The Impact of Multidimensional Ach on Entrepreneurial Intention

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10.34190/ECIE.19.020

Abstract: Entrepreneurial intention has been extensively studied in entrepreneurship research over the past 20 years (Kolvereid, 1996; Krueger and Carsrud, 1993; Fayolle and Liñán, 2014). In general, previous research has been largely based on the Theory of Planned Beviour (TPB) by Ajzen (1991) and addressed entrepreneurial intentions in different contexts. However, entrepreneurial motivation in regard to entrepreneurial intention is an under-researched issue. Carsrud and Brännback (2011) call for studies investigating the impact of motivation on entrepreneurial intentions. This study answers the call by examining the impact of multidimensional Ach on entrepreneurial intentions. Ach is a fact-based theory of motivation initiated by Atkinson (1957, 1964). Based on this theory, a multidimensional measurement of Ach was developed by Helmreich and Spence (1978) and it contains three subscales "mastery needs", "work orientation", and "interpersonal competitiveness". As Carsrud and Brännback (2011) argue, these subscales tap into some underlying motivational characteristics of the entrepreneur. The objective of this study is to explain the impact of these sub-constructs on entrepreneurial intentions by answering the following questions: 1) have mastery needs a positive association with entrepreneurial intentions?, 2) does work orientation have a positive association with entrepreneurial intentions?, and 3) does interpersonal competitiveness have a positive association with entrepreneurial intentions? This study uses linear regression analysis in testing the model. Gender and role models are used as control variables. The data for this research was gathered from Finnish higher education students studying their first year in Seinäjoki University of Applied Sciences in the fall of 2018. 555 answers were received. Results show that both interpersonal competitiveness (β=.24***) and mastery needs (β=.11*) have a positive and statistically significant effect on entrepreneurial intention. However, work orientation does not have an effect. Both gender (male) and role models are significant variables in the model. The whole model explains 23 percent of the variation in entrepreneurial intention. This study verifies the importance of motivation for entrepreneurial intention. The results also have implications for entrepreneurship education and policy.

Keywords: entrepreneurial intention, multidimensional Ach, motivation, higher education

1. Introduction

Entrepreneurship has been widely acknowledged as the core force driving economic activity and development since the days of Schumpeter. As societies depend on a steady supply of new entrepreneurs to maintain entrepreneurial dynamics, the question of what makes an entrepreneur, and can entrepreneurship promoted, has drawn significant research interest. One of more popular approaches in the past decades has been the study of entrepreneurial intention (EI), which have been extensively studied in entrepreneurship research over the past 20 years (Kolvereid, 1996; Krueger and Carsrud, 1993; Fayolle and Liñán, 2014). The relevance of intention in the entrepreneurial process has been amply demonstrated in previous research, but some criticisms have also arisen. For one, entrepreneurial intention does not always lead to entrepreneurial behavior. It is far more common for people to intend entrepreneurship than to actually become entrepreneurs, and individuals' intentions vary over time. For example, with higher education students intentions commonly decrease during studies (Varamäki et al, 2015). What intervening factors are needed for intention to become action? Fayolle and Liñán (2014) have suggested the application of Gollwitzer's (1999) implementation intention theory, which highlights the importance of specific plans in goal attainment.

Another issue with study of entrepreneurial intention highlighted in literature relates to entrepreneurial motivation, which is so far insufficiently understood. Carsrud and Brännback (2011) note that goals and motives are important for understanding any human behavior, and that a link between intention, motivations and behavior exists but is not likely to be linear or unidirectional. They propose that entrepreneurship research could benefit from investigating the direct effect of achievement motivation on entrepreneurial intention by using a multidimensional measurement of Ach developed by Helmreich and Spence (1978). This measurement scale includes three subscales of work, mastery and interpersonal competitiveness.

The present paper addresses that call. Applying the theory of Ach (achievement motivation) we exam the impact of mastery needs, work orientation and interpersonal competitiveness on entrepreneurial intention.

The objective of this study is to explain the impact of these sub-constructs on entrepreneurial intention by answering the following questions: 1) Have mastery needs a positive association with entrepreneurial intention?, 2) Does work orientation have a positive association with entrepreneurial intention?, and 3) Does interpersonal competitiveness have a positive association with entrepreneurial intention?

