

Relation between Entrepreneurial Curiosity and Entrepreneurial Self-efficacy: a Multi-Country Empirical Validation

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The main purpose of this paper is to present empirical analysis of the relation between entrepreneurial curiosity and entrepreneurial self-efficacy. A detailed literature review in a broad field of entrepreneurship, narrow field of entrepreneurship psychology, and organizational sciences revealed, at one hand different connections between determinants influencing entrepreneurs, and latest scientific research trends on the other hand. Although the significance of curiosity in motivating and learning has received expressive scholarly support, like also entrepreneurial self-efficacy as one of the most studied personal attributes among entrepreneurs, no study to our knowledge existed in relation to entrepreneurial curiosity connected with entrepreneurial self-efficacy. An online multi-country survey was conducted in Slovenia and USA among entrepreneurs and results of structural equation modelling showed that entrepreneurial curiosity and entrepreneurial self-efficacy are related. Entrepreneurial curiosity has a positive impact on entrepreneurial self-efficacy of running entrepreneurial tasks. The findings of this research have both theoretical and practical implications.

Keywords: Entrepreneurial Curiosity; Entrepreneurial Self-Efficacy; Entrepreneurship; Entrepreneur.

1 Introduction

According to Frydman et al. (1999) entrepreneurship is clearly in part a matter of human ability. To become an entrepreneur, an individual needs to take action in identifying opportunities, deriving a plan to take advantage of the opportunity, executing the plan, and constantly monitoring and adjusting the plan (Farmer et al., 2009). In behavioral approaches to the study of entrepreneurship an entrepreneur is seen as a set of activities involved in organization creation, while in trait approaches an entrepreneur is a set of personality traits and characteristics (Gartner 1988). This research followed the presumption on the second part of Garner's statement. The entrepreneur is assumed to behave as if he maximizes utility including his value and desire to succeed, subject to an income constraint, of which his physical effort in subsistent production and entrepreneurial production generate this income (Lowrey, 2003). Entrepreneurs create new businesses, and new businesses in turn create jobs, intensify competition, and may even increase productivity through technological change (Acs, 2006). According to Audretsch and Keilbach (2004) entrepreneurship has typically been referred to as an action,

process, or activity. Based on predisposition that the first and the last element of every action, process, or activity is a human and on the finding of Lazear (2002) that the entrepreneur is the single most important player in a modern economy we presume that entrepreneur is the most important factor for success of enterprise.

Entrepreneurs have their own life style and look on everyday things different like non entrepreneurs. According to Ward (2004) entrepreneurs face many significant challenges and tend to think in non-conventional ways and after Kirby (2004) they try to challenge existing assumptions and to be flexible and adaptable in their problem-solving. Entrepreneurs impact positively on enterprise performances (Adam, 2004) and draw upon their human capital (knowledge, skills, and values) to advance the interests of their organizations (Ruzzier, 2007). Further Venkataraman (2004) claimed that very important is a change in the set of interrelated intangibles that allow the development of the kind of entrepreneurs who are, as Joseph Schumpeter described them, agents of profound economic and social change.

Shane et al. (2003) assumed that entrepreneurship is not solely the result of external factors (e.g. the status of the

economy, the availability of venture capital, the actions of competitors, and government regulations). They argue that human motivation plays a critical role in the entrepreneurial process. Entrepreneurs are educated, experienced and competent figures at the certain field. The entrepreneurial process occurs because people are motivated to pursue and exploit perceived opportunities (Hechavarria et al., 2012). For example let us look technological entrepreneurship and technological entrepreneurs. Previous research (Venkataraman, 1997; Shane and Venkataraman, 2000; Antoncic et al., 2004) showed that technological entrepreneurs are known on the one hand for having extremely good expert knowledge, especially regarding science and technology, whereas on the other hand they often lack solid business knowledge and a business vision (strategy). Jack and Anderson (1999) established time shortage is the most frequently cited reason that entrepreneurs do not invest more personal resources into knowledge acquisition processes. According to that knowledge we presume that entrepreneurs must often make choices based on psychology determinants, emotions and feelings.

The question here is what influence the entrepreneur, how can we define that one have a good potential for successful enterprise and carrier and the other not? In line with our research question also Baron (1998) wonders himself: Why do some people, but not others, recognize or create new opportunities? Why do some, but not others, try to convert their ideas and dreams into business ventures? And why, ultimately, are some entrepreneurs successful and others not?

In the current paper, we tried to partly answer these questions with focus on two entrepreneurial-psychological related constructs; entrepreneurial curiosity and entrepreneurial self-efficacy and show the relation between these two important components of entrepreneurial psychology and their impact on entrepreneurs. We made a multi-country research in Slovenia and USA among entrepreneurs and come to interesting findings. The purpose of this paper was to fill the gap in the literature with connection of the entrepreneurial curiosity construct and entrepreneurial self-efficacy and to show, that entrepreneurial curiosity is related to entrepreneurial self-efficacy. Another aim of research was also to show the positive consequences of these two constructs among entrepreneurs and necessity to identify level of them among individuals.

Hayward et al. (2009) summarized that emotions and certain behavior contribute to entrepreneurial resilience. Also other entrepreneurship scholars have begun to recognize the potential power of a self-concept based approach for predicting entrepreneurial action and outcomes (e.g. Hoang and Gimeno, 2010; Krueger, 2007; Shepherd and Haynie, 2009; Farmer et al., 2009).

In scientific literature scholars have researched phenomena related to managerial behavior, managerial cognition, and directly to entrepreneurship (Krueger and Brazeal, 1994). A growing number of studies on entrepreneurial motivation, intentions, and behavior include entrepreneurial self-efficacy as an explanatory variable (McGee et al., 2009). Current research develops further in understanding how certain determinants influence entrepreneurs and more specifically, how does entrepreneurial self-efficacy, beside entrepreneurial curiosity influence entrepreneurs and performance of their compa-

nies. According to our literature review self-efficacy has been linked theoretically and empirically with other constructs.

On one hand literature review has revealed a great interest in researching entrepreneurial self-efficacy with other important determinants of entrepreneurs. There is the fact that entrepreneurs are the first and cardinal division in establishing new businesses. Entrepreneurial self-efficacy appears to be a particularly important antecedent to new venture intentions (e.g. Barbosa et al., 2007; McGee et al., 2009; Zhao et al., 2005), and on the other hand many scholars argue (e.g. Krueger and Brazeal, 1994; Markman et al., 2003; Zhao et al., 2005; Hmieleski and Baron, 2008) that without minimal levels of entrepreneurial self-efficacy, it is unlikely that potential entrepreneurs would be sufficiently motivated to engage in the new venture creation process.

