The Role of Motivation and Entrepreneurial Role Models in Shaping Entrepreneurship Competence of Higher Education Students

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Abstract: Entrepreneurship competence (EC) has received considerable attention in Europe, particularly after the European Commission published the EntreComp framework in 2016. EC can be defined as a competence for life, relevant to personal development and fulfilment, finding and progressing in employment, as well as initiating new ventures ranging from community campaigns, social enterprises to new start-up businesses. There is a need to develop EC of European citizens, and especially in higher education context, but little is known about the factors shaping EC. The objective of this research is twofold: (1) to examine the relationship between entrepreneurial role models and entrepreneurship competence of higher education students, and (2) to examine the relationship between motivation and entrepreneurship competence of higher education students. The data (n=1373) was gathered from two Finnish universities, and respondents represent first year students in versatile study fields. In this research, entrepreneurial role model is defined as someone in the close family (parents or siblings) working as an entrepreneur, and motivation is examined through multidimensional achievement motivation. The results show that there is a positive relationship between entrepreneurial role models and EC. The most important factor explaining EC is the motivation subscale of work orientation followed by mastery needs and interpersonal competitiveness. The model explains 46 percent of the variance in EC. The study contributes to understanding the underlying factors shaping the EC of higher education students, and suggests practical solutions for entrepreneurship education.

Keywords: entrepreneurship competence, achievement motivation, entrepreneurial role models, higher education

1. Introduction

Entrepreneurship competence (EC) has received considerable attention in Europe, particularly after the European Commission published the EntreComp framework in 2016 (see Bacigalupo et al, 2016). EC can be defined as "a competence for life, relevant to personal development and fulfilment, finding and progressing in employment, as well as initiating new ventures ranging from community campaigns, social enterprises to new start-up businesses" (McCallum et al., 2018). There is a need to develop EC of European citizens, and especially in higher education context, but little is known about the factors shaping EC.

This research contributes to discussion on the antecedents of EC in two ways. First, the importance of entrepreneurial role models in shaping individual's EC is examined. Prior research has demonstrated a clear link between entrepreneurial role models and entrepreneurial intention (Chlosta et al, 2012; Laspita et al, 2012; Joensuu-Salo et al, 2015), but the relationship between entrepreneurial role models and entrepreneurship competence had not received much attention. In this research, role models are seen as someone in the close family working as an entrepreneur. Second, this research tests the impact of achievement motivation on entrepreneurship competence by using Atkinson's (1957, 1964) theory of Ach (achievement motivation), which suggests that individuals differ in strive for achievement and this disposition is fairly stable. Atkinsons´s Ach is a one-dimensional construct. However, Helmreich and Spence (1978) suggests, that Ach may not be one-dimensional but instead have several independent dimensions. They developed a multidimensional model of achievement motivation (multidimensional Ach), which have three distinct sub-dimensions. These are mastery needs (individual´s desire to perform challenging tasks instead of easy ones), work orientation (individual´s desire to work hard and enjoy it), and interpersonal competition (individual´s desire to compete with others and succeed better than others). In this research, the perspective of multidimensional Ach is adopted. The study of motivation in entrepreneurship research has been scarce in recent years, and Carsrud and Brännback (2011) call for new studies on motivation and entrepreneurship. As they argue, the subscales of multidimensional Ach tap into some underlying motivational characteristics of the entrepreneur. Thus, in this research the relationship between mastery needs, work orientation, interpersonal competitiveness and entrepreneurship competence is examined.

This research has two main objectives: first, to examine the relationship between entrepreneurial role models and entrepreneurship competence, and second, to examine the relationship between multidimensional achievement motivation and entrepreneurship competence.

2. Theoretical framework

2.1 Entrepreneurship competence

Ismail et al (2015) define competence as a set of knowledge, capabilities, characteristics, and attitudes that are required for a good performance in some task. Further, Mitchelmore and Rowley (2010) argue that competence should be viewed as the essential personal traits, skills, knowledge, and motives that enable people to do the task. Based on the definition of competence, entrepreneurship competence is linked with the capacity of entrepreneurs to succeed (Man et al, 2002). Mitchelmore and Rowley (2010) define entrepreneurial competencies as "a specific group of competencies relevant to the exercise of successful entrepreneurship."