2. Entrepreneurial intention and motivation

Perhaps the most dominant model in study of entrepreneurial intention has been the Theory of Planned Behavior (TPB) by Ajzen (1991). According to TPB, intention is a key predictor of behavior. Hence, intention to become an entrepreneur is viewed as a predictor of becoming an entrepreneur. Very few entrepreneurial intention studies provide evidence on the linkage between intention, its antecendents and actual behavior, but some does exist (for example Joensuu-Salo, Varamäki and Viljamaa, 2015; Kautonen, van Gelderen and Fink, 2015), showing that intentions are worth examining.

The strength of TPB in study of entrepreneurial intention lies in its conception of the antecedents of intention, i.e. the factors that influence intention. According to Ajzen (1991) there are three conceptually distinct determinants to intention; attitude to behavior in question, subjective norm i.e. perceived social pressure relating to the behavior and perceived behavioral control, i.e. the perception of whether the behavior of interest is easy or difficult. Perceived behavioral control has also been known as self-efficacy (see e.g. Wood and Bandura, 1989). To summarize, intention to behave in specific way is formed when a person has a favorable attitude to said behavior, experiences positive social pressure, or at least the lack of negative social pressure, towards the behavior, and perceives the behavior as something he or she can accomplish. Previous studies have largely validated the utility of TPB in the context of entrepreneurial intention, although the relative importance of the antecedents is not consistent across studies (e.g. Engle et al, 2010, Carsrud and Brännback, 2011).

Although evidence linking intention and behavior exists, it has been argued that there are intervening factors between antecedents of intention and intention itself. Bagozzi (1992) notes that an explicit motivational component is lacking in TPB. Bagozzi et al. (2003) have argued that desires, pertaining to the intensity with which a goal is sought, are necessary antecedents to implementation intention and plan enactment. Schlaegel and Koenig (2014) show that desires as a goal-related mental states (Bagozzi, 1992; Perugini and Bagozzi, 2001) can come between intention and its antecedents.

Carsrud and Brännback (2011) divide motivational theories into drive theories and incentive theories. In drive theories, push factors dominate, whereas in incentive theories, motivational pull factors are emphasized.

Covington (2000) presents distinction between motives-as-drivers and motives-as-goals according to Kelly (1955). Motivation as a drive was the first perspective in motivational theories and refers to motivation as an internal state, need, or condition impelling individual toward action (Covington 2000). Motives-as-goals as a research tradition is summarized by Covington (2000, p.174) as assuming "that all actions are given meaning, direction, and purpose by the goals that individuals seek out, and that the quality and intensity of behavior will change as these goals change". Hence, incentive theories resemble motives-as-goals theories.

One of the fact-based motivational theories applied in research on entrepreneurial intention is the theory of Ach initiated by Atkinson (1957). According to this theory there are individual differences in the strength of achievement motive, conceived as a fairly stable disposition to strive for achievement. Atkinson (1957) demonstrates that fear of failure and desire for achievement are distinct elements in motivation and have different effects of behavior. Tang and Tang (2007) have linked achievement motivation to risk-taking propensity. Carsrud and Brännback (2011) point out that risk-taking has in the past been treated as a personality trait linked with entrepreneurship rather than as a part of motivation. Achievement motivation is individual and relatively stable, providing incentive value in particular when a difficult goal is pursued. Earlier research has demonstrated that achievement motivation is significantly correlated with both the choice of an entrepreneurial career and entrepreneurial performance (Collins, Hanges and Locke, 2004).

Helmreich and Spence (1978) developed a multidimensional model of achievement motivation, which includes interpersonal competition as a social dimension and work and mastery as nonsocial dimensions. Interpersonal competition refers to the level of how much individual enjoys competition with others and has the desire to be

better than others. Mastery refers to individuals' desire to perform difficult tasks instead of non-challenging ones. The sub-dimension of work can be defined as individual's desire to work hard and enjoy it. Carsrud and Brännback (2011) argue that all these sub-dimensions connect well with some underlying characteristics of entrepreneurship.

The multidimensional model of achievement motivation by Helmreich and Spence (1978) has been used in several studies investigating different aspects in psychology (e.g. Platow and Shave, 1995; Lim, 2009; Adams, Priest and Prince, 2006). Multidimensional achievement motivation has also been studied in entrepreneurship.

One of the first studies was the one of Carsrud, Olm and Thomas (1989), who examined the effects of multidimensional achievement motivation, personality characteristic, and needs for power and influence on the success of business owners. They showed that sub-dimensions of work, mastery and interpersonal competitiveness interact with other factors in predicting entrepreneurial success. Recently, Valliere (2014) investigated dimensions of mastery, work and competitiveness in order to conduct a comparative exploration of the effects of culture, social values and entrepreneurial motivation. DeMartino, Barbato and Jacques (2006) explored career/achievement and personal life orientations of entrepreneurs and the impact of sex. Despite these previous studies, Carsrud and Brännback (2011) call for further studies investigating the impact of multidimensional achievement motivation on entrepreneurial intention.

