

Intuitive Potential and Predicting Entrepreneurship – a Study on a New Method of Measuring Intuition

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ABSTRACT

Although some studies have been conducted to measure the preference to use the intuitive decision-making over the analytical one, there is still a high difficulty to estimate the real potential of intuition. A possibility to assess the potential of intuition would be crucial both for venture capitalists and owners of organizations to elect future successful entrepreneurs and intrapreneurs from other candidates. This study is a proposition of a new way of measuring intuition to distinguish successful entrepreneurs. Using an authorial tool to measure the potential of intuition, the results indicated that entrepreneurs have higher potential than employees, but they do not differ in the preference for the intuitive decision-making over the analytical one. Even though the study was conducted on a small sample of 30 entrepreneurs and 30 employees from Poland, the results encourage a further research in this field of study.

KEYWORDS

Planning and Prediction, Business, Intuition, Insight, Entrepreneurship

INTRODUCTION

An entrepreneur is perceived as a creative person that modifies or rejects previously accepted ideas to build innovations. For these attributes an entrepreneur needs not only creativity but also intuition. The ability to gather new ideas from a nonconscious analysis of one's stored knowledge and experience would be crucial for successful entrepreneurs (Engle, Mah, Shardi, 1997). According to Sternberg (2004) entrepreneurship is connected with a mix of: general intelligence, intuition, creativity and analytical skills. However, intuition and creativity are perceived to be those cognitive factors that distinguish successful entrepreneurs (Baron, 1998, Kao, 1989; Sexton & Bowman-Upton, 1991).

There have already been conducted many studies that measure entrepreneurial attitude by using questionnaires (Kirton, 1976; Buttner, Gryskiewicz, 1993; Allinson, Hayes, 1996; Engle, Mah, Sadri, 1997). However, there were only a few attempts to investigate a real entrepreneurial potential. Ames and Runco (2005) analyzed whether more successful entrepreneurs have a higher ideation potential than the less successful ones. They used a self-report measure and a SWOT analysis task. Unfortunately, the proposed task failed to be diagnostic, probably, because it was difficult to measure and to compare results and it was too time-consuming, which could discourage participants from getting fully involved. Not only Ames and Runco (2005) claim that it is very difficult to measure the entrepreneurial potential but also Blume and Covin (2011) admit this toughness, especially in the attempt to measure unconscious processes. It is because there is still a little knowledge about how unconscious data processing really works (Nosal, 2009). Intuition which is perceived as „affectively charged judgments that arise through rapid non-conscious and holistic associations“, (Dane, Pratt 2007 p. 40) could be assessed looking at its result that appears in consciousness. Taking into account that we gather intuition through experiencing insights, we can estimate a potential of intuition by measuring the rapidity of attaining insights while solving new problems (Nosal, 2010). Insight, which is perceived as „sudden unexpected thoughts that solve problems“ (Hogarth, 2001, p.251) was already measured using different tasks, which required from a person to redesign a given problem to find the solution (Sternberg, Davidson, 1996). Among different tools measuring the insight potential, there were considered Bongard problems to be a reliable way to distinguish people with higher insight potential from those with the lower one (Hofstadter, 1979, Tubek, Piskorz 1994). All things considered, we can assume that:

Hypothesis 1: Entrepreneurs have a higher insight potential (solve more Bongard problems) than employees.

Hypothesis 2: There is a high, positive correlation between the level of success and the level of insight (a number of solved Bongard problems) among entrepreneurs.

As described above, it is possible to distinguish entrepreneurs from employees using questionnaires. Allinson and Hayes (1996) using Cognitive Style Index showed that entrepreneurs are more intuitive than non-owner managers.

Furthermore, Engle et al (1997) proved, using Kirton's Adaptation-Innovation Inventory, that entrepreneurs are characterized by higher intuition than employees. Based on that research it could be assumed that entrepreneurs would have a higher score in the KSP questionnaire (Nosal, Sobków, 2012) on the intuition scale, where intuition is defined as: processing information in a holistic way, concentrating on general regulatories and making decisions based on a hunch and spontaneous learning patterns.

Intuition is strongly interrelated with a level of data processing (Kapur et al., 1994). Deep processing is responsible for successful retrieval of stored information (Craik 2002) and of processing general and abstractive data of an experienced event (Cohen, 2000; Conway, 1992). Based on that information, it should be assumed that entrepreneurs have not only higher score on the intuition scale but also on the depth of processing scale, which is defined as critical evaluation of existing information and goes beyond a given material (Nosal, Sobków, 2012). Based on presented information, the following hypothesis could be assumed :

Hypothesis 3: Entrepreneurs have a higher score on the intuition scale than employees.