There has been several attempts to identify different sub-competences of entrepreneurship competence. Schelfhout et al (2016) include the competences of initiative-taking, creativity, performance orientation, problem-solving, and risk-taking ability for a generic entrepreneurial competence, while Oosterbeek et al. (2010) used 10 competencies in measuring entrepreneurship competence. Despite earlier work on entrepreneurship competence, Ferreras-Garcia et al (2019) point out that it is still difficult to find a precise definition of entrepreneurship competence. This problem was also recognized by the European Commission, which promoted an initiative to develop a framework for entrepreneurship competencies. This led to the development of EntreComp framework (Bagicalupo et al, 2016), in which entrepreneurship is defined as the capacity to turn value-generating ideas into action, and a transversal key competence needed by every citizen to secure personal fulfilment and development, active citizenship, social inclusion, and employment in the knowledge society. The EntreComp framework sees entrepreneurship competence through three inter-related and interconnected areas of 1) ideas and opportunities, 2) resources, and 3) into action (Bagicalupo et al, 2016). Each area consists of five competences, which together form the concept of entrepreneurship competence. The ideas and opportunities competence encompasses spotting opportunities, creativity, vision, valuing ideas, and ethical & sustainable thinking. The resources competence encompasses self-awareness and self-efficacy, motivation and perseverance, mobilizing resources, financial and economic literacy, and mobilizing others. The into action competence encompasses taking the initiative, planning and management, coping with ambiguity, uncertainty and risk, working with others, and learning through experience.

Learning is strongly related to the development of entrepreneurship competence. As Kakouris and Liargovas (2021) highlight, learning can be formal (result of instruction) or informal (results of any experience). Thus, EC can be developed through entrepreneurship education (EE), and through life experience. However, learning is a holistic phenomenon, and the causal relation between EE and learning is under debate (Kakouris and Liargovas, 2021; Hytti and O'Gorman, 2004). In addition, the discussion about the three modes of EE (about, for, and through) is relevant in understanding the concept of entrepreneurship competence (see Lackeus, 2015; Kakouris and Liargovas, 2021). If EC is seen only as knowledge and skills needed in entrepreneurial career (corresponding to "for" mode in EE), the transformational nature of entrepreneurship as a value creative function is lost (corresponding to "through" mode in EE).

2.2 Entrepreneurial role models

Prior research has shown that entrepreneurial role models – especially parental role models – have positive effects on individual's entrepreneurial intentions (Chlosta et al 2012; Laspita et al 2012). Further, Joensuu-Salo et al (2015) showed, that especially having a father working as an entrepreneur has a stronger impact on entrepreneurial intentions compared to having a mother working as an entrepreneur. However, the impact of parental role models can depend on personality factors (Chlosta et al, 2012). It can be moderated e.g. by gender (Moreno-Gómez et al, 2020) or attitudes and self-efficacy (Nowiński and Haddoud, 2019). However, in addition to parents, also sisters and brothers can act as role models in entrepreneurship. Thus, in this research entrepreneurial role model is defined as someone in the close family (parents or siblings) working as an entrepreneur. As prior research has demonstrated a clear link between entrepreneurial role models and individual's interest towards entrepreneurial career, there may also exist a link between entrepreneurial role models and entrepreneurship competence. Joensuu-Salo et al (2021) suggest that growing up with entrepreneurial parents might stir an individual to develop entrepreneurship competence, a positive attitude towards entrepreneurship, and a strong belief in the ability to succeed as an entrepreneur to a greater degree than among individuals without a parental role model. Thus, the following hypothesis is proposed:

Hypothesis 1: Entrepreneurial role models have a positive relationship with entrepreneurship competence.