When examining entrepreneurial intention, the effects of gender and role models should be noticed. Previous research has demonstrated gender effects on entrepreneurial intention (e.g. Wilson et al, 2009; Liñán and Chen, 2009; Yordanova and Tarrazon, 2010; Joensuu et al, 2013). Men have higher entrepreneurial intention and exhibit entrepreneurial behaviors more than women. Likewise, previous studies have shown that individuals with entrepreneurial role models are more likely to have entrepreneurial intention and exhibit actual start-up behavior (e.g. Kolvereid, 1996; Van Auken, Fry and Stephens, 2006; Liñán and Chen, 2009; Engle et al, 2010).

Based on previous research, this study tests a model, where the sub-dimensions of achievement motivation have an effect on entrepreneurial intention. Gender and role models are used as control variables. Figure 1 presents the conceptual model for the study.

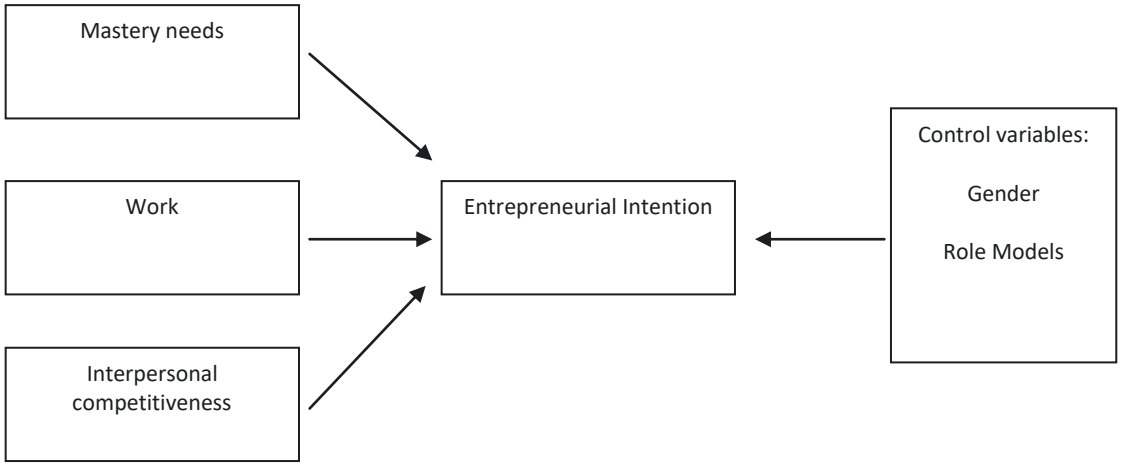

Figure 1: Conceptual model for the study.

Based on the previous research, we propose following hypotheses:

H1: Sub-dimension of mastery needs has a positive association with entrepreneurial intention.
H2: Sub-dimension of work has a positive association with entrepreneurial intention.
H3: Sub-dimension of interpersonal competitiveness has a positive association with entrepreneurial intention.
H4: Gender has an effect on entrepreneurial intention.
H5: Role Models have an effect on entrepreneurial intention.

3. Data gathering and measuring instrument

The data for this research was gathered from Finnish higher education students studying their first year in Seinäjoki University of Applied Sciences on fall 2018 via web-based survey. Altogether 555 answers were received. 51 percent of the respondents were male and 68 percent had some entrepreneurial role model in their family. The mean age of the respondents was 23 (minimum 18 years, maximum 52 years). Table 1 presents the study fields of the respondents.

Table 1: Study fields of the respondents.

Study Field	N
Culture	43
Natural resources and environment	40
Tourism, catering and domestic services	28
Social services, health and sports	135
Technology	165
Social Sciences, Business and administration	144

A multidimensional measurement of Ach developed by Helmreich and Spence (1978) was adapted for measuring the three subscales "mastery needs", "work orientation", and "interpersonal competitiveness. All the variables were measured using 7-point Likert scale (1=Not at all agree --- 7=Totally agree).

Mastery needs was measured with the following five items:

- I would rather do something at which I feel confident and relaxed than something, which is challenging and difficult. (reversed)
- I would rather learn easy fun games than difficult thought games. (reversed)
- If I am not good at something I would rather keep struggling to master it than to move on to something I may be good at.
- Once I undertake a task, I persist.
- I prefer to work in situations that require a high level of skill.

