

Nascent Entrepreneurship

Studying the Personality Traits of Entrepreneurship Students

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Abstract

Though much research in entrepreneurship has evaluated the role of personality traits in entrepreneurs, few studies have addressed the personality traits of entrepreneurship students. In this study we measure five key entrepreneurial personality traits; the need for achievement, perception of risk, locus of control, independence, and self-efficacy. This is accomplished using survey data from 31 entrepreneurship masters students, and 31 non-entrepreneurship business masters student. We found that entrepreneurship students scored the same as other business students in; need for achievement, locus of control, and self-efficacy. However there was a significant difference between entrepreneurship students, and other business students when measuring independence, and perception of risk.

Introduction

We are interested in researching motivational discrepancies between individuals choosing to study entrepreneurship and individuals pursuing more traditional business topics. Motivation is traditionally defined as a willingness or desire of someone to accomplish a specific task. The entrepreneurial process is greatly influenced by the ability and willingness of individuals to act on opportunities in the marketplace. People respond differently to opportunities, due to fundamental differences in personality (Shane, 2003). Individual traits and characteristics thereby act as an important connection between intention and action (Nuttin, 1984). We want to specifically examine the motivation of different individuals as an instrument of moving from an interest to a practical application.

There is a large amount of research focused on studying personality traits of entrepreneurs with the goal of identifying which individual traits make people more suited for entrepreneurial activities (Baum, 2004) (Carsrud, 2011) (Herron, 1993) (Hornaday, 1973) (Shane, 2003). However, previous studies have often failed to report relevant findings, which can be applied outside of an academic environment because of a relatively strong post hoc research bias. Studies have mostly focused on successful entrepreneurs or self-employed people involved in an early startup company. Research into the willingness and ability of people to explore entrepreneurial opportunities, has found a variety of key factors such as; opportunity costs, financial capital, relation to investors, and the amount of career experience that they have (Shane, 2003). Since the sample populations in previous studies have not included nascent entrepreneurs, a variety of external factors such as an unfavorable political climate, or financial restrictions, may have played a significant role. Additionally any post hoc study of personality traits will always be influenced by the actual outcome of their entrepreneurial experiences. In general motivation and behavior have been closely linked (Herron, 1993), however studies which have attempted to establish a connection between entrepreneurial motivation, and behavior have been less than conclusive (Kuratko, 1997). This may occur due to a variety of reasons, most notably the time lag between intention and action (Carsrud, 2011).

Our study aims to eliminate some of the selection bias by focusing on individuals with a strong interest in entrepreneurship but with little or no tangible startup experience. Thus looking at entrepreneurial intentions will help to understand the link between intentions and actions, and provide a crucial part of understanding the entrepreneurial process (Carsrud, 2011). Our aim is to explore the relationship between the interest in the subject matter of entrepreneurship and the individual's motivation and career aspirations. Therefore our sample population constitutes of MSc students in the field Entrepreneurship and a control group of other business degree seeking master students.

Literature review

ENTREPRENEURIAL EDUCATION

The topic of entrepreneurial motivation has been thoroughly researched. However very little attention has been focused on comparing the motivation of students who choose entrepreneurship over a more traditional professional track. McClelland (1965) discovered that entrepreneurs exhibited a higher need for achievement during their undergraduate years, in comparison to other business people.

The difference between entrepreneurial business and traditional business is thought to be distinct enough to justify offering a separate program in entrepreneurship at many universities (Hisrich, 1996). As a result entrepreneurship education has grown dramatically over the past 10-20 years, and further growth is projected in the future (Koh, 1996) (Kuratko, 2005). Thus while it has been argued that certain personality traits may predispose someone to entrepreneurship, it is also believed that entrepreneurial skills can be taught (Neck, 1999).

ENTREPRENEURIAL TRAITS

Precedent research has attributed a variety of specific personality traits to entrepreneurs. Entrepreneurs are often portrayed as ‘lone wolves’ that do not conform to traditional organizational structures (Hornaday et al., 1973). Other personality aspects commonly attributed to entrepreneurs include goal-setting and goal-oriented behavior, high levels of energy, perseverance, and high self-confidence (Neck et al., 1999). Furthermore entrepreneurs seem to place a higher value on independence, personal freedom, and autonomy in their work, when compared to traditional managers (Rauch, 2009). Additionally entrepreneurs have been found to love challenges, and seek work with some sort of significance (Malach-Pines, 2002). In general entrepreneurs have been found to possess an internal locus of control, because they want positions where their actions have a direct impact (Shane, 2003).