2.3 Motivation

Goals and motives are important for understanding human behaviour. The achievement motivation theory was developed by Atkinson (1957, 1964) and McClelland (1961). It suggests that individuals differ in the strength of achievement motive, which in turn has effects on the behaviour. Achievement motivation is considered to be individual and relatively stable, providing incentive value in particular when a difficult goal is pursued. It may be referred to as "striving for achieving the best possible outcome which has an established standard of perfection and hence may result in success or failure" (Staniewski and Awruk, 2019). Prior research has demonstrated a clear link between entrepreneurial career, entrepreneurial performance, and achievement motivation (Collins, Hange and Locke, 2004). Thus, it would be reasonable to assume that achievement motivation has some relationship with entrepreneurship competence.

Based on the theory of achievement motivation (Ach), Helmreich and Spence (1978) developed a multidimensional model to be used in measuring Ach. It includes three elements of interpersonal competition, work orientation, and mastery needs. Interpersonal competition is seen 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. Multidimensional Ach has been used in prior entrepreneurship research. Carsrud, Olm and Thomas (1989) showed interactions of these sub-dimensions in predicting entrepreneurial success, and DeMartino, Barbato and Jacques (2006) explored career/achievement and personal life orientations of entrepreneurs and the impact of sex. Overall, recent research has demonstrated that there is a positive relationship between achievement motivation and entrepreneurial success (Staniewski and Awruk, 2019). However, Carsrud and Brännback (2011) call for more research on motivation and entrepreneurship, and suggest the benefits of using a multidimensional Ach for measuring motivation. By definition, entrepreneurship competence is needed for success in entrepreneurial ventures – hence, it can be assumed that achievement motivation and entrepreneurship competence are also linked. The following hypotheses are presented:

Hypothesis 2: Mastery needs have a positive relationship with entrepreneurship competence.

Hypothesis 3: Work orientation has a positive relationship with entrepreneurship competence.

Hypothesis 4: Interpersonal competition has a positive relationship with entrepreneurship competence.

3. Data and method

3.1 Data collection

The data were gathered from two Finnish universities of applied sciences (Seinäjoki and Tampere). The students answered a web-based survey during their first study year. The data therefore comprise answers from first year students collected in the fall of 2019 and of 2020. The data consists of 1373 answers from first year students. Among those surveyed, approximately 49 % were women and 51 % men. The respondents were aged between 18 and 58 (mean age 24.5). The survey revealed 66 % of the students had some entrepreneurial role model in their close family (father, mother or siblings). The students represented variety of different study fields.

3.2 Variables and reliability

The EC was measured with an instrument developed by Joensuu-Salo et al (2022), which is based on the EntreComp framework. The items for EC included:

Ideas and opportunities
EC1: I use my imagination and abilities to identify opportunities for creating value.
EC2: I develop creative and purposeful ideas.
EC3: I work toward a vision of my future.

EC4: I make the most of ideas and opportunities.
EC5: I assess the consequences and impact of ideas, opportunities, and actions.

Resources
EC6: I believe in myself and keep developing.
EC7: I know how to stay focused and don't give up.
EC8: I gather and manage the resources I need.
EC9: I have a good understanding of financial and economic issues.
EC10: I inspire, enthuse, and get others on board.

Into Action
EC11: I initiate processes that create value and can take up challenges.
EC12: I know how to prioritize, organize, and follow up.
EC13: I make decisions, thus dealing with uncertainty, ambiguity, and risk.
EC14: I know how to team up, collaborate, and network.
EC15: I reflect and learn from both success and failure, my own, and other people's.

Students were asked to evaluate their skills by answering these questions on a 7-point Likert scale anchored with completely disagree (1) and completely agree (7).

A multidimensional measurement of Ach developed by Helmreich and Spence (1978) was adapted for measuring the three subscales of "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:
MN1: I would rather do something at which I feel confident and relaxed than something, which is challenging and difficult. (reversed)
MN2: I would rather learn easy fun games than difficult thought games. (reversed)
MN3: 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.
MN4: I prefer to work in situations that require a high level of skill.
MN5: Once I undertake a task, I persist.

