or disposed towards entrepreneurship. Notwithstanding this self-selection bias, which is an enduring feature of similar studies, our focus was not on the direct effect of the type of course on entrepreneurial intentions, but on its moderation of the effect of self-efficacy. In addition, while we took specific steps to account for self-selection effects across the two types of course, direct generalizations from our findings should be made with care. In addition it would be very interesting in future studies to focus on cases where students attend both theoretically and practically-oriented courses and examine their possible synergistic effects on self-efficacy and entrepreneurial intentions.

Fourth, in this study we didn't control for the potential effect that the personality of the educator(s) of the entrepreneurship courses might have on students' self-efficacy beliefs and entrepreneurial intentions. It is possible that students became more engaged and interested in the practically-oriented courses because the teachers' personalities affected them positively in viewing entrepreneurship as a viable and desirable career path in contrast to the theoretically oriented courses. Nevertheless when we examined the module evaluation feedback questionnaires for the selected entrepreneurship courses, and their teacher(s), we found that all had consistently above average scores in their evaluations.

Last, but not least, it is very important to extend studies of entrepreneurship education beyond the business school sample of students. It has been proposed that the correct place for entrepreneurship programs in universities may lie outside the business school (Gibb, 2002). Entrepreneurship programs have started to spread across the campus in engineering schools, medical schools and arts schools (Katz, 2008). Future research needs to sample students studying entrepreneurship across the university campus.

#### 6.4. Practical implications for entrepreneurship education

Our works holds important implications for the design and outreach of entrepreneurship courses. In terms of their ultimate impact on entrepreneurial behavior, they can 'build steam' (practically oriented courses) or 'burst bubbles'

(theoretically oriented courses). Both outcomes are valuable for striking a balance between igniting enthusiasm and containing overconfidence in entrepreneurship.

The above implies that if our target is to increase the number of entrepreneurs from the student population, then entrepreneurship courses should be designed and delivered with the 'practically oriented' context/content and teaching pedagogy in mind. But we should be mindful of inspiring action that is not sufficiently well informed. Thus, we cannot condemn 'theoretically oriented' entrepreneurship courses as well as the traditional teaching pedagogies associated with them, for in addition to catering to different educational goals in regard to entrepreneurship, they play an important role in containing the glorified image of entrepreneurship that is created by the popular media. After all, for every successful entrepreneur that we admire, there are hundreds of whose mundane or adverse fate we are not aware.

As entrepreneurship educators we need to recognise that entrepreneurship education is multifaceted and will continue to expand covering more topics as these arise from a growing research field and numbers of entrepreneurship academics. With this in mind it would be naïve to expect that all entrepreneurship courses should be taught in a 'practically oriented' mode, as this may well not be feasible (due for example to resource limitations) and/or appropriate due to the content/context the course wishes to cover. In addition, we need to recognize that some students might opt for an entrepreneurship course for a number of different reasons, such as for example, (a) to enhance their knowledge and skills in this subject as it is becoming an integral part of business education much like marketing, management, strategy, operations, etc., (b) it could be the most 'attractive' elective choice in their degree, (c) there could be a positive reputation that a particular entrepreneurship course is rather, interesting, fun and/or the teacher is inspiring and, (d) it can be a step-stone for students' wishing to further their studies at a research level (postgraduate or PhD).

Hence we believe that Higher Education needs to offer, in a similar manner, a broad range of entrepreneurship courses, 'theoretically oriented', 'practically oriented' or even a combination of both types in order to meet the needs and expectations of the wide range of stakeholders in entrepreneurship education, which include (a) students, (b) entrepreneurship academics and researchers, (c) regional and national governments, as well as (d) businesses of all types and sizes. We propose that entrepreneurship academics ought to 'read' and 'interpret' the results of relevant research in this field in order to plan where (in which degrees and in which Schools), when (in what level of education) and why (what are the aims of the course and the degree program) entrepreneurship courses should be offered.

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**Table 1: A Dichotomy of entrepreneurship education courses**  
**Table 2: Characteristics of the respondents**