Hypothesis 4: Entrepreneurs have a higher score on the depth of processing scale than employees.

Taking into account that there were only few studies concerning the applicability of intuition in entrepreneurial decision making, there is an ambiguity if individuals rely on intuition in their decision making or they just believe that intuition is informing their decision (Blume, Covin, 2011). According to Karwowski (2009) attitudes could really differ from the real potential. He proved that there is no relationship between creative attitude and creative potential. Based on Karwowski's (2009) research result it could be assumed that it would be similar with intuition. The preference to use intuition in one's decision-making could have no links with the real potential of intuition. It could be assumed that :

Hypothesis 5: There is no relationship between the level of insight (number of solved Bongard problems) and the score on the intuitive scale.

METHOD

Participants

30 entrepreneurs and 30 employees from Poland participated in the research (40 men and 20 women). All of them were from: Health Care, IT or Banking sector and they had at least 1 year experience in a declared business. 15 entrepreneurs were recruited from the Polish Private Hospitals Association (OSSP) via emails or during a congress for the members of the association. The rest of research participants were postgraduate students from the University of Economics in Wrocław and Warsaw School of Economics. The additional criterium for the group of employees was no intention to set up their own business.

Materials

The research tool consisted of 3 parts:

1. KSP Questionnaire (Nosal, Sobków, 2012) measuring intuition and the depth of processing,
2. Bongard problems that measure the insight potential,
3. Index of success measuring the level of success obtained by the run company.

The KSP Questionnaire includes 27 statements, where a subject has to decide on a 4-point Likert scale, to what extent he or she agrees with a given statement. The questionnaire consists of 2 scales: intuition and the depth of processing.

The second part of the research was designed by the author of this paper. It consists of 11 diagnostic pictures and 2 samples (an example of pictures is presented in Figure 1). Those graphic tasks were chosen from a bank of 280 pictures, from a web page: <http://www.foundalis.com/res/bps/bpidx/htm>. 100 of them are the original idea of Bongard (1970) and the rest of them were created on the basis of the same idea. Their initial application was for a computer programme creation. For the pilot study, 27 graphic tasks were chosen, sufficiently complex to involve nonconscious processes to their solutions. 29 pilot study participants also solved 19 text tasks that measure insight potential. The study was conducted online, where the subjects were instructed to solve the greatest amount of tasks in the shortest time. Time was counted automatically for each exercise. The analysis of the answers showed a high correlation between Bongard tasks and text tasks solved ($r=,641$, $p<0,01$), which poses an additional proof that those picture tasks measure the insight. Taking into account the fact that tested Bongard problems turned out to be very difficult, 11 tasks that were the most frequently solved in the shortest period of time, were chosen. Additionally, because of many complaints from the study participants that the inability to solve tasks was very frustrating, the information, that some of the tasks could have no solution and the correct answer would be „lack of rule“, was added.

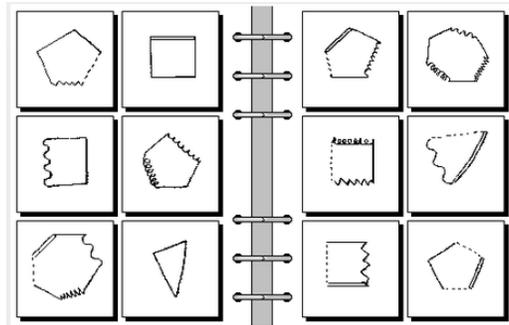


Figure 1: an example of Bongard problem used in the research.

The third part of the research consisted of 4 indicators that measure the level of success achieved by companies, where a person had to specify:

- Whether the increase of sales was higher, lower or similar to the market average,
- Whether the managed enterprise achieved an increase of profitability, comparing to previous years,
- Whether there was an improvement in customers' opinion in comparison to previous years,
- Whether the company achieved one of the specified business awards.

This part of the research covered only a group of entrepreneurs. Those indicators were consulted with a partner of EY consulting company – a person with an extensive experience in assessing success of enterprises.

Procedure

Participants received an e-mail with: the study description, an assurance of anonymity of participation, instructions and a link to the online research. The first task was to score to what extent a person agrees with given 27 statements, that come from KSP questionnaire (Nosál, Sobkóv 2012). After completing this part of the study, they were acquainted with the instructions how to solve graphic tasks. They had to find and to describe the rule that differentiates 6 pictures on the left from the 6 ones on the right or to write „lack of rule“, when no rule could be found. At the beginning there were 2 example tasks with correct answers presented and later on, one after another, 11 diagnostic tasks appeared. When this part was finished, for those participants who were entrepreneurs, the last part with 4 questions measuring the level of success of their company was presented.

