EXAMINING ENTREPRENEURIAL MOTIVATIONS IN AN EDUCATION CONTEXT

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Abstract

Entrepreneurial skills are receiving greater attention as engineering departments realise the value of having their graduates receive an education that goes beyond just technical skills. In Norway, one particular education method is to have engineering students start a business. Little is known about what motivates students who set out to start a business, and how feasible they perceive this task. This article sets out to explore students' motivations around entrepreneurship. The paper finds that students are largely motivated by intrinsic factors such as the challenge of working on their own business, and learning to use their skills and competence. While extrinsic motivations such as money do not seem to play a large motivating role. The article reveals students' have negative perceptions regarding their own skills and competence to pursue an entrepreneurial career. The article is based on empirical data gathered from a joint workshop held between two similar universities who educate their engineers in entrepreneurship.

Keywords: Entrepreneurship, Design education, Design practice, Education

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1 INTRODUCTION

In training engineers of the future, there is an expectation that they have a deep knowledge in their field of study as well various skills in problem solving, communication, networking, creativity and teamwork (Täks *et al.* 2014). In addition, there has been a growing call to educate science and engineering students in entrepreneurship (Vest 2005, Mitchell 2007, Duval-Couetil *et al.* 2012). Professional institutions representing engineers, such as the European Society for Engineering Education (2012), the National Academy of Engineering and the American Society for Engineering Education have also likewise called for a new focus for educating engineers that include a focus on entrepreneurship, creativity and innovation (Rover 2005, Dabbagh and Menascé 2006). Entrepreneurial learning is transformative, social, imaginal, emotional, and experiential learning that applies in multiple contexts (Rae 2003).

In Norway, entrepreneurship education has been growing in popularity over the past decade. The Norwegian government aims to increase firm foundation rates as part of its strategy to support innovation (European Commission 2006). One method of teaching entrepreneurship in Norway is to have students start a business as part of their university education. Little is known about how students who participate in this education experience it, what their motivations are, or whether they indeed feel supported as students towards starting a business. This article is exploratory in examining students' motivations for starting a business and their confidence level in their knowledge and competence to start a business. These factors form a key part of forming an entrepreneurial intention to start a business.

2 BACKGROUND

Initial research on engineering students who have participated in entrepreneurship studies has generally found positive results (Dabbagh and Menascé 2006, Täks *et al.* 2014). Dabbagh and Menascé (2006) carried out phonographic interviews with 16 students who were participating in a hands on entrepreneurial course. The feedback from students was that they found the learning challenging albeit rewarding. They students express the learning outcomes that are being called for of future engineers. Yet the study did not specifically examine students' motivations towards entrepreneurship. While Dabbagh and Menascé (2006) looked at students who played an entrepreneurial game as part of an exploratory study. The game and its learning outcomes did not seem to match what would be considered entrepreneurial learning as defined by (Rae 2003). In reviewing engineering literature and entrepreneurship literature, there appears a gap in understanding about what specifically motivates students to start businesses. We therefore turn our attention to discussing entrepreneurial motivation, intentions to start a business and their component parts.

Research has indicated that intentions are a reliable, and for many the most effective, predictor of actual behaviour (Ajzen and Fishbein 1980, Ajzen 1991, Krueger and Carsrud 1993). Intention to start a business can be described as the combination of perceived desirability of starting and perceived feasibility (Brandstätter 2011). Perceived feasibility is closely associated with entrepreneurial self-efficacy. If you have high self efficacy this equates to a strong belief in your ability to achieve your goals (Bandura 1994). In the specific case of entrepreneurship, it is evidenced through a belief in your ability to start a business.

In many cases, perceptions of self-efficacy are more important than actual skills as a determinant of behaviour (Krueger and Dickson 1994). That is if you believe you have the skills and competence to achieve your goals, you will be more likely to take active steps towards achieving them.

Desirability of starting a business is based on perceptions of how it is to be an entrepreneur. People often have a surprisingly detailed mental picture of how it is to be an entrepreneur, even if it is based on very limited or even inaccurate information. Students may have a mental prototype of "entrepreneurship" that is potentially depressingly dysfunctional or at least limiting (Krueger 2007).

Desirability is likely to be partly shaped by the extent to which a nascent entrepreneur has been surrounded by family and friends who are successful entrepreneurs (Corbett and Hmieleski 2007). The subjective impact of a role model is a stronger predictor of intention to start, than is the mere presence of a role model (Krueger and Dickson 1994).