There are a variety of possible motivating factors for an entrepreneur, both internal and external. While most entrepreneurial research assumes that entrepreneurs are primarily motivated by external factors and rewards, the reality is that many entrepreneurs are driven by internal motivations as well, making entrepreneurship an end goal in itself. This ‘intrinsic motivation, would help to explain the prevalence of social entrepreneurship, where the entrepreneur starts ventures which have no obvious reward other than personal satisfaction (Carsrud, 2011).

Trait Categorization

There has been a significant amount of research into entrepreneurial motivation, and the predominant factors which influence entrepreneurial behavior. We will primarily use the “big five” entrepreneurial characteristics outlined by Vecchio (2003), as well as a self-reporting assessment directly addressing entrepreneurship. The “big five” characteristics outlined by Vecchio are; the need for achievement, perception of risk, locus of control, independence, and self-efficacy.

These categories are used as a self-reporting mechanism, to see how entrepreneurial students self-identify, when compared with the self-reporting of non-entrepreneurship students. The questions utilized in establishing this information are taken from various previous academic questionnaires specific to the individual topics.

NEED FOR ACHIEVEMENT

Need for achievement is characterized as the motivation for individuals to work towards a goal, and accomplish objectives, which may be distant or difficult to achieve (Murry, 1938). The seminal research into the need for achievement (nAch), and its relationship to entrepreneurship was conducted by McClelland (1961), in which he stated that “people high in nAch will be more likely to pursue entrepreneurial jobs than other types of roles” (Shane, 2003, pp. 264). He made this assertion based on the

propensity of people with high need for achievement to; “engage in activities or tasks that have a high degree of individual responsibility for outcomes, require individual skill and effort, [and] have a moderate degree of risk” (Shane, 2003, pp. 263). Studies conducted by Collins et al. (2004), and Johnson (1990), also concluded that the need for achievement was a variable, which distinguished the founders of firms from general members of society.

Hypothesis 1: Based on a review of the relevant literature we hypothesize that Entrepreneurship students will display significantly higher Need for achievement, when compared to students in non-entrepreneurial business masters courses.

PERCEPTION OF RISK

Entrepreneurs have a high rate of failure, and logic would dictate that entrepreneurs are therefore more accepting of the risks involved with starting a new business. A study conducted by Begley (1995), confirmed this belief finding in their study that the propensity to take risk was the only trait which effectively distinguished people who had founded companies from people who had not. Another study conducted by Corman (1988), found that firm founders have an objective propensity for risk, but do not view their actions as risky themselves. Thus leading us to believe that the high level of self-efficacy found in entrepreneurs makes the self-reporting of risk propensity difficult.

Hypothesis 2: Based on a review of the relevant literature we hypothesize that Entrepreneurship students will display significantly lower Perception of Risk, when compared to students in non-entrepreneurial business masters courses.

LOCUS OF CONTROL

The belief that personal motivations, characteristics, and decisions influence subsequent outcomes is the reflection of an internal locus of control. Research into locus of control, and its relation to entrepreneurship has attempted to establish a relationship between an internal locus of control and successful entrepreneurs. Shapero (1977) found that entrepreneurs have a more internal locus of control when compared to the general populations. However a study conducted by Begley (1995) established that there is no measurable difference between the locus of control in founders and managers. It will be informative to see if a difference can be established between entrepreneurship students, and other business students.

Hypothesis 3: Based on a review of the relevant literature we hypothesize that Entrepreneurship students will display significantly more internal Locus of Control, when compared to students in non-entrepreneurial business masters courses.

INDEPENDENCE

Independence is generally identified as a paramount motivator of entrepreneurs. A study conducted by Hornaday (1973) found that entrepreneurs scored significantly higher for independence when compared to the general population. However there is a lack of empirical evidence to demonstrate that entrepreneurs have a significantly higher need for independence when compared to firm managers. Need for independence seems to be the most ‘self evident’ entrepreneurial characteristic, and is often cited by entrepreneurs as a key motivating factor. It will be interesting to see if a significant difference can be found in the independence reporting for entrepreneurship students compared to non-entrepreneurship students.

Hypothesis 4: Based on a review of the relevant literature we hypothesize that Entrepreneurship students will display significantly more need for Independence, when compared to students in non-entrepreneurial business masters courses.