RESULTS

To test Hypothesis 1, stating that entrepreneurs have a higher insight potential (solve more Bongard problems) than employees, Mann-Whitney U test was used, because distribution in both the entrepreneurs and employees groups differed significantly from the normal one. The comparison indicated significant differences: $U=310,00$ ($p<0.05$) in the number of solved Bongard problems. It was significantly higher in the group of entrepreneurs ($avg=4,2$) than in the group of employees ($avg=2,9$). This result confirms Hypothesis 1.

Due to significant discrepancies of the analysed variables with the normal distribution, to test Hypothesis 2, the Spearman rho correlation coefficient was calculated. This analysis considered only the group of entrepreneurs, because only in this group the index of success was measured. The analysis indicated a high, positive and significant correlation between variables: $\rho=0,698$ ($p<0,001$). This result confirms Hypothesis 2, that there is a high, positive correlation between the level of success and the level of insight (a number of solved Bongard problems) among entrepreneurs.

Hypotheses 3 and 4, stating that entrepreneurs have a higher score on the intuition and on the depth of processing scales than employees were tested using the t-Student test. The results are presented in Table 1.

		M	SD	t-Student	p
intuition	entrepreneur	3,22	,33	t(58)=0,86	0,39
	employee	3,14	,41		
Depth of processing	entrepreneur	3,39	,33	t(58)=1,23	0,22
	employee	3,28	,37		

Table 1 t-Student test comparison of intuition variable in groups: entrepreneurs and employees

The comparison did not indicate any significant differences between entrepreneurs and employees among variables: intuition and the depth of processing, what means that Hypothesis 3 and 4 were not confirmed.

Taking into account a significant discrepancy between the analysed variances with the normal distribution, the Spearman rho to test Hypothesis 5 was counted. The analysis did not indicate any significant correlation ($\rho=,101$, $p=0,44$), what confirms Hypothesis 5, that there is no relationship between a number of solved Bongard problems and the score on the intuition scale.

DISCUSSION

The results of this study indicate that entrepreneurs have a higher potential of intuition than employees and that it is possible to measure this potential. It also shows that those entrepreneurs who are more successful in running their business have also better intuition. However, the research has not proved that entrepreneurs prefer to make decisions more intuitively than employees and that they process information deeper than the later ones. Finally, the study confirms that a preference for intuitive decision-making over analytical one does not equate with the real potential of intuition.

The big advantage of the research is that there was used a self-designed tool to measure the insight potential and that it was conducted on a group of entrepreneurs and employees - which is difficult to acquire but very important from scientific and business point of view. Even though Bongard problems were already considered to be a good measure of the insight (Hofstadter, 1979; Tubek, Piskorz, 1994), it was the first attempt to use it as a tool to diagnose entrepreneurial potential.

The second aspect, important to notice, is that there was no correlation between the potential of intuition and a preference for intuitive decision-making. It is consistent with Karwowski's research (2009) on creativity, which shows that people could be very creative and have a creative attitude but also those with creative attitude could not be very creative. Moreover, it happens also that both very creative and less creative ones could not have this attitude. This presents the importance of measuring the real potential of intuition, not just a preference.

The surprising results showing that there is no difference in the level of intuition and the depth of processing among entrepreneurs and employees could be caused by the sampling. People from both groups were very similar, they were from the same business sectors and with at least 1 year experience. Another reason could be seen in the measuring tool. Despite the fact that the KSP questionnaire (Nosal, Sobków, 2012) is very reliable; Cronbach's alpha for intuition is 0,722 and for depth of processing 0,833, the questionnaire was not validated.

Despite these contributions, this study is not without limitations. It has a highly experimental form. Even though results of the research gave promising information, it should be tested on a much bigger group of participants. Moreover, the concept of Bongard problems is to measure the insight potential, which is not identical with intuition. According to Dane and Pratt (2007) one of the biggest differences between insight and intuition is that in the first case we are able to consciously become aware of the logic that has led to the result, whereas in the second phenomenon it is rather not possible. Moreover, the utilized tasks to measure the insight have only one correct answer, what means that to solve them the convergent thinking is needed (Sternberg, Davidson, 1996). However, intuition is perceived to be more strongly connected with the divergent one (Ames, Runco, 2005). Another drawback of the research concerns the index of success. Participants of the research were asked to assess subjectively the results of a company. Such results are never fully reliable.