In the entrepreneurship literature we distinguished that entrepreneurial self-efficacy reflects the confidence to individuals so they can successfully complete a series of entrepreneurial tasks (Chen et al., 1998; De Noble et al., 1999; Douglas, 2012). For instance, Forbes (2005) developed a measure of entrepreneurial self-efficacy based on one's confidence in his/her ability to perform activities related to financial, marketing, management, and risk-taking aspects of entrepreneurship. Another interesting study was made by Hmieleski and Baron (2008) who researched the interaction between entrepreneurial self-efficacy, optimism, environmental dynamism, and firm performance.

Further interesting study was conducted by Zhao et al. (2005) who studied connection between entrepreneurial self-efficacy and entrepreneurial education. While research in other fields suggests that different connections between entrepreneurial self-efficacy and other determinants exist no research has yet been done in the field of entrepreneurial curiosity connected to entrepreneurial self-efficacy. With this study we filled a literature gap in this scientific field.

2 Entrepreneurial curiosity

»Curiosity and wonder is the mother of all science.« (Dewey, 1910).

According to Berlyne (1960) curiosity is often considered to be the desire to gain information, which, in turn, results in exploratory behavior and knowledge acquisition. One of the newest definitions of curiosity from Kashdan et al. (2012) in other words explains that curiosity is the propensity to recognize and seek out new information and experience, including an intrinsic interest in learning and developing one's knowledge. Since entrepreneurs need knowledge in order to act appropriate in the market entrepreneurial curiosity seems to be as one of the strongest determinants that influence them.

There are many entrepreneurial – psychology related constructs beside entrepreneurial self-efficacy as entrepreneurial intentions (e.g. Krueger et al., 2000), entrepreneurial motivation (Shane et al. 2003), entrepreneurial creativity (Amabile, 1997), and others, while entrepreneurial curiosity till recently remained unexplored. Since results of a research suggests that different types of curiosity exists; e.g. interpersonal curiosity (Litman and Pezzo, 2007), epistemic curiosity (Loewenstein,

1994), social curiosity (Renner, 2006), etc. there was till recently a gap in the entrepreneurship literature regarding the conceptualization and measurement of entrepreneurial curiosity. Entrepreneurial curiosity was developed according to the recommendations of several experts from construct development field (e.g. Churchill, 1979; Dawis, 1987; DeVellis, 2003; Hinkin, 1995). Entrepreneurial curiosity is determinant influencing entrepreneurs and has impact on their activities, thinking and strategic planning (Jeraj, 2012).

Based on literature review and interviews with entrepreneurs and experts from entrepreneurial field a distinction between entrepreneurial curiosity and other different types of curiosity were shown and parts of other types of curiosity were put in to the entrepreneurial frame (Jeraj, 2012). The theory for the entrepreneurial curiosity construct development based on: literature review - interviews with professors of entrepreneurship, entrepreneurs, and other experts from entrepreneurial field; directions from scale development experts; and further consisted of collecting data with the use of a preliminary form and analyzing the data in order to select items for more final form (Jeraj and Prodan, 2010).

Entrepreneurial curiosity is a positive emotional/motivational system oriented to investigation in the entrepreneurial framework, to learn tasks related to entrepreneurship and to incorporate new experiences to improve business. Entrepreneurial curiosity is awakened when an entrepreneur faces different stimuli related to entrepreneurship in the environment (Jeraj and Antoncic, 2013). Entrepreneurial curiosity is an interest in novelties or observations of society and a tendency to search for answers that indicate which demands should be met. It also represents guidance and competitive advantages for entrepreneurs relative to the competition.

3 Entrepreneurial self – efficacy

Self-efficacy refers to an individual's belief in their personal capability to accomplish a job or a specific set of tasks (Bandura, 1997). Further self-efficacy is an important construct that affects entrepreneurs that is why it is a good measure to compare it with entrepreneurial curiosity. The self-efficacy perspective is highly appropriate for the study of the entrepreneur because of the following (Chen et al., 1998):

- as a task-specific construct rather than a global disposition, self-efficacy theory helps address the problem of lack of specificity in previous entrepreneurial personality research;
- as a belief of one's vocational capabilities, entrepreneurial self-efficacy is relatively more general than task self-efficacy;
- as self-efficacy is closest to action and action intentionality, it can be used to predict and study entrepreneurs' behavior choice, persistence, and effectiveness;
- and the relationship between self-efficacy and behavior is best demonstrated in challenging situations of risk and uncertainty, which are believed to typify entrepreneurship.

Chen et al. (2001) found self-efficacy predicts several important work-related outcomes, including job attitudes

(Saks 1995), training proficiency (Martocchio and Judge, 1997), and job performance (Stajkovic and Luthans, 1998). Simply stated, individuals with high self-efficacy for a certain task are more likely to pursue and then persist in that task than those individuals who possess low self-efficacy (Bandura, 1997) or with other words, self-efficacy affects the perception that the individual can achieve his or her goals (Kasouf et al., 2013).

Self-efficacy affects performance through interest, motivation, and perseverance, whereas performance provides feedback information, on the basis of which self-efficacy is further evaluated and modified (Chen et al., 1998). Individuals with higher levels of entrepreneurial self-efficacy believe that they "have what it takes" to successfully engage in entrepreneurship (Mitchell and Shepherd, 2010). Entrepreneurial self-efficacy thus refers to the strength of an individual's belief that he or she is capable of successfully performing the roles and tasks of an entrepreneur (Chen et al., 1998).

Ozgen and Baron (2007) showed that self-efficacy is significantly related to the opportunity recognition so that means that people with higher level of self-efficacy will probably be more efficient in the entrepreneurship. In other words, self-efficacy, a construct which strongly hinges on judgments of personal capability, has been defined as the belief in one's ability to perform a task or to execute a specified behavior successfully (Bandura, 1997).

