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Changes in Entrepreneurial Self-Efficacy since Completion of Entrepreneurial Studies Irena Miljkovic Krekar^a, Gordana Coric^{b*}

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Abstract

Entrepreneurial self-efficacy (ESE) is one of the crucial constructs in the psychology of entrepreneurship research. This paper addresses the stability of ESE in time, due to changes in entrepreneurial status. One general and one specific measure of ESE were applied on 169 final-year students of entrepreneurship in two measurement points: (1) during the final semester, and (2) 18 months later. We found significant differences for general ESE measure. We conclude that ESE is a dynamic construct that changes along with entrepreneurial status. In order to determine exact impact of education on the ESE level, further research should measure changes in students' ESE from first to their last year of study, both for students of economic and non-economic studies.

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1. Introduction

The concept of self-efficacy has been introduced to scientific literature in the seventies of the last century by well-known psychologist Albert Bandura, as part of his *Social learning theory*, later expanded and renamed *Social-cognitive theory* (Bandura, 1997). Self-efficacy (SE) refers to the belief that we are able to perform a certain action, and it makes a key self-regulatory process that underlies each (deliberate) action. SE influences the cognitive patterns of problem solving, motivation, emotional and physiological arousal, patterns of behavior and consequently - the quality of performance. Successful implementation intensifies SE, unsuccessful implementation weakens it additionally, thus closing the circle of *self-fulfilling prophecy mechanism*.

The decisions one makes based on the SE (e.g. accepting a certain job or college enrollment) can radically change his/her life, and therefore Bandura believes the SE is a key factor of success in the academic, professional, interpersonal and health plan. It is a key factor in personal development and change, as well. Settings of the *Theory of self-efficacy* have been tested and proven in numerous studies. The SE is also a significant predictor of performance and intention to perform the particular work behavior, as well as its effectiveness. Stajkovic and Luthans (1998.) conducted a meta-analysis of the relationship of self-efficacy and performance and found an average correlation of 0.38 (De Noble et al., 1999).

In the context of entrepreneurial behavior, or psychology of entrepreneurship, the SE is intensively examined in the nineties of the last century. The term *entrepreneurial self-efficacy (ESE)* implies person's belief in his/her own ability to establish a company (Boyd and Vozikis, 1994). Greater ESE implies more intrinsic motivation for entering

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into entrepreneurship, and greater investment of efforts and perseverance over the obstacles. ESE has emerged as the single largest predictor of entrepreneurial intentions and entrepreneurial behavior, but also as a significant predictor of later success of the company (Chandler and Jansen, 1997). Such findings are explained with the argument that private company is the “extension” and “spitting image” of the owner. Eventually, entrepreneur’s abilities became the abilities of the company, and his/her vision and goals become the vision and objectives of the company (Chandler and Jansen, 1997).

However, the key questions are: how does ESE become high or low, and can ESE be influenced by targeted educational interventions? Bandura (1997.) sees personal experience as the **first** and the most powerful source of self-efficacy. In the context of entrepreneurship, that means former (successful) experience in entrepreneurship including the experience in setting up companies, and the experience in managing companies. Both can contribute to the increase or decrease in ESE. In the context of education, it assumes activities which allow students to gain direct experience with entrepreneurial practices and “learning by doing” experience. Best study programs on entrepreneurship help students to start-up business in safe college environment during studying, i.e. to work and learn in simulated, fictitious companies under professional mentorship. These programs provide students with a safe framework for learning from their own mistakes, and thus enable so called “developmental significance of failure from a learning perspective” (Cope, 2010), while they are not at risk of costly payments in real life. Failure acts as a "stepping stone" to spot new opportunities and improve business processes (Gupta, 2005; Cope, 2010), increasing entrepreneur's probabilities of future success by using it as an instrument to learn "what works and does not work" (Sarasvathy and Menon, 2002). The superiority of these teaching methods in comparison to the others is emphasized in a number of papers (Segal et al. 2007; Cooper et al., 2011.). However, there are other effective methods to provide students with an entrepreneurial work experience, such as developing a business plan, creating a marketing plan, a training/internship, role playing technique, etc.

The relationship between personal experience and the resulting self-efficacy is not unambiguous. Bandura (1997) assumed that it depends on many other factors, such as previous assumptions about the own abilities, perceived difficulty of the task, the amount of effort and time, performance circumstances, time patterns of success and failure, the ways in which these experiences are cognitively organized and reconstructed in memory, and the structure of the existing self-knowledge.