To sum up, the presented research should be treated as an attempt to create a reliable tool to investigate the potential of intuition, which would be very important both for venture capitals – to test whether investing in given entrepreneurs might be successful and for owners of organizations – to recruit and to select those employees who would highly contribute to the development of an organization. It is also important to notice that even though it is easier to measure a given phenomenon using a questionnaire, utilizing tools that assess the real potential give the most reliable results.

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REFERENCES

- Ames, M., Runco, M. A. (2005). Predicting entrepreneurship from ideation and divergent thinking. *Creativity and Innovation Management*, 14, 311-315.
- Baron, R. (1998). Cognitive mechanisms in entrepreneurship: Why and when entrepreneurs think differently than other people. *Journal of Business Venturing*, 12, 275-94.
- Baron, R. (2007). Behavioral and cognitive factors in entrepreneurship: Entrepreneurs as the active element in new venture creation. *Strategic Entrepreneurship Journal*, 1, 167-182.
- Blume, D., Covin, J. (2011). Attributions to intuition in the venture founding process: Do entrepreneurs actually use intuition or just say that they do? *Journal of Business Venturing*.
- Bongard, M. M. (1970). Pattern Recognition. Rochelle Park, N.J.: *Hayden Book Co.*
- Buttner, E. H., Gyskiewicz, N. (1993). Entrepreneurs' problem-solving styles: an empirical study using the Kirton Adaption/Innovation theory. *Journal of Small Business Management*, 1, 22-31.
- Cohen, G. (2000). Hierarchical models in cognition: Do they have psychological reality? *European Journal of Cognitive Psychology*, 12, 1-36.
- Conway, M.A. (1992). A structural model of autobiographical memory. In M.A. Conway, D.C. Rubin, H. Spinner, W.A. Wagenaar (Eds.), *Theoretical perspectives on autobiographical memory* (pp. 167-193). Dordrecht: Kluwer Academic.
- Craik, F. I. M. (2002). Levels of processing: Past, present and future? *Memory*, 10(5/6), 305-318.
- Engle, D., Mah, J., Sadri, G. (1997). An empirical Comparison of Entrepreneurs and Employees: Implications for Innovation. *Creativity Research Journal*.
- Hofstadter, D. (1979). Gödel, Escher, Bach: An Eternal Golden Braid. *Basic Books*.
- Hogarth, R. (2001). Educating Intuition. Chicago: *University of Chicago Press*.
- Kao, J. (1989). Entrepreneurship, reativity, and organizations. *Prentice Hall*.
- Kapur, S., Craik, F. I. M., Tulving, E., Wilson, A. A., Houle, S., & Brown, G. M. (1994). Neuroanatomical correlates of encoding in episodic memory: Levels of processing effect. *Proceedings of the National Academy of Sciences of the United States of America*, 91, 2008-2011.
- Karwowski, M. (2009). Zgłębianie kreatywności. Studia nad pomiarem poziomu i stylu twórczości. *Wydawnictwo APS*.
- Kirton, M. (1976). Adaptor and innovators: A description and measure. *Journal of Applied Psychology*, 61, 622-629.
- Nosal, C. S. (2009). The structure and regulative function of the cognitive styles: a new theory. *Polish Psychological Bulletin*, 41(3), 122-126.
- Nosal, C. S. (2010). Ewolucja intuicji i jej funkcje w umyśle człowieka. In: A. Motycka (Red.), *Życie na czas: Perspektywy badawcze postrzegania czasu* (pp. 365-397). Warszawa: *Wydawnictwo Naukowe PWN*.
- Nosal, C., Sobków, A. (2012). Wstępny raport z badań nad Kwestionariuszem Stylów Poznawczych. Wrocław: *SWPS*
- Sexton, D., Bowman-Upton, N. (1991). Entrepreneurship, creativity, and growth. *Macmillan*, New York.
- Sobków, A. (2014). Podstawowe mechanizmy zdolności intuicyjnych: ich struktura i relacje do otwartości umysłu, inteligencji oraz podatności na inklinacje poznawcze. Wrocław: *SWPS*
- Spinnler, & W.A. Wagenaar (Eds.), *Theoretical perspectives on autobiographical memory* (pp.167-193). Dordrecht: Kluwer Academic.
- Sternberg, R., Davidson, J. (1996). The nature of insight. Massachusetts Institute of Technology.
- Sternberg R., J. (2004). Successful intelligence as a basis for entrepreneurship. *Journal of Business Venturing*, 19, 189-201.

Tubek, M., Piskorz, Z. (1994). Myślenie pojęciowe – pomiar i korelaty. *Przełąd Psychologiczny* 187-194