



Questionnaire of entrepreneurial success — Report on the initial stage of method construction

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ABSTRACT

Entrepreneurship is the driving force of the economy; however, only successful business activity offers a wide range of benefits. Researchers and entrepreneurs have a diversified understanding of entrepreneurial success given that its measurement, while frequently desirable in practice, is difficult. Unfortunately, neither the literature nor the practice offers an appropriate instrument to diagnose entrepreneurial success in all of its complexity. This article constitutes an initial report on the development of a research tool, the Questionnaire of Entrepreneurial Success (QES), to diagnose entrepreneurial success. This study uses six research tools to examine 144 entrepreneurs operating in Poland whose companies were set up between 1983 and 2013. A preliminary analysis of the psychometric parameters demonstrates that the experimental version of the QES exhibits high reliability, whereas analyses aimed at determining theoretical accuracy reveal the expected correlations with other indicators of entrepreneurial success.

1. Introduction

This article is the result of the authors' scientific interests as presented in numerous earlier studies and publications concerning entrepreneurship, which are, in large part, interdisciplinary and combine management science and psychology. The construct of entrepreneurial success provides entrepreneurship with actual significance when considering that entrepreneurs' failures carry no major positive aspects. Furthermore, because researchers and entrepreneurs define this phenomenon differently, the understanding of entrepreneurial success is quite diversified. Hence, there no tool exists in the literature that comprehensively describes and measures entrepreneurial success. Such a complex tool that both enriches scientific knowledge and allows the reliable and objective measurement of entrepreneurial success, while taking into consideration economic-financial and subjective elements, may be useful in practice, such as when evaluating an entrepreneur's request for business development credit or when encouraging an investor to cooperate. It would be risky to base such serious decisions solely on economic-financial measures (e.g., if a company is earning profits but the entrepreneur neither feels confident nor derives satisfaction from the business, is the company's situation stable?) or exclusively on the entrepreneur's subjective perception (e.g., if the entrepreneur is confident in his abilities and foresees a bright future for his company but is incapable of controlling the costs and analyzing the

market, are his expectations for profits realistic?).

The objective of this article is to report on the initial stage of construction of a new tool – the Questionnaire of Entrepreneurial Success. A description of the research procedures with an emphasis on the tools, a presentation of the findings and the conclusion of the results follows the literature review.

2. Literature review

Numerous historical and contemporary studies testify to the importance of developing entrepreneurship in micro-, small-, and medium-sized enterprises (Adekunle, 2011; Coase, 1937; Nishimura & Tristan, 2011; Schumpeter, 1934). The significance of entrepreneurship is varied and includes micro and macro perspectives. However, due to widespread agreement in this respect, the concept of entrepreneurial significance is not under discussion. Obviously, entrepreneurship is significant only if the enterpriser is successful in business. The literature offers various descriptions of entrepreneurial success (Baron & Henry, 2011; Fisher, Maritz, & Lobo, 2014; Sarasvathy, Menon, & Kuechle, 2013), some of which are parallel and some of which differ considerably because of the various measures of success. In this article, the understanding of entrepreneurial success is derived from publications that propose both a definition and model of this success (Kumar, 2007; Munish, 2007; Rauch & Frese, 2000; Zahidy, Noor, & Shahryar, 2015).

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Although some researchers attempt to study the conditioning of entrepreneurial success (Cope, 2005; Coy, Shipley, Omer, & Rao, 2007; Jong & Hartog, 2007; Kozan, Oksoy, & Ozsoy, 2006), they offer no unanimous conclusions; thus, the family determinants of entrepreneurial success remain an intriguing but unexplored area. Accordingly, the literature often contains references only to the family conditioning of business intentions or entrepreneurial attitudes (Altinay & Altinay, 2006; Davidsson & Honig, 2003; Greve & Salaff, 2003; Pruett, Shinnar, Toney, Llopis, & Fox, 2009). Furthermore, whereas studying the way family factors account for the variances of entrepreneurial success is interesting, a systemic approach of looking at integrated individual factors is even more appealing. Such integration consists of examining interactions within the configuration of family factors, such as attachment styles and parental attitudes. Knowledge of the interactions within such factor configurations would facilitate better predictions of potential enterprisers' effectiveness, which is important especially for institutions granting funds to entrepreneurs and for those who want to start a business. However, this vision is currently only a long-range research goal for two reasons. First, because multiple factors condition most variables, there is no room for unjustified simplifications. In this study, a single factor may not determine the variable of entrepreneurial success. Second, although many researchers have examined entrepreneurial success (Alstete, 2008; Munish, 2007; Unger, Rauch, Frese, & Rosenbusch, 2011; Yusuf, 1995; Zafir & Fazilah, 2011), single-item indicators or questions unrelated to one another frequently operationalize success. Is your business still operating? Do you employ workers? Are you happy with running your own business? Although a study may use such questions, the primary goal is to compile a configuration of questions that forms a single general quantitative indicator of entrepreneurial success by measuring this success as intensity rather than as the existence or non-existence of the phenomenon. The intention is that the scale utilizes both highly objective questions, such as "Were new job posts created in your company?", and subjective questions, such as "Are you satisfied with the development of your business?" Although the dominance of objective questions seems perfectly justified, the eclectic approach may provide more novel and comprehensive insight by taking the subjective perspective into consideration without marginalizing the objective perspective.