Bandura (1989) find out that acting on one's self-efficacy judgment brings successes or missteps requiring further self - reappraisals of operative competencies. According to Bandura's other work (2006) author stressed that self-efficacy beliefs influence whether people think erratically or strategically, optimistically or pessimistically. They also influence the courses of action people choose to pursue, the challenges and goals they set for themselves and their commitment to them, how much effort they put forth in given endeavors, the outcomes they expect their efforts to produce, how long they persevere in the face of obstacles, their resilience to adversity, the quality of their emotional life and how much stress and depression they experience in coping with taxing environmental demands, and the life choices they make and the accomplishments they realize (Bandura, 2006). The last statement is in line with entrepreneurial curiosity concept because entrepreneurs high on entrepreneurial curiosity level are ready to observe and change things, to gather capital and to invest it, and the most important thing is that entrepreneurial curiosity show that being an entrepreneur is not just a job but it is a way of life.

Literature review showed entrepreneurial-self efficacy is very important for firm performance (Pintrich and Schunk, 1996) and it has been linked to entrepreneurial outcomes (e.g. Baron and Markman, 2003). Another study undertaken by Hmieleski and Baron (2008) suggested that the interaction between entrepreneurial self-efficacy, optimism, and environmental dynamism is significant for firm performance. Baum (1994) found in a LISREL model that self-efficacy (measured as the self-efficacy to grow the company) had a strong positive relationship with realized growth. In that research self-efficacy was the best predictor of many variables.

Higher levels of entrepreneurial self-efficacy were positively associated with entrepreneurial education which provides opportunities for students to interact with entrepreneurial-minded people who socially support and encourage students to establish their own venture (Pittaway and Cope, 2007; Zhao et al., 2005; Pihie and Bagheri, 2011). Other researches showed that entrepreneurial self-efficacy impact also outcomes as action (e.g. Boyd and Vozikis, 1994), risk taking (e.g. Krueger and Dickson, 1994), success (e.g. Markman and Baron, 2003), and new venture intentions (e.g. Barbosa et al., 2007).

According to written above firm performance is associated with entrepreneurial self-efficacy, which may, as we claim in this study, be in part dependent on entrepreneurial curiosity. The goal of our study is to find out the relationship between entrepreneurial curiosity and entrepreneurial self-efficacy.

4 Entrepreneurial curiosity and entrepreneurial self – efficacy

Literature review revealed indirect relations that could be grounded between entrepreneurial curiosity and entrepreneurial self-efficacy. One of such an example could be knowledge. Many authors claim that curiosity refers to knowledge gathering (e.g. Schneider et al., 2013; Litman and Jimerson, 2004; Harrison, 2001). More specifically, on the field of entrepreneurship an entrepreneur with a high level of entrepreneurial curiosity wants to know how certain system works; wants to know how his business, economy works... and use all available parameters thus convert them into knowledge in order to improve his/her business (Jeraj, 2012).

In order to achieve previously defined aims from entrepreneurial self-efficacy measure, we estimate that entrepreneur have to have certain specific and broad knowledge about entrepreneurship. This statement is not surprising since already (Gartner et al., 1999) argued the chances of venture survival would be improved if:

- entrepreneurs had substantial knowledge and ability at the beginning of the start-up story;
- entrepreneurs gained knowledge and ability during the start-up process;
- and entrepreneurs continued to demonstrate substantial knowledge and ability at the end of the start-up story.

Secondly, curious individuals engage in novel and challenging activities which enable them to build personal resources (Silvia, 2006), like self-efficacy and resilience, leading to greater well-being (Jovanovic and Brdaric, 2012). A growing number of recent findings (e.g. Gallagher and Lopez, 2007; Kashdan and Steger, 2007; Kashdan et al., 2009) demonstrated that curiosity was positively associated with various measures of subjective, psychological and social well-being (Jovanovic and Brdaric, 2012).

Further Chen et al. (1998) discovered in their research that business founders had higher self-efficacy in innovation and risk-taking than did non-founders, and thus here is another similarity with entrepreneurial curiosity construct. In a scale development process of entrepreneurial curiosity it

was found that innovativeness is one of the essential parts of entrepreneurial curiosity construct (Jeraj, 2012) so the relation between entrepreneurial curiosity and entrepreneurial self-efficacy should be researched among entrepreneurs.

On the basis of the above research we propose the following hypothesis:

Hypothesis 1: Entrepreneurial curiosity is positively related to entrepreneurial self-efficacy.

5 Method

5.1 Sample and data collection process

For the purposes of cross-cultural validation of structural equation model, the surveys were sent by mail to entrepreneurs in Slovenia and the USA. The participants were entrepreneurs (i.e., founders or owners who have participated in the startup process of their businesses (Baron and Tang, 2011). E-mail addresses were selected randomly from public registers in both countries. For the Slovenian sample, the survey was administered in Slovene and for the USA sample, the survey was administered in English. Translate and back-translate technique (Brislin, 1970, 1980; Hambleton, 1993) and methodology suggested by Craig and Douglas (2005) were used.

First a personal e-mail with name and surname of potential responder was sent with link to the survey and with specific token for each responder. Verma et al. (2011) suggest that web personalization is the process of customizing the content and structure of a web site to the specific and individual needs of each user taking advantage of the user's navigational behavior. Personalization can also help to raise the response rate. After two weeks the first personalized remind letter was sent and then after one month the second remind letter to urge a response from those who had not responded yet.

To complete the survey the entrepreneurs needed approximately 12 minutes. The survey contained a total of 6 control variables included. Invitations were sent to 4,000 entrepreneurs in Slovenia and to 9,679 entrepreneurs in USA. 642 questionnaires were returned but only 636 mail surveys were completed fully and returned in Slovenia. From USA sample 218 questionnaires were returned but only 214 of them were useable completed enough for their applicability in the statistical analysis. That represents 15.9% return rate for Slovenian sample and 2.2% return rate for surveys made in USA. Other returned questionnaires had to high part of missing data (above 20%) thus were excluded. After analysis no pattern was found regarding to missing data. In case that there were one or two missing data in a construct, the mean value of certain construct was used as the imputation value; otherwise the mean of all constructs, that were on the scale from 1 to 5 was used.

Analysis showed that there were 30.1% female and 69.9% male respondents. Slovenian sample showed that there was 30.7% female in the sample and 69.3% male while in USA there were 28.4% female respondents and 71.6% male respondents. Entrepreneur's ages were from 22 to 77 years in Slovenia while in the USA entrepreneurs were from 28 to 81 years of age. Further the comparison of results from studies in Slovenia and the USA showed that 70.4% Slovenian entre-

preneurs were younger than 50 years while in USA that share was 33.8%.