The work orientation was measured with the following four items:
WO1: I find satisfaction in working as well as I can.
WO2: I find satisfaction in exceeding my previous performance even if I don't outperform others.
WO3: I like to work hard.
WO4: Part of my enjoyment in doing things is improving my past performance.

Interpersonal competitiveness was measured with the following three items:
IC1: I enjoy working in situations involving competition with others.
IC2: It is important to me to perform better than others on a task.
IC3: I feel that winning is important in both work and games.

Entrepreneurial role model was operationalized as a dummy variable, where zero indicates that no father, mother or siblings worked as an entrepreneur, and one indicates that either father, mother or siblings worked an entrepreneur. All the items of EC loaded to one single factor, and factor loadings were higher than 0.50 as recommended by Hair et al (2010). Thus, EC was used as one-dimensional in this research. Cronbach's alpha for the scale was 0.93, which is well above the recommended level of 0.60-0.70 (Nunnally, 1978). Multidimensional Ach was examined through explorative factor analysis. As expected, the sub-scales or work orientation, mastery needs and interpersonal competition all loaded to their own independent factors. For work orientation, factor loadings varied between 0.54 and 0.74, for interpersonal competition from 0.62 to 0.87, and for mastery needs between 0.45 and 0.66. Even though one factor loading was below 0.50 in the sub-scale of mastery needs, the Cronbach's alphas were on acceptable level for all the sub-scales (Cronbach's alphas between 0.61 and 0.80). Table 1 presents the minimum and maximum values, means and standard deviations and correlations between the scales.

Table 1: Correlations, mean, minimum and maximum values of the study variables.

	Mean (sd)	Min/Max	1	2	3	4
1. EC	5.0 (0.9)	1.7/7.0	1			
2. MN	4.1 (1.0)	1.3/7.0	.461***	1		
3. WO	5.8 (0.8)	2.2/7.0	.590***	.312***	1	
4. IC	4.2 (1.3)	1.0/7.0	.351***	.283***	.203***	1
5. Role model	0.66 (0.5)	0/1	.118***	.100***	.081**	.074**
** p < .01. *** p <.001						

Podsakoff et al (2003) reminds that common method bias can be a potential problem when data for both the predictor and criterion variable are obtained from the same person in the same measurement context using the same item context and similar item characteristics. Common method bias can be examined using Harman's single factor test: all of the studied variables are loaded into an exploratory factor analysis and unrotated factor solution is examined. The basic assumption is that if a substantial amount of common method variance is present, either a single factor will emerge or one general factor will account for the majority of the covariance among the measures. Harman's single factor test was used to control for the method bias. Exploratory factor analysis using principal axis factoring where the unrotated factor solution was examined, as recommended by Podsakoff et al (2003). Kaiser's criterion for retention of factors was followed. The sample size seemed to be large enough for the factor analysis, at least based on the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO = .94). Factor analytic results indicated the existence of several factors with eigenvalues greater than 1.0. The first factor accounted for 34 percent of the variance. Since several factors, as opposed to one single factor, were identified and since the first factor did not account for the majority of the variance, a substantial amount of common method variance does not appear to be present.

4. Results

Linear regression analysis was used to examine the hypothesized relationships. We followed the recommendations of Hilbe (2009) and Menard (2010) in checking the suitability for using regression analysis (normal distribution of response and error terms, no autocorrelation, no homoscedasticity, and no multicollinearity). Table 2 presents the results of the linear regression analysis. In the first model A, only entrepreneurial role model was used as an independent variable. It has a significant and positive relationship with entrepreneurship competence (β .118, p<.001). However, the model explains only 1.3 % of the variance in entrepreneurship competence. In the second model B, the three elements of achievement motivation were added to the equation. Results show that the most powerful predictor of entrepreneurship competence is work orientation (β .469, p<.001) followed by mastery needs (β .260, p<.001). In addition, interpersonal competitiveness has a significant and positive relationship with entrepreneurship competence (β .179, p<.001). Entrepreneurial role model remains significant in the second model. Having an entrepreneurial role model is positively related to student's entrepreneurship competence (β .041, p<.05). The whole model explains 46 percent of the variance in entrepreneurship competence. All the hypotheses are confirmed.