An additional motivation for the construction of the above-mentioned scale is that Polish knowledge offers no similar method. The Polish tools include, along with those adapted to Polish, the Achievement Motivation Inventory by H. Schuler, G.C. Thornton, A. Frintrup, and M. Prochaska, with the Polish version created by W. Klinkosz and A.E. Sękowski, and the Entrepreneurship Efficacy Scale by M. Łaguna. These methods are described in detail herein because they serve to verify the theoretical accuracy of the proposed scale though their primary purpose is not to measure entrepreneurial success, *sensu stricto*. Although achievement motivation is important for potential entrepreneurs, its definitional scope diverges from the relevant scope of entrepreneurial success. This divergence is observable in the case of Murray's manifestations of achievement motivation ("Accomplish something difficult. To master, manipulate or organize physical objects, human beings, or ideas. To do this as rapidly, and as independently as possible. To overcome obstacles and attain a high standard. To excel in one's self. To rival and surpass others. To increase self-regard by successful exercise of talent" (Murray, 1938; after: Klinkosz & Sękowski, 2013)) and in the definition by McClelland ("success in competition with a standard of excellence" (McClelland, Atkinson, Clark, & Lowell, 1953; after: Klinkosz & Sękowski, 2013)). A similar case is that of Łaguna's entrepreneurial efficacy referring to the key term in Bandura's social-cognitive theory. In entrepreneurial terms, this efficacy may reflect the sense of competence in performing tasks, such as finding a location, securing financing or employing/training workers. An entrepreneur's conviction of his own efficacy is "the strength of a person's belief that he or she is capable of successfully performing the various roles and tasks of entrepreneurship" (Chen, Greene, & Crick, 1998;

after: Łaguna, 2006), and this understanding, although not the same as entrepreneurial success, is increasingly subject to empirical and theoretical research describing entrepreneurial success.

The theoretical introduction does not contain a definition of entrepreneurial success because the intention is not to trivialize the importance of presenting the theoretical basics but to maintain the clarity of the argument. A better option may be to present the indicators of entrepreneurial success when describing the process of tool development such that each formulated item refers to a particular indicator.

3. Research method

The objective is to construct a new tool to measure entrepreneurial success and establish the psychometric properties (i.e., reliability and theoretical accuracy) of the scale, where new signifies that the tool is capable of measuring entrepreneurial success in quantitative terms, contains items representing the subjective and objective approaches, and examines success from a short-term (i.e., the last year) and a long-term (i.e., since the commencement of business but excluding the last year) perspective. The construction process rests on the desire to obtain a single general quantitative factor that permits more sophisticated statistical analyses in the future. Importantly, the division of the scale is such that the first part refers to the short-term perspective and the second part refers to the long-term perspective. This allows for the monitoring of changes in the intensification of entrepreneurial success (achieved by people who have run a company for more than a year) and for the identification of the four groups of people, namely, those who 1) have been successful from the start of their business; 2) were successful initially but whose situation later deteriorated; 3) experienced initial difficulty but prospered later; and 4) encountered difficulty in the beginning and have continued to struggle as of the day of the survey. The eclectic approach offers additional insights given the possibility of considering the subjective short-term, subjective long-term, objective short-term, and objective long-term perspectives.

The availability of so many perspectives necessitated a change in the name of the tool, which was initially called the Multidimensional Questionnaire of Entrepreneurial Success. Because this name could be construed as misleading and because it suggests an indication of success dimensions in a factor analysis, a shorter title that creates no confusion was adopted, the Questionnaire of Entrepreneurial Success.

As initially intended, the purpose of the questionnaire was to measure the intensity of entrepreneurial success through group studies.