The respondents had different average degree of education. In Slovenian sample the most frequent education was less than Bachelor's education (55.7%), the second most frequent education was Bachelor's degree (35.7%), and then Master's or Doctorate degree (8.6%). In USA entrepreneurs had mostly Master's or Doctorate degree (45.8%), second most frequent education was Bachelor's degree (32.7%), and then less than Bachelor's degree education (21.5%).

5.2 Description of measures

In responding to each scale, the entrepreneurs were instructed to report how they "generally perceive themselves" on two 7 - point scales ranging from 1 (never / strongly disagree) to 7 (always / strongly agree) for entrepreneurial curiosity (Jeraj, 2012) and on 5 - point scales from 1 (strongly disagree) to 5 (strongly agree) items for entrepreneurial self-efficacy. Prodan and Drnovsek (2010) adapted items for entrepreneurial self-efficacy scale used in this research from Chen et al.'s (1998) entrepreneurial self-efficacy scale.

The first part of entrepreneurial curiosity measure consisted from items on a scale with potential answer based on frequency of occurrence. In the first part of the entrepreneurial curiosity measure were 5 items.

Table 1: *Entrepreneurial curiosity measure 1*

1.1	While doing market research, I focus on the work so much that I lose track of time
1.2	When I notice an abandoned building, I think about what business potential it represents for me
1.3	It bores me to always watch the same products - therefore, I think about improving and offering them to the market
1.4	I enjoy conversations about obtaining capital for the firm
1.5	I spend hours working on a business-related problem as I am not at ease without an answer.
1.6	Conceptual problems related to entrepreneurship encourage me to look for solutions.
1.7	When I have some free time, I spend it researching new markets.

The second part of entrepreneurial curiosity measure consisted from items on a scale with potential answer based on level of agreement. In the second part of the entrepreneurial curiosity measure were 9 items.

Table 2: *Entrepreneurial curiosity measure 2*

2.1	I explore new things that could create additional profit
2.2	I am interested in other entrepreneurs' interests

2.3	In entrepreneurial work, I am mostly interested in competition
2.4	In my business, I must have information about marketing that is as complete as possible
2.5	I am very interested in knowing the needs I can meet in society
2.6	I simply must know how a certain business system works
2.7	I am able to create added value from my observations of the environment
2.8	I continuously delve into entrepreneurship matters
2.9	I spend most of my time thinking about company improvements

The instrument of entrepreneurial self-efficacy used to measure the level of entrepreneurial self-efficacy among entrepreneurs contained 11 items. These items were:

Table 3. *Entrepreneurial self-efficacy measure*

3.1	I am able to control costs
3.2	I am able to define organizational roles
3.3	I am able to define responsibilities
3.4	I am able to develop new ideas
3.5	I am able to develop new products
3.6	I am able to develop new services
3.7	I am able to establish position in product market
3.8	I am able to expand business
3.9	I am able to set and attain profit goals
3.10	I am able to set and attain market share goals
3.11	I am able to set and attain sales goals

These two constructs were analyzed by using the Cronbach alpha reliability analysis and confirmatory factor analysis. Cronbach Alpha Reliability was found very good for entrepreneurial curiosity (Slovenia 0.88, the USA 0.85) and entrepreneurial self-efficacy (Slovenia 0.88, the USA 0.84). Results of the confirmatory factor analyses were also very good. The hypothesis was tested by using structural equation modelling; results are presented in the next section.

6 Results

Results of structural equation modelling on the basis of the whole sample (n=850) are displayed in Figure 1. Model fit indices indicated a very good model fit (NFI 0.86, CFI 0.87, RMSEA 0.098). Hypothesis 1 predicted a positive association between entrepreneurial curiosity and entrepreneurial self-efficacy.

The relationship was found positive, high and significant (stand. coefficient 0.53), with variance explained of 27.8%. This finding is in support of Hypothesis 1. Results were also very similar and in support of Hypothesis 1, when the