SELF-EFFICACY

Task specific confidence is generally regarded as an important aspect of a successful entrepreneur, and can be used to describe the performance discrepancies between people of equal ability. A study was conducted to see how perceived ability affected opportunity recognition and subsequent action. Test subjects who were led to believe they had exemplary competencies, perceived less risk and greater opportunity than subjects in the control group (Krueger, 1994). A study conducted by Baum (2004), found that firm founders that had higher self-efficacy were able to achieve higher growth. Another study conducted by Chen (1998), concluded that small business founders scored much higher in entrepreneurial self-efficacy when compared to non-founders.

Hypothesis 5: Based on a review of the relevant literature we hypothesize that Entrepreneurship students will display significantly higher Self-Efficacy, when compared to students in non-entrepreneurial business masters courses.

ENTREPRENEURIAL CAREER ASPIRATIONS

To gain a further understanding of the correlation between the population of MSc students of Entrepreneurship and personality traits traditionally associated with entrepreneurial activity, the applied questionnaire also directly measures the career aspirations of the respondents. An important assumption of the study is that the entrepreneurship students are aspiring to be entrepreneurs in the future, so to ensure the validity of this assumption we added a sixth hypothesis which measures career aspirations.

Hypothesis 6: Based on their choice of masters degree program, entrepreneurship students will have career aspirations, which are significantly more entrepreneurial.

Methodology

SURVEY FORMULATION

To collect data, we created an online survey to measure the self-assessment of students regarding the key entrepreneurial traits identified above. We asked students to respond to 29 different questions, and score each response on a scale of one to five, from strongly disagree to strongly agree. The full survey can be found in Appendix A. A list of questions organized by category, and detailing the questions used during data analysis, can be found in Appendix B.

We formulated five questions to test the *Need for Achievement* among the respondents to our survey. These questions are formulated based on two different surveys created by Chan et al (2012) and Steers et al (1976). These questions are adapted for our purposes when necessary, by changing employment specific terms to education specific terms.

We formulated five questions to test the *Independence* among the respondents to our survey. These questions are formulated based off a survey from Steers, & Braunstein, (1976) and have been adapted to test within a student population.

We formulated five questions to test how internal the *Locus of Control* is among the respondents to our survey. These questions are formulated based off two different studies, Trice (1985) and Sapp et al (1993).

We formulated five questions to measure the *Perception of Risk* among the respondents to our survey. The questions to determine the respondent's perception of risk are based on previous research by Meertens, & René. (2008).

We formulated five questions to measure the *Self Efficacy* of respondents to our survey. The questions to evaluate the respondent's self-efficacy are drawn from research conducted by Chan et al (2012).

We formulated four questions to measure the entrepreneurial *Career Aspirations* of the respondents to our survey. The questions utilized in establishing this information are taken from a study conducted to identify variance in entrepreneurship students across cultural barriers (Giacomin, 2011) and a survey on career aspirations (Chan, 2012).

DATA COLLECTION

To collect data we sent out emails to entrepreneurship students at Lund University Sweden, Chalmers University of Technology Sweden, and Copenhagen Business School Denmark. To contact the Lund entrepreneurship students, we used a course document, which had a list of all the new venture creation entrepreneurship students in the masters course. To contact Chalmers, we contacted an entrepreneurship student in Chalmers whose email address we obtained from collaboration between students in Lund and students in Chalmers. We sent her a link to the survey and asked her to contact her fellow students to fill out the survey. We reached the Copenhagen Business School students through a personal contact within the program living in Lund, who also spread the survey to his class. Additionally we posted a link to the survey on the social media pages for the Lund University Entrepreneurship program, and the Copenhagen Business School Entrepreneurship program. In total we had 31 entrepreneurship student respondents; 18 from Lund University, 7 from Copenhagen business school, and 6 from Chalmers. Lund University entrepreneurship students had a response rate of 81,8%. As we do not know the exact number of entrepreneurship students in in Chalmers or Copenhagen, we only have a rough estimation of the response rate from their institutions at approximately 15 to 25%.

We contacted students from three different schools, and from a variety of different nationalities, in an effort to avoid a bias, which could distort the results of our study. We were successful in receiving a reasonable amount of respondents from different Universities. We are confident that the data is representative of entrepreneurship students in the region.

To collect data for our control group we sent out emails to students in non-entrepreneurial business masters courses that attend Lund University. We received a contact list from a colleague in the Marketing master's course, and mailed the link to the survey out to his classmates. We also reached out to the class of Corporate Financial Management through a personal contact. The response rate from these two classes was 21,5% (14 out of 65 responded). We took the opportunity of having a low response rate to diversify our control group and contacted other business master level students directly. Through our personal social networks we contacted other students in Lund until we reached a matching number of respondents for our control group. We had respondents from the following programs; International Marketing, Financial Corporate Management, Economics, Managing People Knowledge and Change, and Business Administration. In total we had 31 non-entrepreneurship student responses from Lund University, which comprised our control group.