The **second** major source of self-efficacy, according to Bandura (1997), is *vicarious experience* or *modeling*, based on observation of behavior of another person (role models) and the consequences of that behavior. Fundamental process underlying vicarious learning is social comparison and assessment of whether we are in a particular activity better, worse or average compared to others, and especially in relation to the monitored model. In this context there are numerous available educational tools that are commonly used in practice. These are: organized visits to a successful entrepreneur, famous entrepreneurs as guest speakers, case studies of successful entrepreneurs, interviews with entrepreneurs, reading and analysis of their biographies, watching videos or movies, internship under the mentorship of successful entrepreneurs, etc. Conditions conducive to vicarious learning are: the amount of uncertainty about own effectiveness, lack of skills, confidence in own self-efficacy, models which provide activity and teach observer on predictability and controllability, the similarity between the observer and the model, etc.

The **third** presumed source of self-efficacy (Bandura, 1997) is *verbal persuasion*. If the credible person (family member, friend, teacher), appropriately provides real support or encouragement to a particular activity, it is very likely that more efforts will be put in that activity, which will consequently result in an increased SE. However, if in that activity, despite the stimulating environment and increase of one’s own efforts, a person experiences failures, he/she begins to perceive her/his persuaders as incompetent ones. Persuasion must have the appropriate form in order to be effective. Evaluative feedback, which emphasizes one's ability rather than effort, in a long-term, is better for the development of SE. For example, if the teacher gives the message that we are talented or capable of entrepreneurship, it will be more effective for our ESE than if we get a message that we will succeed with a lot of effort in entrepreneurship. Also, if that feedback emphasizes the shift that the person made in relation to the previous stage, it will be more effective than if the person presents how much still needs to be done to come to a certain level of success. Since failure can knock the entrepreneur's self-efficacy (Cope, 2010) generally it is better to get

unrealistically positive social support, rather than negative, which would certainly result in immediate withdrawal from the activity concerned.

Finally, a **fourth** source of self-efficacy according to Bandura (1997.) is to *estimate the physical indicators*, respectively physiological and affective states that can occur in an accompanying activity. Their assessment is particularly important in those domains that include physical achievement, health and coping with stress. In such situations, people follow and interpret their physical signs, which are performed on the basis of self-reports of (in)competence. Yet, the level of physical and affective reactions is not as important as the way of their interpretation, which is often derived from past experiences about the way in which specific responses were associated with performance. Traits such as self-esteem, self-monitoring, depression, and locus of control will affect cognitive bias in the interpretation of own physiological-affective reactions (Bandura, 1997., Gist and Mitchell, 1992). In the context of entrepreneurial behavior, Timmons and Spinelli (2003.) and Stevenson (1993), emphasize the importance of risk aversion, suggesting that those who have higher risk-tolerance also differently perceive uncertainty and stress of entrepreneurial work, and thus more often decide to become entrepreneurs. The role of education in this context is to increase the psychological fitness of an individual to cope with stress, risk and uncertainty in business. This includes *cognitive* (e.g. familiarity with the practical instructions on how to pass as painlessly as possible the stage “valley of death” with no income), *emotional* (e.g. how to deal with conflict between roles of mother and businesswoman) and even *physical* fitness (e.g. by learning relaxation techniques, coping with stress or adopting the rules of healthy eating). Since failure can affect the entrepreneur's self-efficacy, training for entrepreneurship is necessarily interdisciplinary.

2. Methodology and Research Framework

In this study, the level of ESE of final year students of entrepreneurial economics has been tested in two measurement points; the first (t1), during the final semester and the second (t2), 1.5 years after, when the majority of students is on the labor market. The goal of the research was to examine whether there are significant changes in the level of ESE and, if such differences exist, whether they can be linked to the differences in entrepreneurial behavior.

The research is based on use of two different instruments. One is a 22 items scale (Chen, Greene and Crick, 1998) that measures self-efficacy in marketing, innovation, management, risk and finances domain. That is, self-efficacy in concrete business knowledge and skills as market positioning, making financial analysis, creating new products and services etc. The other is a 6 items scale (Liñan and Chen, 2006) that measures general entrepreneurial self-efficacy. Items on both scales are evaluated on 5-point Likert scale, where grade 1 means *I'm completely unable* (for the first scale) or *I totally disagree* (for the second scale), and grade 5 stands for *I'm completely able* or *I completely agree*. At the second measurement point we have also asked participants whether they have founded their own ventures in the meantime. Based on their answers, variable *entrepreneurial behavior* was formed. Number 1 was added to participants that showed no entrepreneurial behavior or plans, number 2 to the ones that did not found a venture but seriously plan to do so in a near future, and number 3 to the ones that became entrepreneurs between first and second measurement time. The sample of 169 students and graduates of the University of Applied Sciences VERN' (Zagreb, Croatia) was tested, out of whom 83 are male and 86 female, aged 24 years on average.