Table 2: Results of the linear regression analysis.

	Model A B (sd.error) Beta	Model B B (sd.error) Beta
Constant	4.854 (.041)***	.599 (.131)***
Role model	.221.*** (.050) β .118	.077 (.037)* β .041
Mastery needs		.227(.019)*** β .260
Work orientation		.500 (.022)*** β .469
Interpersonal competitiveness		.120 (.014)*** β .179
Adjusted R^2	.013	.463
F statistics	19.449***	296.303***
F change		383.154***
*p < .05. ** p < .01 *** p <.001		

5. Discussion

The objective of this research was to examine how entrepreneurial role models and achievement motivation are related to entrepreneurship competence. The results show that having someone in the close family working an entrepreneur positively relates to entrepreneurship competence of a student. This supports the arguments of Joensuu-Salo et al (2021) – they suggested that growing in an entrepreneurial context can shape individual's entrepreneurship competence, positive attitudes towards entrepreneurial career, and belief in one's ability to succeed as an entrepreneur. As succeeding as an entrepreneur requires entrepreneurship competence, it can be hypothesized that the many entrepreneurs possess also high levels of entrepreneurship competence. If student's mother or father is a successful entrepreneur and has high level of entrepreneurship competence, can this somehow be inherited? Are the skills included in entrepreneurship competence strongly linked with personality traits and thus, embedded in genes? On the other hand, socialization (e.g., Falck et al. 2009) into the world of entrepreneurship may account for the effect. Prior research has demonstrated a clear link between entrepreneurial role models and entrepreneurial intentions (Chlosta et al, 2012; Laspita et al, 2012). This research adds new knowledge on the importance of role models in the development of entrepreneurship competence.

The second objective was to examine the relationship between multidimensional achievement motivation and entrepreneurship competence. Results show that all the elements of achievement motivation are positively related to entrepreneurship competence. The strongest relationship is between work orientation and entrepreneurship competence. Students who have high work morale have higher levels of entrepreneurship competence. In addition, mastery needs and interpersonal competition are positively related to entrepreneurship competence. This underlines the importance of achievement motivation in entrepreneurship research. It is not only related to entrepreneurial success like prior research has demonstrated (Staniewski and Awruk, 2019), but also to entrepreneurship competence, i.e. skills to gather resources, spot opportunities, and initiate processes to create value for others.

6. Conclusions

This research has several contributions and implications. First, it contributes to the discussion of the importance of role models when boosting entrepreneurship. Entrepreneurship competence is needed for successful entrepreneurship, hence, the use of role models in entrepreneurship education could be much stronger. In addition, students with entrepreneurial family background could be involved in designing entrepreneurship education. Second, this research contributes to entrepreneurship research by adding knowledge on the relationship between achievement motivation and entrepreneurship competence. The results of this research indicate that entrepreneurship education should be designed to support achievement motivation – the use of competitions, challenging tasks and assignments, and constant feedback on performance is needed. This in turn, makes entrepreneurship education more suitable to individuals with entrepreneurship competence and may lead to entrepreneurial ventures. Basic lectures or passive learning methods are not best pedagogical choices in entrepreneurship education. As Kakouris and Liargovas (2021) state, passive learning corresponds to "about" mode of teaching entrepreneurship, while "through" mode" is inherently transformational. The results of this research give emphasis on "through" mode of entrepreneurship education. There are some limitations in this study. The data was collected from one country only. The homogeneous cultural and temporal setting may limit the general applicability of the results, and future studies should check whether these results are similar in other settings. Furthermore, the analysis is here limited to examination of the three dimensions of Ach and role models on entrepreneurship competence. Future research could examine possible moderators like gender or attitudes, which prior research has identified to moderate the relationship between entrepreneurial role models and entrepreneurial intentions (Chlosta et al, 2012; Nowiński and Haddoud, 2019). Despite the limitations of the study, the research contributes to understanding different factors shaping entrepreneurship competence of individuals and has clear implications for entrepreneurship education.

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