We contacted students from a wide variety of programs, and students of many different nationalities, in an effort to avoid a bias, which could distort the results of our study. We were successful in receiving responses, which did not appear to be dominated by any single demographic or departmental category. Furthermore we had a reasonable distribution between males and females, with 19 female respondents, and 12 male respondents. We are confident that the data is representative of non-entrepreneurship business students in the region.

DATA ANALYSIS

Our first step was to identify any potential biases within our two populations. Looking at the gender distribution of our study group we found a high proportion of males (71,0%) among the entrepreneurship students whereas our control group had a significantly higher amount of female respondents (61,3%). According to Gupta et al (2009), males are generally overrepresented in entrepreneurial activities. Therefore we conclude that the number of male entrepreneurship students in our population is not a bias

of our specific data collection methodology and more of a characteristic of the study population. The gender distribution of our control group is expected to even out with a larger sample size. We do not believe that our sample would lead to any larger bias. Nevertheless, these gender differences should be considered when interpreting the final results.

The average age of the entrepreneurship respondents is 26,2 years (eliminating one outlier brings it down to 25,6 years) compared to 24,8 years for our control group. We expected a slightly higher age for entrepreneurship students as we interpreted them to be more likely to have some previous working experience. Interestingly the difference in *adjusted* age is not significant. Age is also normally distributed for both groups.

Finally, we looked at the total time taken to fill out the survey. Our tests have shown that it is not possible to read and respond sincerely to all questions within a time frame below 120 seconds. Therefore we intended to exclude any respondents that took less than two minutes to complete the questionnaire. Fortunately, all respondents fulfilled that criterion. On average entrepreneurship students took 34 additional seconds to fill out the survey but this time difference is not significant enough to draw any conclusion.

The individual items for all the surveyed characteristics (CA, LOC, INDE, POR, SE, NACH) were summed up for each respondent after adjusting the output for reverse scored questions. In a next step, we performed a Cronbach's Alpha test to analyze the internal reliability of our collected data. This test can be viewed as a measure to determine how well the scores of an individual question capture the expected score of the total population (Bowling, 2002). According to Bowling (2002), a Cronbach's Alpha (Cr's α) of 0.5 or higher is considered as a sign of an *acceptable* internal consistency. Table I summarizes our test results. For a more detailed description of which questions were used in the final analysis please refer to Appendix B.

Table I – Cronbach's Alpha Scores

	Cr's α with 5 items	Cr's α with 4 items	Cr's α with 3 items
Need for Achievement	0.47	0.57	-
Independence	0.50	0.56	-
Locus of Control	0.10	0.40	0.50
Perception of Risk	0.70	-	-
Self-Efficacy	0.78	-	-
Career Aspirations	0.87	-	-

A first assessment clearly shows some weaknesses in the consistency of our questionnaires. The characteristics *Need for Achievement* and *Locus of Control* both failed a first Cronbach's Alpha test (<0.5) and *Independence* exactly matched the minimum requirement. This weakness could be related to our limited sample size of 31 individuals for each study group. Furthermore rephrasing some of the questions to fit into the student environment might have also affected their interval reliability. Through eliminating one or two of the weakest elements for all three of those categories, we managed to reach acceptable levels of internal reliability for all our study items. After a closer look at the remaining items, we do not believe that this reduced selection should affect our findings. Nevertheless a potential bias of our research method should be kept in mind when interpreting the results. To facilitate the interpretation and comparison of our results, we have divided the summed scores by the number of items used per surveyed characteristic.

For the testing of our hypotheses we are referring to the quantitative analysis methods used by Politis (2008) in her study about novice versus habitual entrepreneurs. We conducted both a Kolmogorov-Smirnov and a Shapiro-Wilk test to measure the assumed normal distribution of the underlying quantitative data. Based on our sample size we determined a standard confidence interval of 95% as a

threshold of significance for all of our analyses. Using a combination of both tests, we were able to determine that our responses for *Need for Achievement*, *Locus of Control* as well as *Self Efficacy* are not distributed in accordance with normality (c.f. Table II).