3. Results

Results concerning our two ESE measures are shown in Table 1. As for another variable - entrepreneurial behavior, we categorized 103 participants as non-entrepreneurs, 45 of them as future entrepreneurs and 21 as entrepreneurs.

Table 1. Descriptives, normality test, Chronbach's α coefficient, dependent samples t-test and correlations for two ESE scales (ESE1 and ESE2) in two measurement points (t1 and t2) (N=169, *= $p < 0,05$, **= $p < 0,00$)

MEASURES	M	σ	Std. Err. Mean	Shapiro-Wilk Statistics	α	t	r
ESE1t1	3,7	12,37	0,95	0,99	0,94	0,52	0,33**
ESE1t2	3,67	12,07	0,93	0,99	0,95		
ESE2t1	3,74	3,95	0,3	0,98**	0,72	2,39*	0,46**
ESE2t2	3,86	4,04	0,31	0,98**	0,81		

Although there is a significant correlation between the scores on two scales of ESE in the two measurements, Table 1 shows that for the second ESE scale, which describes more general ESE, there is a small but significant increase in mean scores from the first to the second measurement. On the same scale the deriving indicators have somewhat lower (though still high) internal consistency, as well as the distribution of results that differ significantly from normal. Results for the first ESE scale, which describes the specific knowledge and skills, have proved to be stable over time, as we found no statistically significant differences between the two measurements.

We also performed the one-way analysis of variance in order to determine whether there are differences in ESE results between 3 groups of participants (divided according to their entrepreneurial status). Significant differences were found for second ESE measure (ESE2) at both measurement points (Ft1=6,15, $p < 0,05$; Ft2=13,23, $p < 0,00$). Scheffe's test had shown that in first measurement significant differences exist between those that are going to become entrepreneurs and those that classified as non-entrepreneurs (Mean Difference=2,91, $p < 0,00$). At the second measurement, differences on ESE2 measure are significant between future entrepreneurs and non-entrepreneurs (Mean Difference=2,96, $p < 0,00$) and between entrepreneurs and non-entrepreneurs (Mean Difference=3,25, $p < 0,00$).

4. Discussion

ESE is a dynamic construct that changes over time under the influence of experience. That especially stands for the general impression of one's own suitability for entrepreneurship, while the self-assessment of specific knowledge and skills is more stable over time (at least in shorter, 1,5 years periods). Changes that occur on more general measure of ESE can be linked to changes in the entrepreneurial status of respondents. Whereby, those who are seriously planning to or actually became entrepreneurs have a significantly higher level of general ESE than those who remained non-entrepreneurs. These findings further confirm the validity of the construct of ESE in the context of entrepreneurial behavior forecasts.

However, the question is - how does education affect the ESE? For that answer, it is necessary to monitor changes in the ESE of entrepreneurship students from the first to the final year of study. To ensure that these changes (and we expect that they would develop in the direction of increasing ESE through the years of study) are not the product of some other factors (e.g. changes in general economic, or other conditions for entrepreneurship, stronger promotion, etc.) parallel testings of non-economic orientation students should be made.

5. Conclusion

Entrepreneurial self-efficacy (SE) is considered to be the most significant single predictor of entrepreneurial intentions and behavior. In this study, we tested 169 students of the final year of studying entrepreneurial economics around finishing the study (t1) with two different measures of ESE - one general and one specific, which examines self-assessment of specific business knowledge and skills. Respondents were contacted 1.5 years after the first measuring (t2), when their ESE was re-measured along with their entrepreneurial status. Based on their responses, participants were categorized into 3 groups - non-entrepreneurs, future entrepreneurs and (current) entrepreneurs. The whole sample provided proof of the differences between general measures ESE2 in two measurement points, wherein the ESE2 in t2 is significantly higher than in ESE2 t1. One-way analysis of variance showed that this difference can describe the changes in the entrepreneurial status of respondents, where entrepreneurs and future

entrepreneurs achieve significantly higher score on this measure than non-entrepreneurs. We conclude that ESE is a dynamic construct that changes along with changes in entrepreneurial status. Whereby, self-appraisal of concrete entrepreneurial knowledge and skills is more resistant to change than general ESE level. In order to determine exact level of impact that education has on ESE level, further research should measure changes in students' ESE from their first to last year of study, both for students of economic and non-economic studies.

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