Work orientation was measured with the following four items:

- I find satisfaction in working as well as I can.
- I find satisfaction in exceeding my previous performance even if I don't outperform others.
- I like to work hard.
- Part of my enjoyment in doing things is improving my past performance.

Interpersonal competitiveness was measured with the following three items:

- I enjoy working in situations involving competition with others.
- It is important to me to perform better than others on a task.
- I feel that winning is important in both work and games.

Entrepreneurial intention was measured with Entre Intention measurement instrument, which was developed in Finland (Varamäki et al, 2015). Entre Intention instrument is based on Ajzen's TPB-model (1991) and the scales are largely adapted from the work of Kolvereid (1996) and Tkachev and Kolvereid (1999). Entrepreneurial intention was measured with the following eight items:

- How likely are you to continue your career employed by another (i.e., in salaried work) after graduation)? (1=very unlikely ----- 7=very likely)
- How likely are you to start your own business and work as an entrepreneur after graduation or while still studying? (1=very unlikely ----- 7=very likely)
- If you were to choose between entrepreneurship and salaried work after graduation, which would you choose? 1=salaried work ----- 7=entrepreneurship
- How strong is your intention to embark on entrepreneurship at some point of your professional career? 1=no intention -----7=very strong

- How likely are you to embark on entrepreneurship after you have gathered sufficient work experience? (1=very unlikely ----- 7=very likely)
- How likely is it that you will be employed for most of your career by a company or a public organization (without any connection to entrepreneurship)? (1=very unlikely ----- 7=very likely)
- If you were to choose between entrepreneurship and unemployment after graduation, which would you choose? (1=unemployment ----- 7=entrepreneurship)
- How likely are you to end up as an entrepreneur through succession or transfer of ownership after graduation (or while still studying)? (1=very unlikely ----- 7=very likely)

Role models were measured by asking the respondent does he/she has an entrepreneur in the close family. The answer was coded 1 for yes and zero for no. For gender, male was coded as 1 and female as zero in the regression analysis.

This study uses multiple linear regression analysis in testing a model, where mastery needs, work and interpersonal competitiveness act as independent variables and entrepreneurial intention as the dependent variable. Gender and role models are used as control variables.

The reliability of scales were acceptable according to the recommendations of Nunnally (1978). Cronbach's alpha for entrepreneurial intention scale was 0.89, for work scale 0.72, for interpersonal competitiveness scale 0.80 and for mastery scale 0.61. Table 2 presents the correlation table for the scales.

Table 2: Correlation table for the scales

	1	2	3	4	5
1. Entrepreneurial Intention	1				
2. Mastery	,233***	1			
3. Work	,157***	,473***	1		
4. Competitiveness	,343***	,325***	,227***	1	
5. rolemodel (yes)	,279***	,030	,027	,066	1
6. gender (male)	,237***	,055	-,101*	,183***	,001
*, *** indicates significance at the 90 % and 99 % level, respectively.					

Tabachnick and Fidell (1996) suggest that the independent variables with a bivariate correlation higher than .70 should not be included in multiple regression analysis. None of the correlations exceeded this cut value.

Tolerance and VIF-values were analyzed to see that there was not a threat of multicollinearity between independent variables. The normality of scales was tested using Kolmogorov-Smirnov and Shapiro-Wilk -tests, which showed that all the variables in our model were normally distributed.

Common method bias can be a problem, if the data for measuring both the predictor and criterion variable is collected from the same person in a same measurement context, same item context with similar item characteristics (Podsakoff et al, 2003). One way to control this bias is to use Harman's single factor test, in which all study variables are loaded into an exploratory factor analysis and the unrotated factor solution is examined as Podsakoff et al (2003) recommend. If a single factor will be found or one factor will account for the majority of the covariance, common method variance is present. For examining this, all the studied items (22 items) were factor analyzed using principal axis factoring and the unrotated factor solution was examined.

Kaise-Meyer-Olkin measure of sampling adequacy (KMO=0.86) verified that the sample was large enough for the factor analysis. Results of the factor analysis showed that several factor emerged with eigenvalues greater than 1.0, first factor counting for 24 percent of the variance. Hence, the problem of common method variance was not apparent in this study.

4. Results

The results from the multiple linear regression analysis are presented in Table 3. The first model includes only the control variables which are both significant predictors in the model and explain 13 percent or the variance in entrepreneurial intention. When the sub-dimensions of achievement motivation are added in the second model, there is a significant rise in adjusted R square (F change 24.419***). The second model explains 23 percent of the variance in entrepreneurial intention. F value is significant (33.793***).