Table II – Tests for Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Need for Achievement	.131	62	.010	.916	62	.000
Independence	.126	62	.150	.977	62	.098
Locus of Control	.158	62	.001	.948	62	.011
Perception of Risk	.089	62	.200	.985	62	.670
Self-Efficacy	.116	62	.036	.914	62	.000
Career Aspirations	.102	62	.174	.952	62	.017

Our data collection fulfils the minimum sample requirements of an applicable independent t-test to determine the validity of our hypotheses. In addition we will also use a Mann-Whitney U test for the three non-parametric variables (not fulfilling the normality criterion). The Mann-Whitney U test compares differences in the medians (due to the fact that it does not fulfill the normality criterion), while the t-test is used to test for differences in means.

Table III – Statistical analysis of survey findings

	Independent t-test					Mann-Whitney U test	
	Group*	Means	Std. Deviation	df	Sig.**	Asymp. Sig. **	Equal Concl.
Need for Achievement	ENT	3.750	0.713	60	0.802	0.669	Yes
	CTRL	3.710	0.532	60			
Independence	ENT	3.282	0.667	60	0.004	-	-
	CTRL	2.814	0.570	60			
Locus of Control	ENT	3.473	0.724	60	0.761	0.830	Yes
	CTRL	3.419	0.661	60			
Perception of Risk	ENT	3.535	0.650	60	<0.001	-	-
	CTRL	2.871	0.588	60			
Self-Efficacy	ENT	4.058	0.778	60	0.487	0.272	Yes
	CTRL	3.935	0.587	60			
Career Aspirations	ENT	3.677	0.938	60	<0.001	-	-
	CTRL	2.250	0.890	60			

* ENT = Study group of Entrepreneurship students; CTRL = Control group

** Sig. = Significance level (two tailed)

In general both groups scored relatively high on *Need for Achievement* with a wider distribution for the entrepreneurship group. The data collected resulted in almost identical scores for both groups and both statistical tests confirm the assumed lack of a significant difference – thus our first hypothesis was not supported.

Entrepreneurship students clearly demonstrated to be less *risk-averse* than our control group. The statistical test allowed us to accept the second hypothesis that traditional business students display a higher perception risk.

The responses testing for the *Locus of Control* also averaged out in very similar means for both groups. The slightly more external locus control found with the business students has no statistical relevance. Therefore our third hypothesis, that entrepreneurship students display a more internal locus of control, was not supported.

The control group scored closer to neutral on the independence character trait whereas the entrepreneurship students demonstrated a higher level of *Independence*. A *t*-test has proven the difference to be statistically significant. The fourth hypothesis that entrepreneurs display a higher need for Independence was approved.

The two groups scored very high on *Self-Efficacy*. The *t*-test as well as the Mann-Whitney U test confirmed that the differences of the means are not significant. Thus the fifth hypothesis that entrepreneurship students will test higher on *Self-Efficacy*, was not supported.

Career Aspirations is an additional trait testing for the actual entrepreneurial ambitions of entrepreneurship students. A lack of difference in this category would negate the legitimacy of our research. Fortunately, our analysis clearly supported our sixth hypothesis that entrepreneurship students are more likely to engage in a new venture than traditional business students (control variable).

Several other interesting findings stood out. First of all, the variance in all six categories is higher for the study group versus the control group; demonstrating a general wider distribution of responses within the entrepreneurship population. Secondly, the two groups either scored almost identically on *Need for Achievement*, *Self-Efficacy* and *Locus of Control* or they showed very significant differences in their responses for *Perception of Risk*, *Independence* and *Career aspirations*. This very distinct nature of the data distribution supports the validity of our findings despite our limited sample size. It is also interesting to notice that both groups scored very high on the two traits related to personal motivation and self-confidence (i.e. *Need for Achievement* and *Self-Efficacy*). A Pearson's *r* test confirmed this observation showing a strong correlation ($r > 0.70$) between the two variables. The only other meaningful correlations were found between *Perception of Risk* and *Independence* as well as between *Perception of Risk* and *Career Aspirations*. These moderate correlations ($0.30 < r < 0.70$) support our results of the hypotheses tested. It is worthy to mention that there is complete lack of correlation ($r = +/- 0$) between *Perception of Risk* and *Locus of Control*. We conclude that our data rejects the general assumption that people with a more internal locus of control also tend to be less risk averse. An absence of any type of correlation was also found between *Independence* and *Locus of Control*; contradicting the concept of independent people generally putting a higher emphasis on their own internal set of skills.

Discussion

UNSUPPORTED HYPOTHESES

Hypothesis one, three and five were not supported. There was no substantial difference between entrepreneurship students, and other business students, in regards to Locus of Control, Self-Efficacy, and Need for Achievement. We will now discuss these results, to identify possible explanations for these hypotheses not being supported.