	Theoretically Oriented Courses	Practically Oriented Courses
Antecedents	<ul style="list-style-type: none"> <li>• Jamieson (1984): education about enterprise.</li> <li>• Garavan and O’Cinneide (1994): small business awareness education.</li> <li>• Levie (1999): ‘about’ entrepreneurship.</li> <li>• Neck and Greene (2011): entrepreneurship as a process (the entrepreneur, the process and the cognition world).</li> </ul>	<ul style="list-style-type: none"> <li>• Jamieson (1984): education for enterprise.</li> <li>• Garavan and O’Cinneide (1994): education and training for small business ownership.</li> <li>• Levie (1999): ‘for’ entrepreneurship.</li> <li>• Neck and Greene (2011): entrepreneurship as a method.</li> </ul>
Content and Context	<ul style="list-style-type: none"> <li>• Entrepreneurial traits; personality characteristics; economic success.</li> <li>• Opportunity recognition; decision making; acquiring resources; implementing ideas; exit.</li> <li>• How do people think entrepreneurially, corporate entrepreneurship; team entrepreneurship.</li> <li>• ‘ought’ in entrepreneurship; risks associated with entrepreneurship.</li> </ul>	<ul style="list-style-type: none"> <li>• Portfolio of techniques to encourage and practice entrepreneurship; ‘can’ in entrepreneurship.</li> <li>• Generating ideas; team-building; business-planning; creativity; innovation; inspiration.</li> <li>• Pitching to potential investors.</li> <li>• Growing your business; Selling, marketing and networking.</li> <li>• Unpredictable and contingent nature of entrepreneurship</li> <li>• Adapting to change; Plan b; expecting and embracing failure;</li> </ul>
Pedagogy	<ul style="list-style-type: none"> <li>• Teacher is the initiator of knowledge transfer (the expert)</li> <li>• Passive learning.</li> <li>• Stand-and-deliver approach.</li> <li>• Entrepreneurship becomes a box which students either fit or do not.</li> <li>• Linear teaching of entrepreneurship in a step-by-step process.</li> <li>• Guest speakers (usually selected to ‘fit’ the stereotypical successful white male entrepreneur...Richard Branson, Steve Jobs, Bill Gates, Jeff Bezos)</li> <li>• Case studies (usually adopted from textbooks)</li> </ul>	<ul style="list-style-type: none"> <li>• Self-directed/active learning.</li> <li>• Learning by doing.</li> <li>• Team teaching (academics &amp; practitioners).</li> <li>• Mentoring.</li> <li>• Networking with entrepreneurs in residence.</li> <li>• Pitching business ideas to investors and shareholders (team presentations).</li> <li>• Real-life (or at least simulations) business start-ups.</li> <li>• Teaching with and through real-life entrepreneurs.</li> </ul>
Pedagogical implications	<ul style="list-style-type: none"> <li>• Observation.</li> <li>• Description.</li> <li>• Understanding.</li> <li>• Predictions.</li> <li>• Decision.</li> </ul>	<ul style="list-style-type: none"> <li>• Action.</li> <li>• Practice.</li> <li>• Experimentation/ decision-making.</li> <li>• Problem-solving/ opportunity grasping.</li> <li>• Reflection.</li> </ul>

<b>Sample of Students</b>	<b>Gender and No. of students (%)</b>		
<b>Under-Graduate</b>	93 (81.6%)	Male: 49 (43.0%)	Female: 44 (38.6%)
<b>Post-Graduate</b>	21 (18.4%)	Male: 9 (7.9%)	Female: 12 (10.5%)
<b>Total</b>	114	Male: 58 (50.9%)	Female: 56 (49.1%)

**Table 3: Descriptive Statistics and Correlations (N = 114)**

Variable	Mean	St. Dev	1	2	3	4	5	6	7	8	9	10
1 Entrepreneurial intention	3.50	1.24	1.00									
2 Entrepreneurial self-efficacy	4.00	0.69	0.36	1.00								
3 Type of course	0.74	0.44	0.21	0.31	1.00							
4 Age	21.11	2.33	-0.12	0.06	-0.15	1.00						
5 Gender	1.49	0.50	-0.27	-0.28	-0.13	0.08	1.00					
6 Average grade	3.75	0.67	0.01	0.05	-0.28	0.21	-0.06	1.00				
7 Race	0.78	0.42	-0.15	-0.01	-0.12	-0.18	-0.20	0.09	1.00			
8 Entrepreneurial background	1.23	0.75	-0.32	-0.09	-0.11	0.03	0.01	0.02	0.10	1.00		
9 Work experience	0.77	0.42	-0.02	0.01	-0.09	-0.01	-0.14	0.05	0.27	-0.06	1.00	
10 Entrepreneurial enthusiasm	4.90	1.00	0.58	0.52	0.29	-0.16	-0.30	0.01	0.01	-0.22	-0.03	1.00
11 Business skills	6.02	1.29	0.31	0.58	0.23	-0.08	-0.18	0.02	0.00	-0.19	-0.01	0.50

Note: All correlations with absolute value greater than 0.18 are significant at  $p < .05$

**Table 4: OLS Regression Estimation of Entrepreneurial Intention**

	Model 1			Model 2			Model 3		
	Coef.	Std. Err.		Coef.	Std. Err.		Coef.	Std. Err.	
Entrepreneurial self-efficacy				0.313	(0.21)		-0.595	(0.36)	
Type of course				-1.005	(0.68)		-4.455	(1.32)	***
Type of course X Self-efficacy							1.059	(0.35)	**
Age	-0.037	(0.04)		-0.064	(0.04)		-0.044	(0.04)	
Gender	-0.379	(0.20)	+	-0.406	(0.20)	*	-0.319	(0.20)	
Average grade	0.062	(0.14)		-0.107	(0.18)		-0.057	(0.18)	
Race	-0.539	(0.24)	*	-0.655	(0.25)	*	-0.610	(0.25)	*
Entrepreneurial background	-0.320	(0.13)	*	-0.352	(0.13)	**	-0.406	(0.13)	**
Work experience	0.036	(0.23)		-0.027	(0.23)		-0.050	(0.22)	
Entrepreneurial enthusiasm	0.586	(0.11)	***	0.607	(0.12)	***	0.575	(0.12)	***
Business skills	0.001	(0.08)		-0.033	(0.09)		-0.020	(0.09)	
Course selection correction	0.066	(0.15)		0.640	(0.42)		0.281	(0.42)	
Constant	2.524	(1.29)	+	3.540	(1.52)	*	5.871	(1.65)	***
F	8.210	***		7.040	***		7.720		
R-Square	0.415			0.432			0.479		
Change in R-square				0.016			0.047	**	
N	114			114			114		

Note: '+ p < .10; \* p < .05; \*\* p < .01; \*\*\* p < .001

Figure 1: Interaction Effect of Self-Efficacy and Course Type on Entrepreneurial Intention