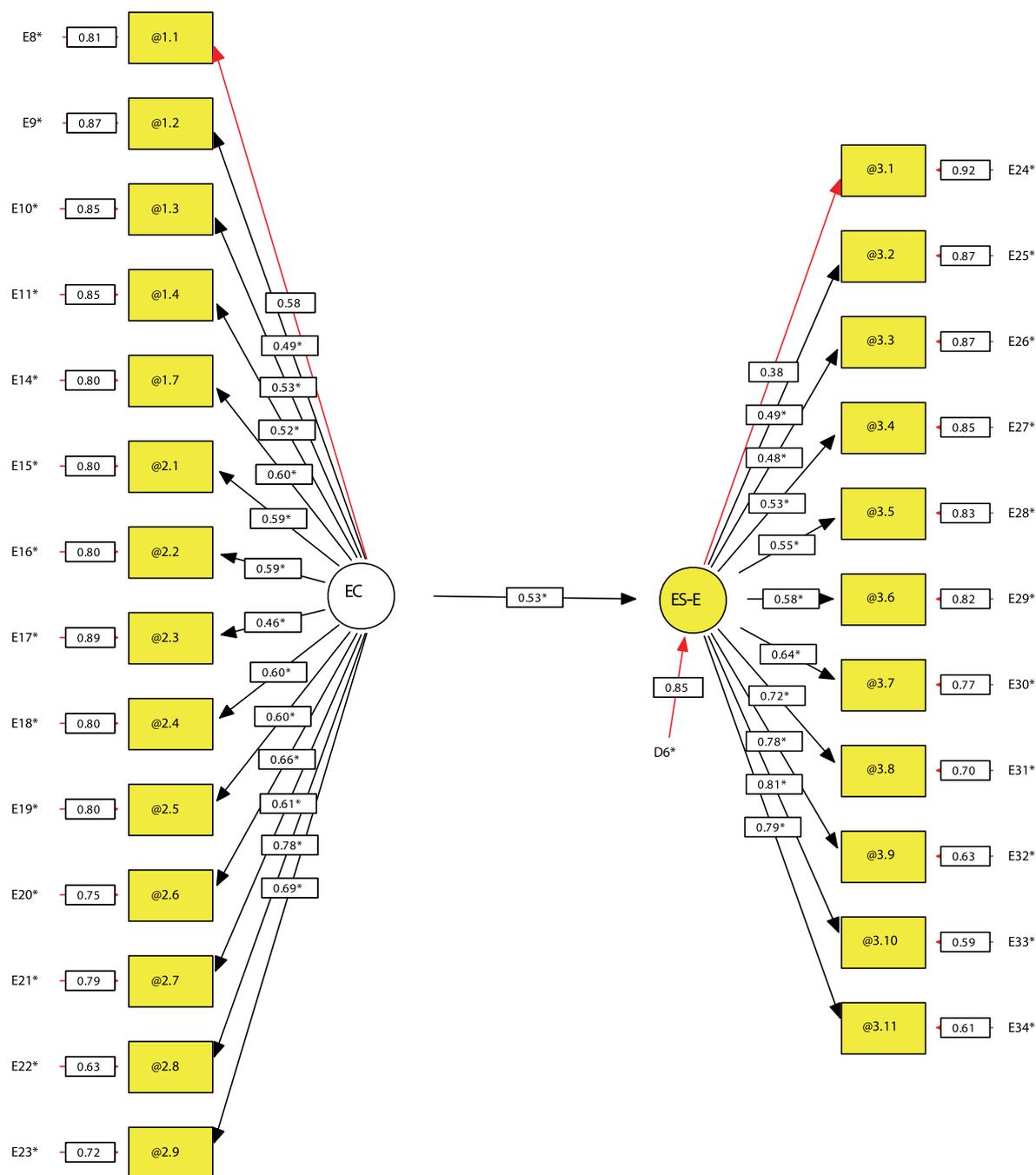


Fig. 1 The model entrepreneurial curiosity (EC) and entrepreneurial self-efficacy (ES-E), structural equation model with standardized coefficients
* sig. < 0.05.

model was estimated on both sub-samples (Slovenia, n=636, NFI 0.87, CFI 0.89, RMSEA 0.097, stand. coefficient 0.53, variance explained 28.7%; USA, n=214, NFI 0.79, CFI 0.85, RMSEA 0.093, stand. coefficient 0.52, variance explained 27.1%).

7 Discussion

Results of our analysis indicate that entrepreneurial curiosity is awake, when an entrepreneur is facing different stimulus

related to the entrepreneurship in the environment (Jeraj and Prodan, 2010) while self-efficacy is a useful concept for explaining human behavior that plays an influential role in determining an individual's choice, level of effort, and perseverance (Chen et al., 2004). Based on written above we claim that results of this study should be applied in to the entrepreneurial context, and these two constructs are one of the most important determinants in decision making process by entrepreneurs.

Results of this study indicate relationship between entrepreneurial curiosity and entrepreneurial self-efficacy.

Consistent with the theory above we assume that entrepreneurial curiosity is, as also entrepreneurial self-efficacy a good predictor for entrepreneurial intentions. For example, one of the items in entrepreneurial curiosity measure is: "When I notice an abandoned building, I think about what business potential it represents for me", and it indicates a clear entrepreneurial tendency even if it is treated among non-entrepreneurs.

Entrepreneurial self-efficacy reflects the confidence to individuals and allows them to successfully complete a series of entrepreneurial tasks. Since entrepreneurial curiosity is about exploring new things that could create additional profit, about interest for a competition, about company improvements, and about others it is a clear inference that without entrepreneurial curiosity also entrepreneurial self-efficacy cannot impact entrepreneurs to that level as they create good entrepreneurial results.

Self-efficacy predicts several important work-related outcomes as job attitudes, training proficiency, job performance, and others. Entrepreneurial curiosity deals with market discovering in order to spread business, observing the environment in order to distinguish market niches, delving into entrepreneurship matters, etc. so we claim that entrepreneurial self-efficacy and entrepreneurial curiosity together motivate individuals to invest time to entrepreneurial tasks and to optimize working time to come to good results. We could conclude that these two related determinants establish a platform for the optimal decision making of entrepreneurs for their enterprises.

8 Contribution, implications for theory, research, practice and economic policy

The present findings have both theoretical and practical implications. The scientific contribution of this paper is a filled literature gap in the relation of entrepreneurial curiosity and entrepreneurial self-efficacy. From a theoretical perspective, they contributed to ongoing efforts to connect entrepreneurial curiosity with entrepreneurial self-efficacy among entrepreneurs and to define this connection. With our paper we proved that entrepreneurial curiosity is related to entrepreneurial self-efficacy. We established a platform where both, entrepreneurial curiosity and entrepreneurial self-efficacy together could contribute to entrepreneurial intentions, allow entrepreneurs to successfully complete a series of entrepreneurial tasks, and predict several important work-related outcomes.

From a practical perspective, the present findings suggest that individuals with high level of entrepreneurial curiosity will probably have greater interest in entrepreneurship. The higher level of entrepreneurial curiosity and entrepreneurial self-efficacy entrepreneur has the better will be results in the company. In line with that it is an opportunity to identify individuals with higher entrepreneurial curiosity and entrepreneurial self-efficacy levels and assure them entrepreneurial friendly climate in order to start their own venture. In bigger organizations managers should test employees in order to distinguish more entrepreneurial motivated individuals and stimulate them to become active in entrepreneurship.

Entrepreneurship is believed to contribute to economic development because entrepreneurs create new businesses, and new businesses create jobs, intensify competition, and may even increase productivity through technological change (Bosma, 2012). From this point of view policy makers should consider that entrepreneurial curiosity and entrepreneurial self-efficacy can be measured among people and that those with higher levels should be oriented toward entrepreneurship. The policy system should stimulate them to become entrepreneurs with different approaches as free training, income tax relief in a first year, free or co-financed accounting services in first year, and others.

9 Limitations and future research opportunities

As an exploratory study with multi-country empirical survey and statistical proven results, also this research is not without limitations. At the beginning it is important to stress that survey was performed only in two countries where entrepreneurship is well developed: Slovenia and USA. Similar study should be done in more countries, also in those from the third world where entrepreneurship is not developed well and the climate is not encouraging for private own business ventures.

In this research we investigated how entrepreneurial curiosity is related to entrepreneurial self-efficacy. Beside entrepreneurial curiosity also other determinants could be connected to entrepreneurial self-efficacy and vice versa. In line with that future research opportunity could be connection of additional determinants, such as optimism, openness, creativity, innovativeness, and other measures, such as company's growth. Also these determinants may be worth investigating in combination with entrepreneurial curiosity and entrepreneurial self-efficacy.

Several other limitations to the current study suggest opportunities for further research. First, although our sample was consisted from online public available resources in two countries it would be interesting to collect contacts from entrepreneurs also from other bases. Therefore future research could address entrepreneurs from other bases and further compare them within type of their business (e.g. banking, investment, insurance; manufacturing industrial goods; retail or wholesale trade; construction; engineering, research and development; transportation or public utilities; consumer services; and others).