As was mentioned above, there was no significant difference between entrepreneurship students, and other business students in relation to Locus of Control. This finding is in agreement with a variety of studies, which have shown little or no difference in Locus of Control measurements between firm founders and managers. A study conducted by Engle (1997), found that when analyzing small business owners, and small business employees, there was little or no difference in measurements of Locus of Control. A similar study by Chen (1998) was unable to find a difference in Locus of Control when comparing firm founders and current employees. Thus while persuasive conceptual arguments can be

made for a more internal locus of control among entrepreneurs, the empirical evidence to back up this assertion is mixed.

Additionally there was no significant difference between entrepreneurship students, and other business students in regard to Self-Efficacy. Since no significant difference was found in regards to Locus of Control, it is not surprising that Self-Efficacy had similar results, since both are essentially different ways of assessing measures of control. Locus of control addresses control as a worldview or overarching concept, while self-efficacy measures task specific control (Rotter 1966).

There was also no significant difference between entrepreneurship students, and other business students with regards to Need for Achievement. A variety of studies have been conducted over the past 50 years since David McClelland first purposed the relationship between high Need for Achievement, and entrepreneurship (McClelland, 1961). Not all of this data has been conclusive, and there is still much debate in the academic community about the relationship between these two phenomena. However none of the studies conducted to measure these phenomena, has addressed nascent entrepreneurs, or focused on entrepreneurial students. The only study, which has attempted to make a connection to student motivation, was a study that looked at the occupations of students 14 years after graduation. This study found that students which scored higher in Need for Achievement, were much more likely to pursue entrepreneurial careers, when compared to students that scored lower in regard to entrepreneurial motivation (McClelland, 1965).

In general the high level of similarity between entrepreneurship students and other business students, in regard to Locus of Control, Self-Efficacy, and Need for Achievement, is not overwhelmingly surprising. Both groups are comprised of master's students from well-regarded universities, and have effectively demonstrated their desire to achieve sufficiently enough to be admitted to these programs. The control group constitutes of business students who are working towards an executive corporate career and we would expect them to also demonstrate a similarly high Need for Achievement, Self-efficacy, and Locus of Control.

APPROVED HYPOTHESES

Hypothesis two and four were approved. There was a significant difference between entrepreneurship students, and other business students, in regards to Perception of Risk, and Independence.

As we had hypothesized there was significant difference between the risk perception of entrepreneurship students, and non-entrepreneurship business masters students. This finding is in agreement with a variety of studies, which have been conducted to measure the risk perception of entrepreneurs compared to firm managers. Carland (1995) and Stewart (1998), both concluded that entrepreneurs were significantly less risk adverse than firm managers. The low risk aversion of entrepreneurship students makes sense when considering the underlying decision to choose a career path, which is inherently full of risks.

There was also a significant difference between the need for Independence of entrepreneurship students when compared to non-entrepreneurship business masters students. Although the need for independence is classically cited as one of the key motivators for entrepreneurs, research into the need for independence among entrepreneurs had been less than conclusive. Leading one to believe that for established entrepreneurs independence is a byproduct of success, instead of an important motivating factor. However current research into entrepreneur's need for independence may be distorted by its focus on successful established entrepreneurs, who would no doubt report less "need" for independence, because they have already achieved it. The confirmation of our hypothesis in regard to need for independence, demonstrates that among entrepreneurship students, who are essentially highly motivated nascent entrepreneurs, the need for independence is an important motivator.

Low risk aversion and high need for independence are the two characteristics, which distinguished entrepreneurship students from other business masters students in our study. While a high need for achievement, self-efficacy, and an internal locus of control are important to succeed in all facets of life,

independence and the ability to take risk, are more uniquely useful to aspiring entrepreneurs. Working in a traditional business role, taking risks and striving to be independent may not be embraced by the organizational structure of the company. In many cases it may even be actively discouraged. While working as an entrepreneur a low motivation for independence and high risk aversion would certainly prove to be detrimental.

PRACTICAL IMPLICATIONS

The question; “what makes entrepreneurs different?” is at the core of a wide range of entrepreneurial research. What we have attempted to do with this study is understand what makes entrepreneurship students different from students that pursue more traditional business masters courses, viewing them as nascent entrepreneurs. The distinguishing characteristics of entrepreneurship students, according to this study, are their need for independence, and their low risk aversion.