It is worth noting that the desirability and feasibility are not equally important with regards to affecting intentions. Fitzsimmons and Douglas (2011) found that intentions to start a business stayed relatively the same except for when the students self-reported both low desirability for an entrepreneurial career as well as low perceived feasibility, or put differently, even low perceived feasibility could be countered

by high desirability in maintaining a strong intention to enter an entrepreneurial career. Thus suggesting that where the desire to be an entrepreneur is high the student will find a way even if it does not feel achievable at the time (Fitzsimmons and Douglas, 2011).
To understand how intentions fit into the process of staring a firm we turn to Shapero's model of entrepreneurial event formation. This model states the cultural and social environment affects the decision to set out on the entrepreneurial path (Shapero and Sokol 1982). They recognise that the intent to start a business derives from perceptions of both desirability and feasibility. A related model is Ajzen's Theory of Planned Behaviour (Ajzen 1991), designed to predict and explain human behaviour. It centers on the individual's intention to perform a given behaviour. Building on Shapero's model, Krueger and Brazeal (1994) set out create an entrepreneurial model that places Shapero's work within the context of Ajzen's intention process.
Krueger and Brazeal's model embraces the two "attractiveness components" of the Theory of Planned Behaviour: attitude toward the act and social norms. According to the Theory of Planned Behaviour, attitude toward the act refers to the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question. Social norms, on the other hand, refer to the perceived social pressure to perform or not to perform the behaviour. These are tied to our perceptions of what important people in our lives would think about our launching a venture. The theory of planned behaviour, in its intent to explain human behaviour deals also with the antecedents of attitudes toward the behaviour and subjective norms (Veciana *et al.* 2005).
The theory of planned behaviour postulates that behaviour, such as starting a venture, is a function of beliefs relevant to the behaviour. It is these salient beliefs that are considered to be the prevailing determinants of a person's attitudes, intentions and behaviour (Ajzen 1991). Beliefs are assumed to influence attitudes toward the behaviour. Each belief links the behaviour to a certain outcome, which is already valued positively or negatively. Therefore, people automatically acquire an attitude toward the behaviour. In this way, people form favourable attitudes toward behaviours believed to have desirable consequences and negative attitudes toward behaviours associated with undesirable consequences (Ajzen 1991).
The theory of planned behaviour is important in that it suggests beliefs and attitudes will affect our intention to start a business. Intention to start a business is made up of desirability and feasibility. In order to understand what it is that is desirable about starting a business we have chosen to focus on motivations of students to be entrepreneurs. This presumes that if we understand what the motivating factors are to be an entrepreneur then we can better educate and support aspiring entrepreneurs. The methodology described next has therefore set out to understand attitudes about students' motivations towards entrepreneurship, and what specific factors drive motivation. In addition, we have briefly set out to gain a surface understanding of students' perceptions around their feasibility.

3 RESEARCH CONTEXT

The data was collected from a joint conference day held by two Norwegian Universities. Both universities teach a practice based entrepreneurship program whereby entrepreneurship is taught through having students start and run their own business. The students are from engineering departments at Universities, and entrepreneurship is not the main focus on their studies. The philosophy behind the courses are based on preparing students for a future in which entrepreneurial traits are deemed important regardless of whether they go on to start their own business.
The conference was held approximately a third of the way through the course for students, so that they could pitch their ideas in front of a jury, and be in to win a prize for best pitch of approximately US$1200. Most of those attending were currently having their first experiences as entrepreneurs. At the time of the conference, the majority of the students had registered their business, clarified the idea, written a brief business plan, and made prototypes and websites to market their ideas. Few if any had started generating sales. It would be fair to generalise that the student projects were in the very early stage of the venture creation process.

4 METHODOLOGY

A questionnaire was sent to all students participating in the conference in as part of the registration for the conference's workshops. The questions were formulated by a doctorate student in psychology and based around known factors of motivation established in previously validated studies. However, the