In model 2, the sub-dimensions of mastery and interpersonal competitiveness are significant in the model, interpersonal competitiveness being more important variable than mastery needs in explaining entrepreneurial intention (β=.24***). Hence, H1 and H3 are supported. Mastery needs have a significant effect on entrepreneurial intention (β=.11*), however the effect is smaller than of gender (β=.19***) and of role models (β=.26***). H4 and H5 are supported. The sub-dimension of work is not significant in the model. Hence, H2 is not supported.

Table 3: Multiple linear regression analysis results

	Model 1	Model 2
Constant	2.588*** (.101)	.507 (.354)
Gender	.589*** (.099) β=.236	.479*** (.096) β=.192
Role Models	.743*** (.106) β=.279	.687*** (.100) β=.258
Mastery		.158* (.065) β=108
Work		.095 (.063) β=.065
Interpersonal competitiveness		.216*** (.036), β=.241
R-square	0.133	0.236
Adjusted R-square	0.130	0.229
F statistics	42.442***	33.793***
F change		24.419***
Standard errors are reported in parentheses. *, **, *** indicates significance at the 90 %, 95 %, and 99 % level, respectively.		

The results show that the mastery needs and interpersonal competitiveness sub-dimensions of achievement motivation are related to entrepreneurial intention. These dimensions are significant in the model when the effect of gender and role models are controlled. There exists a positive association between entrepreneurial intention and mastery needs likewise between entrepreneurial intention and interpersonal competitiveness.

5. Discussion

The objective of this paper was to answer three questions. The first question is whether there is a positive relationship between mastery needs and entrepreneurial intention. The answer is affirmative. Mastery needs indeed have a positive relationship with entrepreneurial intention, albeit the relationship is not as significant as that of interpersonal competitiveness and entrepreneurial intention. The second question related to work orientation. In this study, no significant relationship was found between work orientation and entrepreneurial intention. The third question is whether there is a positive relationship between interpersonal competitiveness and entrepreneurial intention. A significant and positive relationship was found between these concepts.

This study verifies the assumption of Carsrud and Brännback (2011) that multidimensional achievement motivation is related to entrepreneurship. This study verifies also the findings of Collins, Hanges and Locke (2004), who found in their meta-analysis that achievement motivation is significantly related to

entrepreneurial career choice. However, their study did not address the idea of multidimensional Ach. The present study provides new knowledge on the different sub-dimensions of Ach affecting entrepreneurial intention. We find that students with high levels of interpersonal competitiveness and mastery needs have higher levels of entrepreneurial intention. Interestingly, the sub-dimension of work is not significantly related to entrepreneurial intention in our data. The students valuing hard work were not especially interested in an entrepreneurial career. This is an interesting result as earlier studies referenced by Carsrud and Brännback (2011, 13) indicate that best performance is delivered by individuals with low rather than high interpersonal competitiveness, and that interpersonal competitiveness is not related to entrepreneurial success. To speculate, perhaps entrepreneurship appears for young people with high competitiveness a natural outlet for their competitive spirit and hence an attractive arena in which to excel compared to others. The fact that actual entrepreneurial behaviors often call for hard work and struggling to master difficult situations may not be apparent for students, whose appraisal of their own performance comparative to others largely takes place in controlled environments such as education and sports. Further studies examining diverse age groups may shed light on this.

The study has some other limitations that should be mentioned. The data was collected in a single university of applied sciences in a single country. The homogeneous cultural and temporal setting may limit the general applicability of the results, and further studies should check whether results are similar in other settings.

Furthermore, our analysis is here limited to examination of the three dimensions of Ach on intentions, which leaves open two important questions. First, are there connections between dimensions of Ach and the different antecedents of intensions as described by the TPB? It is conceivable, for example, that a particular connection between exists mastery needs and perceived behavioral control/self-efficacy. Future studies should address this issue. Second, what is the interplay between dimensions of Ach, antecedents of intentions and intentions themselves? Carsrud and Brännback (2011) argue that motivation might be the link between intentions and actions, but it is also possible that achievement motivation and its dimensions play their part in an earlier phase of the entrepreneurial process. Bagozzi et al. (2003) show that anticipated emotions have a function in the formation of goal desires and thus intentions, and it is conceivable that for example mastery needs in turn have an impact on anticipated positive and negative emotions. We concur with Carsrud and Rännback's (2011) assessment that there is a need for further studies on entrepreneurial motivation.

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