There are a variety of practical implications for these findings, in regards to both entrepreneurship education, and entrepreneurial activities. The strong need for independence in entrepreneurs could have implications for policy makers aiming to stimulate entrepreneurship activity within a country. Most policies try to incentivize entrepreneurs by eliminating legal and financial barriers to create a new venture-friendly business environment. However, our research also suggests that entrepreneurship activity could potentially be encouraged by fostering a higher level of independence on a cultural level. Through a stronger integration of high self-exposure activities at a young age, childhood and adolescence education can be adapted to contribute to an early foundation of independence. By comparing our personal experiences of educational methods applied at a young age, we could clearly identify a stronger focus on developing a higher level of independence in the US compared to Europe. In general, children in the US are more frequently exposed to situations in which they learn to develop personality traits such as self-confidence and independence. We hypothesize that this cultural difference could be correlated to the traditionally high levels of entrepreneurial activity in the US.

In our opinion, the lower perception of risk for entrepreneurship students should be regarded as a double-edged sword. As discussed earlier, entrepreneurs need to embrace a certain level of risk to successfully overcome the many barriers that he/she will face during the different stages of starting up a new business. Nevertheless, a low perception of risk needs to go hand in hand with a healthy understanding of the personal limitations of the entrepreneur’s capabilities. It is a thin line between understanding and accepting the inherent risks of a project and being blind to its real potential in consideration of your own resources and skills. A commonly cited phrase in entrepreneurship education says that *entrepreneurs need to see problems as opportunities*. This is true as long as the entrepreneur is capable of correctly assessing the actual risks related to the problem. A low perception of risk makes an individual more vulnerable to overestimating the potential reward and underestimating the inherent risks of any task. We conclude that entrepreneurship programs should take the low level of risk perception among its student population into consideration when defining the educational curriculum.

Overall there was a high degree of similarity between entrepreneurship students and non-entrepreneurial business masters students. Three out of the five-tested characteristics were similar. Thus it is clear that the intentions and future aspirations of students are paramount in establishing their entrepreneurial mindset. The switch between groups does not take a large degree of personality change, and situational contexts can clearly influence the degree to which one is predisposed to entrepreneurship. Historically the amount of active entrepreneurs is greatly influenced by general economic conditions, and availability of attractive alternatives. Ultimately a variety of studies are able to find significant differences between entrepreneurs and the general population, and a smaller degree of difference between entrepreneurs and managers. In the context of our study the business students who took our survey, are ultimately aspiring to be managers one day. Thus the distance between the two groups is not a great divide, but a surmountable gap.

Understanding what makes entrepreneurs unique is an important part of entrepreneurial research, and this study does not attempt to be comprehensive or definitive in that regard. However the practical implications of this study leave room for further research, which can address this question in-depth.

LIMITATIONS

There are two key factors, which have the potential to limit the ability of these results to be a representative sample of entrepreneurship students. These factors are the number of respondents to the survey, and the regional concentration of respondents.

Due to the limited time frame available to gather the raw data of the survey, and the lack of resources to physically travel to schools and distribute the survey, we were able to gather data from 62 respondents. Half of these respondents were entrepreneurship students, and the other half were the control group of non-entrepreneurship business masters students. Additionally the majority of the respondents were from the Lund University program. Thus the small sample size, and high concentration of respondents from one University has the potential to distort the results. Furthermore only students at Scandinavian universities were targeted for response to the survey, which also has the potential to distort the results.

In addition to these limitations, the reliance on self-reporting, always has the potential to bias the results of a survey. People may respond in the way they believe they are expected to respond, instead of answering honestly.

The typical problems associated with online surveys did not apply to our study. Online surveys have been cited as being ineffective in sampling the general population because, young, technologically savvy, educated individuals are more likely to complete the questionnaire. Since the entirety of our targeted population fits these criteria, we did not anticipate any complications from utilizing an online survey.

SUGGESTIONS FOR FURTHER RESEARCH

This study focused on the comparison of Entrepreneurship students, and other business masters students. For a variety of reasons it is not surprising that both of these groups had similar scores in regard to Need for Achievement, Locus of Control and Self Efficacy. It would be interesting to add to this comparison Masters or PHD students studying life sciences or engineering, to see if the same similarities can be found in all high achieving academic students, regardless of their area of study. Similarly it would be interesting to see how other graduate students score in relation to Independence, and Risk aversion, to see if they also score differently when compared to entrepreneurship students.

The study focused on the characteristics of *new venture creation* entrepreneurship students. Further research could be conducted to look at the characteristics of *corporate* entrepreneurship students, and how they compare to both new venture entrepreneurship students, and non-entrepreneurship business masters students.