questions were not part of a previously validated set of psychometric tests. A Likert scale was used for all questions. The questions were sent out in Norwegian, and translated to English for this article. In translating from Norwegian to English, an attempt has been made to maintain a translation as close to the original text. Although in places, such as the Likert scale, it results in a style of English that sounds slightly out of place. We trust readers can see past this translation, as the original questions were formed in a way that made sense to native speakers of Norwegian.
The questions were focused on two themes. The first was students' beliefs around feasibility. The question here related to whether the students felt they had sufficient knowledge about entrepreneurship in general to start a business and a second question of whether they had sufficient knowledge for their specific business idea. The reason for this was to measure whether students felt they already had sufficient knowledge to get started. As students often mention that they feel like they do not know how to get started, so we wanted to collect data to see how wide spread this perception was.
The second theme related to students motivation to be an entrepreneur. Here they were given 12 different factors around their motivation to be an entrepreneur.
A total of 60 participants participated in the survey, although some questions were left unanswered by those who took part in the survey. The response rate to some questions is as low as 54 participants. It was not possible to determine the exact split between the universities, although the split was approximately one third and two thirds. This is known as it was a compulsory event for all students attending the entrepreneurship courses at each university. Given the similarity of the two programmes, the origin of the students is not expected to impact on the results. Demographic data as gender or age was not collected.
The results were imported into SPSS, and a number of statistical tests were carried out. There is not room for all of the statistics to be discussed, so those which appear to be insightful have been selected for discussion in the following section. This study is exploratory in nature, hence the open approach to data analysis. The design of the study was intended to support an ongoing process of hypothesis generation.

5 RESULTS

The results have been broken into two parts, the first on whether students perceived themselves as having sufficient knowledge about entrepreneurship and their idea. The second section deals with their motivation towards wanting to be an entrepreneur. An additional section then uses statistical analysis to provide further insights.

Table 1. Descriptive results of students' perceptions of their knowledge and competence

Question:	N	Very little	Little	Enough	Much	Very much
How much knowledge and competence would you say you had about entrepreneurship before you started as an entrepreneur?	59	17%	46%	31%	3%	3%
How much knowledge and competence would you say you had about your business idea before you started as an entrepreneur?	59	37%	31%	31%	0%	2%

The results in Table 1 above reflect students' perceived feasibility of starting a business. Whether they feel they have sufficient knowledge about entrepreneurship and their business indicates whether they think it will be feasible. This relates to the perspective explored by Fitzsimmons and Douglas (2011) who noticed that feasibility of getting started was linked to intention, but that when desirability was high this would be sufficient to overcome low perceived feasibility.
The results from the two questions above suggest that the majority of students felt uncertain about their knowledge in relation to entrepreneurship and their own business idea. With 63% of students answering they did not have enough knowledge about entrepreneurship to start a business.

Interestingly the results seem slightly more negative in relation to their own specific business, 37% answered that they had very little competence and knowledge about their own ideas, and two thirds (68%) answered they had little or very little knowledge and competence.
These results were more negative than we would have expected, and suggest that there is some work to be done to boost students sense of self-efficacy. It might be worth focussing students attention on the fact that there is no reason to expect that any one type of person will have all the knowledge and skills needed for new venture creation. Individuals are likely to judge themselves good in some areas, and should look to team members to compensate for their perceived weaknesses. This may strengthen students beliefs in the collective efficacy of their teams, consequently strengthening their entrepreneurial intentions as well (Kickul *et al.* 2009).
Moving on to the theme of motivation, the results in Table 2 below examine students' motivations based on 12 probing questions.

Table 2. Descriptive results of motivations for entrepreneurship

Question: I am first and foremost motivated to be an entrepreneur because…	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
…It is easier to earn money	55	31%	38%	22%	7%	2%
…I won't need to work for anyone else	55	9%	27%	35%	20%	9%
…I can come and go as I would like	55	27%	24%	33%	15%	2%
…I will earn more money than if I took a normal job	55	33%	38%	22%	7%	0%
…I get bigger challenges	55	0%	2%	18%	44%	36%
…I can learn more	54	0%	4%	11%	37%	48%
…The results come from me and not an organisation	55	4%	11%	27%	36%	22%
…I can use my skills and competence	55	0%	2%	15%	44%	40%
…I can make my own decisions	55	0%	5%	18%	35%	42%
…I have a larger amount of freedom	55	0%	16%	25%	18%	40%
…I can be my own boss	54	2%	13%	33%	22%	30%
…I am responsible for my own efforts and results	55	0%	4%	24%	25%	47%

The first result that stands out is money does not appear to form a strong motivator for future potential entrepreneurs. Only 9% of participants agree/strongly agree that it is easier to earn money as an entrepreneur than other forms of work. This signifies that students consider earning money for themselves to be a challenging task. This is supported by a follow up question: *I will earn more money as an entrepreneur (than a normal job)*. No one strongly agreed with this, and only 7% of people agreed. These two questions support the assertion that most people do not become an entrepreneur due to financial considerations. This has implications for us as academics, as the most common measure of success in academic literature is still financial results such as sales or profit. If financial results are not the primary motivating factor for entrepreneurs, there is little reason to measure these financial results as academics. As Giacalone (2004) describes it, "Teaching students to use the single-minded materialistic value system distorts the reality of daily life, were we routinely assimilate nonmaterialistic

goals" (p. 416). The finding that entrepreneurs are motivated by more than money is long-standing and quite robust across studies, and yet, we rarely tie the motivation to the entrepreneurs' own definitions of success (Neck and Greene 2011).