10 Conclusion

For a long time, entrepreneurship scholars have been searching for constructs of individual characteristics that are unique to entrepreneurs (Chen et al., 1998). This study revealed that entrepreneurial curiosity can be important for entrepreneurial characteristics, as an extension of these characteristics and as a predictor of entrepreneurial self-efficacy. Entrepreneurial curiosity becomes, beside already well-established research con-

struct of entrepreneurial self-efficacy, an interesting research discipline.

Literature

- Acs, Z. (2006). How is entrepreneurship good for economic growth? *Innovations*, 1(1), 97-107, <http://dx.doi.org/10.1162/itgg.2006.1.1.97>
- Adam, J. D. (2004). Migrant and Local Entrepreneurial Networks Development. *Jurnal Manajemen dan Kewirausahaan*, 6(2), 93-104.
- Amabile, T. M. (1997). Entrepreneurial creativity through motivational synergy. *The Journal of Creative Behavior*, 31(1), 18-26, <http://dx.doi.org/10.1002/j.2162-6057.1997.tb00778.x>
- Antonic, B., Scarlat, C. & Erzetec, B. H. (2004). The quality of entrepreneurship education and the intention to continue education: Slovenia and Romania. *International Research Journal*, 3(2), 197-212.
- Audretsch, D. & Keilbach, M. (2004). Entrepreneurship capital and economic performance. *Regional Studies*, 38(8), 949-959, <http://dx.doi.org/10.1080/0034340042000280956>
- Bandura, A. (1989). Social cognitive theory. *Annals of Child Development*, 6(1), 1-60.
- Bandura, A. (1997). Self-efficacy: The exercise of control. New York: Freeman.
- Bandura, A. (2006). Guide for constructing self-efficacy scales. *Self-efficacy beliefs of adolescents*, 5(1), 307-337.
- Barbosa, S. D., Gerhardt, M. W. & Kickul, J. R. (2007). The role of cognitive style and risk preference on entrepreneurial self-efficacy and entrepreneurial intentions. *Journal of Leadership and Organizational Studies*, 13(4), 86-104, <http://dx.doi.org/10.1177/10717919070130041001>
- Baron, R. A. (1998). Cognitive mechanisms in entrepreneurship: Why and when entrepreneurs think differently than other people. *Journal of Business Venturing*, 13(4), 275-294, [http://dx.doi.org/10.1016/S0883-9026\(97\)00031-1](http://dx.doi.org/10.1016/S0883-9026(97)00031-1)
- Baron, R. A. & Markman, G. D. (2003). Beyond social capital: The role of entrepreneurs' social competence in their financial success. *Journal of Business Venturing*, 18(1), 41-60, [http://dx.doi.org/10.1016/S0883-9026\(00\)00069-0](http://dx.doi.org/10.1016/S0883-9026(00)00069-0)
- Baron, R. A. & Tang, J. (2011). The role of entrepreneurs in firm-level innovation: Joint effects of positive affect, creativity, and environmental dynamism. *Journal of Business Venturing*, 26(1), 49-60, <http://dx.doi.org/10.7763/IJIMT.2013.V4.408>
- Baum, R. (1994). *The Relation of Traits, Competencies, Vision, Motivation, and Strategy to Venture Growth*. Doctoral dissertation. University of Maryland: MD.
- Berlyne, D. E. (1960). *Conflict, curiosity and arousal*. New York: McGraw-Hill.
- Bosma, N. (2012). *The Global Entrepreneurship Monitor (GEM) and its Impact on Entrepreneurship Research*. London, UK/Babson, USA: Global Entrepreneurship Research Association.
- Boyd, N. G. & Vozikis, G. S. (1994). The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice*, 18(4), 63-77.
- Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, 1(3), 185.
- Brislin, R. W. (1980). Translation and content analysis of oral and written material. In H. C. Triandis and J. W. Berry (Eds.), *Handbook of cross-cultural psychology* (Vol. 1, pp. 389-444). Boston: Allyn and Bacon.
- Chen, C. C., Greene, P. G. & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing*, 13(4), 295-316, [http://dx.doi.org/10.1016/S0883-9026\(97\)00029-3](http://dx.doi.org/10.1016/S0883-9026(97)00029-3)
- Chen, G., Gully, S. M. & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods*, 4(1), 62-83, <http://dx.doi.org/10.1177/109442810141004>
- Chen, G., Gully, S. M. & Eden, D. (2004). General self-efficacy and self-esteem: toward theoretical and empirical distinction between correlated self-evaluations. *Journal of Organizational Behavior*, 25(3), 375-395, <http://dx.doi.org/10.1002/job.251>
- Churchill Jr, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16(1), 64-73.
- Craig, C. S. & Douglas, S. (2005). *International marketing research*. Chichester: John Wiley.
- Dawis, R. V. (1987). Scale construction. *Journal of Counseling Psychology*, 34(4), 481-489.
- De Noble, A. F., Jung, D. & Ehrlich, S. B. (1999). Entrepreneurial self-efficacy: The development of a measure and its relationship to entrepreneurial action. *Frontiers of Entrepreneurship Research*, 73-87.
- DeVellis, R. F. (2003). *Scale development: theory and applications*. California: Sage Publications.
- Dewey, J. (1910). *How we think*. Lexington, MA: DC Heath.
- Douglas, E. J. (2012). Reconstructing entrepreneurial intentions to identify predisposition for growth. *Journal of Business Venturing*, Article in Press, <http://dx.doi.org/10.1016/j.jbusvent.2012.07.005>
- Farmer, S. M., Yao, X. & Kung-McIntyre, K. (2009). The behavioral impact of entrepreneur identity aspiration and prior entrepreneurial experience. *Entrepreneurship Theory and Practice*, 35(2), 245-273, <http://dx.doi.org/10.1111/j.1540-6520.2009.00358.x>
- Forbes, D. P. (2005). The Effects of Strategic Decision Making on Entrepreneurial Self-Efficacy. *Entrepreneurship Theory and Practice*, 29(5), 599-626, <http://dx.doi.org/10.1111/j.1540-6520.2005.00100.x>
- Frydman, R., Hessel, M. & Rapaczynski, A. (1999). Why ownership matters? Entrepreneurship and the restructuring of enterprises in Central Europe. *Entrepreneurship and the Restructuring of Enterprises in Central Europe (April 1998)*. Columbia Law School, Law-Econ Working Paper (172), <http://dx.doi.org/10.2139/ssrn.194574>
- Gallagher, M. W. & Lopez, S. J. (2007). Curiosity and well-being. *The Journal of Positive Psychology*, 2(4), 236-248, <http://dx.doi.org/10.1080/17439760701552345>
- Gartner, W. B. (1988). Who is an entrepreneur? Is the wrong question. *American Journal of Small Business*, 12(4), 11-32.
- Gartner, W., Starr, J. & Bhat, S. (1999). Predicting new venture survival: An analysis of "Anatomy of a start-up." Cases from Inc. Magazine. *Journal of Business Venturing*, 14(2), 215-232, [http://dx.doi.org/10.1016/S0883-9026\(97\)00063-3](http://dx.doi.org/10.1016/S0883-9026(97)00063-3)
- Hambleton, R. K. (1993). Translating achievement tests for use in cross-national studies. *European Journal of Psychological Assessment*, 9(1), 57-68.
- Harrison, P. (2001). Curiosity, forbidden knowledge, and the reformation of natural philosophy in early modern England. *Isis*, 265-290, <http://dx.doi.org/10.1086/385182>
- Hayward, M. L. A., Forster, W. R., Sarasvathy, S. D. & Fredrickson, B. L. (2009). Beyond hubris: How highly confident entrepreneurs rebound to venture again. *Journal of Business Venturing*, 25(6), 569-578, <http://dx.doi.org/10.1016/j.jbusvent.2009.03.002>
- Hechavarria, D. M., Renko, M. & Matthews, C. H. (2012). The nascent entrepreneurship hub: goals, entrepreneurial self-efficacy and start-up outcomes. *Small Business Economics*, 39(3), 685-701, <http://dx.doi.org/10.1007/s11187-011-9355-2>

- Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of Management*, 21(5), 967-988.
- Hmieleski, K. M. & Baron, R. A. (2008). When does entrepreneurial self-efficacy enhance versus reduce firm performance? *Strategic Entrepreneurship Journal*, 2(1), 57-72, <http://dx.doi.org/dx.doi.org/10.1002/sej.42>
- Hoang, H. & Gimeno, J. (2010). Becoming a founder: How founder role identity affects entrepreneurial transitions and persistence in founding. *Journal of Business Venturing*, 25(1), 41-53, <http://dx.doi.org/10.1016/j.jbusvent.2008.07.002>
- Jack, S. L. & Anderson, A. R. (1999). Entrepreneurship education within the enterprise culture. *International Journal of Entrepreneurial Behavior and Research*, 5(3), 110-125, <http://dx.doi.org/10.1108/13552559910284074>
- Jeraj, M. & Prodan, I. (2010). Conceptualization of Entrepreneurial Curiosity. *Advances in Business-Related Scientific Research Conference*, Olbia, Italy, September.
- Jeraj, M. (2012). Toward the new construct; Entrepreneurial Curiosity. In D. Barkovic and B. Runzheimer (Eds.), *Interdisciplinary research VIII*. Opatija: Josip Juraj Strossmayer University in Osijek.
- Jeraj, M. & Antoncic, B. (2013). A Conceptualization of Entrepreneurial Curiosity and Construct Development: A Multi-Country Empirical Validation. *Creativity Research Journal*, 25(4), 426-435, <http://dx.doi.org/10.1080/10400419.2013.843350>
- Jovanovic, V. & Brdaric, D. (2012). Did curiosity kill the cat? Evidence from subjective well-being in adolescents. *Personality and Individual Differences*, 52(3), 380-384, <http://dx.doi.org/10.1016/j.paid.2011.10.043>
- Kashdan, T. B. & Steger, M. F. (2007). Curiosity and pathways to well-being and meaning in life: Traits, states, and everyday behaviors. *Motivation and Emotion*, 31(3), 159-173, <http://dx.doi.org/10.1007/s11031-007-9068-7>
- Kashdan, T. B., Gallagher, M. W., Silvia, P. J., Winterstein, B. P., Breen, W. E., Terhar, D., et al. (2009). The curiosity and exploration inventory-II: Development, factor structure, and psychometrics. *Journal of Research in Personality*, 43(6), 987-998, <http://dx.doi.org/10.1016/j.jrp.2009.04.011>
- Kashdan, T. B., DeWall, C. N., Pond, R. S., Silvia, P. J., Lambert, N. M., Fincham, F. D., Savostyanova, A. A. & Keller, P. S. (2013). Curiosity Protects Against Interpersonal Aggression: Cross-Sectional, Daily Process, and Behavioral Evidence. *Journal of Personality*, 81(1), 87-102, <http://dx.doi.org/10.1111/j.1467-6494.2012.00783.x>
- Kasouf, C. J., Morrish, S. C. & Miles, M. P. (2013). The moderating role of explanatory style between experience and entrepreneurial self-efficacy. *International Entrepreneurship and Management Journal*, 1-17, <http://dx.doi.org/10.1007/s11365-013-0275-2>
- Kirby, D. A. (2004). Entrepreneurship education: can business schools meet the challenge? *Education and Training*, 46(8/9), 510-519, <http://dx.doi.org/10.1108/00400910410569632>
- Krueger, N. F. & Brazeal, D. V. (1994). Entrepreneurial potential and potential entrepreneurs. *Entrepreneurship Theory and Practice*, 18, 91-91.
- Krueger, N. F. & Dickson, P. R. (1994). How Believing in Ourselves Increases Risk Taking: Perceived Self-Efficacy and Opportunity Recognition. *Decision Sciences*, 25(3), 385-400.
- Krueger, N. F. (2007). What lies beneath? The experiential essence of entrepreneurial thinking. *Entrepreneurship Theory and Practice*, 31(1), 123-138, <http://dx.doi.org/10.1111/j.1540-6520.2007.00166.x>
- Krueger, N. F., Reilly, M. D. & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5), 411-432, [http://dx.doi.org/10.1016/S0883-9026\(98\)00033-0](http://dx.doi.org/10.1016/S0883-9026(98)00033-0)
- Lazear, E., 2002, "Entrepreneurship", NBER Working Paper No. 9109
- Litman, J. A. & Jimerson, T. L. (2004). The measurement of curiosity as a feeling of deprivation. *Journal of Personality Assessment*, 82(2), 147-157.
- Litman, J. A. & Pezzo, M. V. (2007). Dimensionality of interpersonal curiosity. *Personality and Individual Differences*, 43(6), 1448-1459, http://dx.doi.org/10.1207/s15327752jpa8202_3
- Loewenstein, G. (1994). The psychology of curiosity: A review and reinterpretation. *Psychological Bulletin*, 116(1), 75-98, <http://dx.doi.org/10.1037//0033-2909.116.1.75>
- Lowrey, Y. (2003). The entrepreneur and entrepreneurship: A neoclassical approach. ASSA Annual Meetings Conference. Washington, DC, January 3-5. <http://dx.doi.org/10.2139/ssrn.744785>
- Markman, G. D., Balkin, D. B. & Baron, R. A. (2003). Inventors and New Venture Formation: the Effects of General Self-Efficacy and Regretful Thinking. *Entrepreneurship Theory and Practice*, 27(2), 149-165, <http://dx.doi.org/10.1111/1540-8520.00004>
- Markman, G. D. & Baron, R. A. (2003). Person-entrepreneurship fit: Why some people are more successful as entrepreneurs than others. *Human Resource Management Review*, 13(2), 281-301, [http://dx.doi.org/10.1016/S1053-4822\(03\)00018-4](http://dx.doi.org/10.1016/S1053-4822(03)00018-4)
- Martocchio, J. J. & Judge, T. A. (1997). Relationship between conscientiousness and learning in employee training: mediating influences of self-deception and self-efficacy. *Journal of Applied Psychology*, 82(5), 764, <http://dx.doi.org/10.1037//0021-9010.82.5.764>
- McGee, J. E., Peterson, M., Mueller, S. L. & Sequeira, J. M. (2009). Entrepreneurial Self-Efficacy: Refining the Measure. *Entrepreneurship Theory and Practice*, 33(4), 965-988, <http://dx.doi.org/10.1111/j.1540-6520.2009.00304.x>
- Mitchell, J. R. & Shepherd, D. A. (2010). To thine own self be true: Images of self, images of opportunity, and entrepreneurial action. *Journal of Business Venturing*, 25(1), 138-154, <http://dx.doi.org/10.1016/j.jbusvent.2008.08.001>
- Ozgen, E. & Baron, R. A. (2007). Social sources of information in opportunity recognition: effects of mentors, industry networks, and professional forums. *Journal of Business Venturing*, 22(2), 174-192, <http://dx.doi.org/10.1016/j.jbusvent.2005.12.001>
- Pihie, Z. A. L. & Bagheri, A. (2011). Malay Secondary School Students' Entrepreneurial Attitude Orientation and Entrepreneurial Self-efficacy: A Descriptive Study. *Journal of Applied Sciences*, 11(2), 316-322, <http://dx.doi.org/10.3923/jas.2011.316.322>
- Pintrich, P. R. & Schunk, D. H. (1996). *Motivation in education: Theory, research, and applications*. Merrill Upper Saddle River: NJ.
- Pittaway, L. & Cope, J. (2007). Simulating Entrepreneurial Learning Integrating Experiential and Collaborative Approaches to Learning. *Management Learning*, 38(2), 211-233, <http://dx.doi.org/10.1177/1350507607075776>
- Prodan, I. & Drnovsek, M. (2010). Conceptualizing academic-entrepreneurial intentions: An empirical test. *Technovation*, 30(5), 332-347, <http://dx.doi.org/10.1016/j.technovation.2010.02.002>
- Renner, B. (2006). Curiosity about people: The development of a social curiosity measure in adults. *Journal of Personality Assessment*, 87(3), 305-316, http://dx.doi.org/10.1207/s15327752jpa8703_11
- Ruzzier, M., Antoncic, B., Hisrich, R. D. & Konecnik, M. (2007). Human capital and SME internationalization: a structural equation modeling study. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*, 24(1), 15-29, <http://dx.doi.org/10.1002/cjas.3>