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Appendix A

Questionnaire

Age:
Sex:
Degree program:
University:

Answer from 1 – 5 Strongly Disagree to Strongly Agree

The questions are coded as follows;

NACH – Need for achievement
INDE – Independence
LOC – Locus of Control
POR – Perception of risk
CA – Career Aspirations
SE – Self Efficacy

+ Positively Scored
- Negatively Scored

1. I do my best work when my course assignments are fairly difficult. (NACH +)
2. In my group assignments, I try to be in charge. (INDE +)
3. To a great extent, my life is controlled by accidental happenings (LOC -)
4. I usually view risks as a challenge. (POR +)
5. I am definitely going to be an entrepreneur, after my studies and am prepared to do anything to achieve that goal. (CA +)
6. I can take charge of decisions needed for a group or organization. (SE +)
7. I try very hard to improve on my past performance in class. (NACH +)
8. I go my own way in class, regardless of the opinions of others. (INDE +)
9. Professors sometimes make an early impression of you and then no matter what you do, you cannot change that impression. (LOC -)
10. I really dislike uncertainty (POR -)
11. I would much prefer a career as a specialized expert or professional in a large and stable organization. (CA -)
12. I can make a great impression during a job interview? (SE +)
13. I try to avoid any added responsibilities in group assignments. (NACH -)
14. I disregard rules and regulations that hamper my personal freedom. (INDE +)
15. Some people have a talent for writing, while others will never write well no matter how hard they try. (LOC +)

16. I view myself as a risk seeker. (POR +)
17. I am confident to plan, direct, organize and prepare others on what they need to do. (SE +)
18. I have a viable business idea and intend to start my own business soon after graduation. (CA +)
19. I am the kind of person who strives to be highly specialized in my field of study. (NACH +)
20. I consider myself a “team player”, in class. (INDE -)
21. College grades most often reflect the effort you put into classes. (LOC +)
22. My general attitude is safety first (POR -)
23. My main career goal is to rise up the ranks as a leader or manager in an organization and be in charge of others. (CA -)
24. Most people doing a leadership task can do it better than I can. (SE -)
25. I am definitely more of a follower by nature, so I am happy to pass leadership responsibilities to others. (NACH -)
26. I try my best to work alone on an assignment. (INDE +)
27. My life is determined by my own actions (LOC +)
28. I avoid taking risks with my health (POR -)
29. I have the abilities to complete any course assignment successfully. (SE +)

Appendix B

Questions by Category

The following is a list of the questions we formulated to test for each characteristic. Questions with a line through them were taken out of the data analysis to improve the interval validity of the data collected for each category (c.f. Table I for Cronbach's Alpha scores).

Need for Achievement

I do my best work when my course assignments are fairly difficult.
I try very hard to improve on my past performance in class.
I try to avoid any added responsibilities in group assignments (reverse scored).
~~I am the kind of person who strives to be highly specialized in my field of study.~~
I am definitely more of a follower by nature, so I am happy to pass leadership responsibilities to others (reverse scored).

Independence

In my group assignments, I try to be in charge.
I go my own way in class, regardless of the opinions of others.
I disregard rules and regulations that hamper my personal freedom.
I consider myself a "team player", in class (reverse scored).
~~I try my best to work alone on an assignment.~~

Perception of Risk

I usually view risks as a challenge.
I really dislike uncertainty (reverse scored).
I view myself as a risk seeker.
My general attitude is safety first (reverse scored).
I avoid taking risks with my health (reverse scored).

Locus of Control

To a great extent, my life is controlled by accidental happenings (reverse scored).
Professors sometimes make an early impression of you and then no matter what you do, you cannot change that impression (reverse scored).
~~Some people have a talent for writing, while others will never write well no matter how hard they try.~~
~~College grades most often reflect the effort you put into classes.~~
My life is determined by my own actions.

Self Efficacy

I can take charge of decisions needed for a group or organization.
I can make a great impression during a job interview.
I am confident to plan, direct, organize and prepare others on what they need to do.
Most people doing a leadership task can do it better than I can (reverse scored).
I have the abilities to complete any course assignment successfully.

Career Aspirations

I am definitely going to be an entrepreneur, after my studies and am prepared to do anything to achieve that goal.

I would much prefer a career as a specialized expert or professional in a large and stable organization (reverse scored).

I have a viable business idea and intend to start my own business soon after graduation.

My main career goal is to rise up the ranks as a leader or manager in an organization and be in charge of others (reverse scored).