The two strongest motivators appear to be that students can learn more as entrepreneurs (48% strongly agree), and that they are responsible for their own efforts and results (47% strongly agree). This implies that those engaging in these courses have adopted a growth mind-set as described by Dweck (2006), that focusses on growth through learning and challenging themselves.

That students are realistic about the challenge of starting a business is implied by the response that 80% agree/strongly agree that being an entrepreneur is a bigger challenge (than getting a job) and that this is their primary motivation.

In addition, lifestyle reasons seem to play a key role in motivating aspiring entrepreneurs. This is evidenced by the response that 58% agree/strongly agree that they have a larger amount of freedom and 52 % agreed/strongly agreed that being their own boss was one of their primary motivations.

This is largely consistent with descriptions of millennials who are described as being more focused on lifestyle than career. Millennials are said to value flexibility within their work, and are willing to sacrifice pay in order to receive this flexibility. They are also described as being motivated by having a greater sense of purpose. While we did not ask about purpose in this survey, it would be an interesting theme for future studies.

As educators we must be aware that different types of entrepreneurs may have different developmental trajectories (e.g., push versus pull motivation, growth entrepreneurs versus lifestyle) (Krueger 2007).

The above results are averages, while the individuals behind the statistics are not averages. We need to ensure that we do not think that the average motivating factor applies to all students. Instead, it is important to remember that different students will have different motivations. We need to be aware of this in ensuring we motivate students with factors that are relevant to them.

To understand how much of the motivations related to each variable, we carried out a principal components analysis. The purpose of this test is to reduce the components to a smaller set of artificial components that account for most of the variation in the initial components. The components matrix is set out in Table 3 below.

Table 3. Principal components matrix

	Component		
	1	2	3
…It is easier to earn money	-0,153	0,749	-0,320
…I won't need to work for anyone else	0,226	0,689	0,290
…I can come and go as I would like	0,046	0,657	0,443
…I will earn more money than if I took a normal job	-0,089	0,808	-0,108
…I get bigger challenges	0,741	-0,362	0,143
…I can learn more	0,761	-0,192	0,031
…The results come from me and not an organisation	0,794	-0,263	0,145
…I can use my skills and competence	0,830	0,154	-0,289
…I can make my own decisions	0,636	0,334	-0,388
…I have a larger amount of freedom	0,587	0,215	0,538
…I can be my own boss	0,611	0,458	-0,088
…I am responsible for my own efforts and results	0,815	-0,150	-0,201
Extraction Method: Principal Component Analysis.			
3 components extracted.			

The importance of each of the components is set out in Table 4 below.

Table 4. Total variance explained by principal components analysis

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,317	36,0	36,0	4,317	36,0	36,0
2	2,773	23,1	59,1	2,773	23,1	59,1
3	1,008	8,4	67,5	1,008	8,4	67,5
Extraction Method: Principal Component Analysis. Only the first 3 factors are shown.						

The results suggest that nearly 60% of the variance can be explained by the first two components. Interestingly, in the component matrix we see a pattern of external versus internal motivations as being apparent. That is factors relating to internal motivations such as learning more; larger challenges; using their competence; responsible for their own efforts forms one set of variables (positive in the first component, negative in the second). The other set of variables appear to be extrinsic type motivations; such as: easier to earn money; can earn more money. Theory and empirical research have suggested that human motivation toward work can be categorized into two distinct types: intrinsic motivation, which arises from the intrinsic value of the work for the individual (such as its interest value), and extrinsic motivation, which arises from the desire to obtain some outcomes (such as rewards) that are apart from the work itself (Amabile 1997). Individuals can be motivated by both, although in some instances extrinsic factors can be detrimental to motivation. Intrinsic motivation occurs when individuals feel self-determination towards their goals and work (Amabile 1997).

We were curious as to whether experience with entrepreneurship would alter motivations towards entrepreneurship. In order to test this we split the sample based on experience. The cut-off was for those who had more than 6 months experience. Separating the two samples we carried out an independent samples test to compare motivations based on whether the entrepreneurs had more than 6 months experience. We found little variation between answers to the survey questions when split based on experience. In order to reveal if any of the results were significant we ran a Leven's test for equality of variance and a t-test.