- Saks, A. M. (1995). Longitudinal field investigation of the moderating and mediating effects of self-efficacy on the relationship between training and newcomer adjustment. *Journal of Applied Psychology, 80*(2), 211, <http://dx.doi.org/10.1037//0021-9010.80.2.211>
- Schneider, A., von Krogh, G. & Jager, P. (2013). "What's coming next?" Epistemic curiosity and lurking behavior in online communities. *Computers in Human Behavior, 29*(1), 293-303, <http://dx.doi.org/10.1016/j.chb.2012.09.008>
- Shane, S., Locke, E. A. & Collins, C. J. (2003). Entrepreneurial motivation. *Human Resource Management Review, 13*(2), 257-279, [http://dx.doi.org/10.1016/S1053-4822\(03\)00017-2](http://dx.doi.org/10.1016/S1053-4822(03)00017-2)
- Shane, S. & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review, 25*(1), 217-226, <http://dx.doi.org/10.2307/259271>
- Shepherd, D. & Haynie, J. M. (2009). Birds of a feather don't always flock together: Identity management in entrepreneurship. *Journal of Business Venturing, 24*(4), 316-337, <http://dx.doi.org/10.1016/j.jbusvent.2007.10.005>
- Silvia, P. J. (2006). *Exploring the psychology of interest*. Oxford: Oxford University Press.
- Stajkovic, A. D. & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin, 124*(2), 240, <http://dx.doi.org/10.1037//0033-2909.124.2.240>
- Venkataraman, S. (1997). The distinctive domain of entrepreneurship research. In J. A. Katz (Ed.), *Advances in entrepreneurship, firm emergence and growth* (Vol. 3, pp. 296). Greenwich: JAI Press.
- Venkataraman, S. (2004). Regional transformation through technological entrepreneurship. *Journal of Business Venturing, 19*(1), 153-167, <http://dx.doi.org/10.1016/j.jbusvent.2003.04.001>
- Verma, V., Verma, A. K. & Bhatia, S. S. (2011). Comprehensive Survey of Framework for Web Personalization using Web Mining. *International Journal of Computer Applications, 35*(3), 23-28.
- Ward, T. B. (2004). Cognition, creativity, and entrepreneurship. *Journal of Business Venturing, 19*(2), 173-188, [http://dx.doi.org/10.1016/S0883-9026\(03\)00005-3](http://dx.doi.org/10.1016/S0883-9026(03)00005-3)
- Zhao, H., Seibert, S. E. & Hills, G. E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology, 90*(6), 1265-1272, <http://dx.doi.org/10.1037/0021-9010.90.6.1265>

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