Table 5. Independent samples test results

Independent Samples Test								
I am first and foremost motivated to be an entrepreneur because…		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
…I get bigger challenges	EV	0,03	0,87	2,90	53,00	0,005**	0,61	0,21
	Not EV			3,15	41,85	0,003**	0,61	0,19
…I can learn more	EV	1,23	0,27	2,07	52,00	0,043*	0,47	0,23
	Not EV			2,32	46,04	0,024*	0,47	0,20
EV – Equal Variance assumed. Not EV – Equal variance not assumed. * Significant (.05% level). **Highly significant (.001% level)								

The significance levels of the t-test in Table 5 show that there was one question for which there was a highly significant difference, and another for which there was a significant difference. Respectively the questions were related to being an entrepreneur as a bigger challenge (than a normal job), and entrepreneurs having the opportunity to learn more. This result suggests that as entrepreneurs grow in experience, they come to value the challenge of entrepreneurship even more. Suggesting those who continue with entrepreneurship as those who can approach it with a growth mind-set, focussed on learning from the experience and enjoying the challenge.

Out of curiosity we split the sample based on their self-reported competence with respect to their knowledge of entrepreneurship. The split was based on whether the participant felt they had enough/more than enough versus whether they felt they did not have enough.

Table 6. Sample split on perception of knowledge and competence

How much knowledge and competence would you say you had about entrepreneurship before you started yourself as an entrepreneur?		N	Mean*	Std. Deviation	Std. Error Mean
…I can use my skills and competence	>= Enough	19	4,53	0,697	0,160
	< Enough	36	4,06	0,754	0,126
*Mean refers to answers on the Likert Scale – where 1 is strongly disagree, 5 is strongly agree.					

The result in Table 6 reveals only a single question for which there was a significant difference between the answers. This was the question relating to that participants felt they could make greater use of their competencies if they thought they had a greater competence to begin with.

Table 7. Independent samples test results

I am first and foremost motivated to be an entrepreneur because…		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.
…I can use my skills and competence	EV	0,300	0,586	2,259	53	0,028*	0,471	0,208
	Not EV			2,316	39,383	0,025*	0,471	0,203
EV – Equal Variance assumed. Not EV – Equal variance not assumed. * Significant (.05% level). **Highly significant (.001% level)								

The results in Table 7 may seem uninformative. However, upon reflection the results are consistent with previous findings in relation to intention. Fitzsimmons and Douglas (2011) found that negative perceptions of feasibility (i.e. belief in one's ability to start a business) did not adversely affect intention to start, as long as motivations were high. The above results support this finding in suggesting student's perceptions of their skills does not affect their motivations towards being an entrepreneur (with the exception of their motivation to use their skills and competence).

6 CONCLUSION

Having examined motivation of aspiring entrepreneurs, the results support that entrepreneurs are motivated by primarily intrinsic factors, such as learning and taking on greater challenges. Financial factors do not seem to play an important role in motivating would be entrepreneurs to pursue an entrepreneurial career.

The results are rather robust with experience and self-belief not having much of an impact with the notable exception of a few significant changes. The changes in motivations based on experience relate to an increased value being placed on getting bigger challenges and learning more as an entrepreneur. While the change in motivation with relation to self-belief is, unsurprisingly, that entrepreneurs feel even more motivated to use their skills when they feel they have skills and competence in the first place. Perhaps surprising within the results was just how low most entrepreneurship students rated their skills and competence. Suggesting most lack self-belief in their abilities.

7 IMPLICATIONS

Perceptions of desirability and feasibility of new venture creation are products of the cultural and social environment. The knowledge of this part of the environment could and should be used to take actions by public policy decision-makers (Veciana *et al.* 2005). Increasing our understanding of perceptions of

entrepreneurship is therefore an important step in supporting entrepreneurship education. This study has made a contribution to better understanding what motivates young aspiring entrepreneurs.
Researchers often concentrate on the fact of start up, and not on career choice, motivation, or joy felt by the entrepreneur (Alsos and Kolvereid 1998). As academics, we need to focus less on the financial results when measuring success for entrepreneurs, as there is a body of knowledge, which is supported by these results, showing that entrepreneurs do not measure their own success in terms of financial results but often through other factors such as lifestyle.
In our role as educators, there appears to be a need to ensure our students feel confident to pursue entrepreneurial careers. Furthermore, we need to focus on assisting them to achieve the factors that are important to them, such as freedom, being their own boss and making their own decisions.

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