Method construction commenced with a review of literature and a search for the indicators that the researchers most commonly applied when measuring entrepreneurial success. These indicators are as follows:

- 1) Five subjective indicators: level of satisfaction with business development, number of clients, outcome of tasks performed by employees, competitiveness of the company, and attainment of established business development goals;
- 2) Six objective indicators: showing a profit, having a registered office, having employees, creating job positions, maintaining financial liquidity, offering benefits to employees (e.g., laptop), and maintaining long-term (i.e., longer than one year) cooperation with clients.

These indicators were then reformulated to fit specific answer options on a three-level Likert scale, specifically, 1 (definitely yes), 2 (somewhat), and 3 (definitely no). The reformulating of the statements resulted in 24 first-person singular statements. An example of a reformulated subjective indicator is as follows: level of satisfaction with business development was revised to read, "I am satisfied with the way my business has developed." An example of an objective indicator is as follows: registered office was revised as two items: "Last year, I considered changing the registered office from, e.g., my own house/

apartment to a rented/purchased office, e.g., an apartment, office or building” and “Last year I changed the registered office to a larger one, e.g., my own office/building.” Next, the introduction of the short-term and long-term perspectives required dividing the questionnaire into two parts whose test items had the same content. The first part, which reflected the short-term perspective of the last year, comprised 24 items, and the second part, which represented the long-term perspective of the period since the commencement of the company but excluded the last year, comprised the 24 items from the first part plus four additional items that addressed long-term cooperation with clients. This resulted in a total of 52 items. An example of a reformulated item for part one (short-term) is as follows: level of satisfaction with business development was reformulated as, “I am satisfied with the way my business developed over the past year.” In the second (long-term) part, the same item was revised to read, “I am satisfied with the way my business has developed since its inception.”

The instrument's clarity of language was evaluated by three groups of people (N = 30; 15 women and 15 men) divided according to their levels of education (ten primary, ten secondary, and ten higher education) and age (min = 18; max = 56; M = 33.53; SD = 11.09). The groups evaluated each item on the instrument separately on a five-degree scale ranging from 1 (absolutely clear) to 5 (not at all clear). If the arithmetic mean of an item's evaluations exceeded three, the item was excluded from the scale due to its lack of language clarity. Consequently, two test items were eliminated, one from each part of the questionnaire. Hence, the final version of the questionnaire consisted of 50 test items.

Subsequently, the psychometric parameters (i.e., the reliability and theoretical accuracy) of the tool underwent initial testing. The study was conducted between September 2016 and January 2017 among enterprisers operating a business in 11 Polish voivodships for at least four years. Accordingly, the respondents met one of the objective criteria for entrepreneurial success in that they had survived on the market for at least four difficult first years of operation.

The five psychologists who conducted the study informed potential respondents in individual meetings about the objective, the subject matter and the procedures of the study. The interviewees who consented to participate in the study received a set of questionnaires and were given an unlimited amount of time to complete them. Of the 176 questionnaires submitted, 32 were rejected because they were incomplete, thus resulting in an analysis of 144 sets of questionnaires.

3.1. Study group

The group included 54 women (37.5%) and 90 men (62.5%). The majority had a company in the Mazowieckie voivodship (N = 114 people; 79.2%), whereas the rest had a business in one of the following voivodships: kujawsko-pomorskie (N = 3, 2.1%), podlaskie (N = 1, 0.7%), wielkopolskie (N = 1, 0.7%), podkarpackie (N = 2, 1.4%), warmińsko-mazurskie (N = 6, 4.2%), łódzkie (N = 6, 4.2%), małopolskie (N = 3, 2.1%), lubuskie (N = 2, 1.4%), śląskie (N = 1, 0.7%), and lubelskie (N = 2, 1.4%). Three people (2.1%) did not answer the question regarding their registered office. Although the majority of participants declared that they had neither professional experience in the management of their own company (94 people, 65.3%, responded no; 50 people, 34.7%, responded yes) nor a successful entrepreneur in the family (67 people, 46.5%, responded yes; 75 people, 46.5%, responded no), they did receive training before they started their company, such as courses or post-graduate education (74 people, 51.4%, responded yes; 70 people, 48.6%, responded no), and they had contacts with clients before starting their company (110 people, 76.4%, responded yes; 33 people, 22.9%, responded no).

As of the day of the study, none of the respondents had suspended or deregistered their company. The companies started operations between 1983 and 2013 (Mo = 2010). Consequently, at the beginning of 2017, they had operated, on average, for 13.02 years (SD = 7.11; min = 4,

max = 34). Of the businesses, 43.1% (62) were local, 25% (36) were Poland-wide, 18.1% (26) were regional, and 13.9% (Rauch & Frese, 2000) were international. On average, the companies employed 11.92 people (SD = 27.85; min = 0, max = 200). The greater portion of the companies generated profits (N = 135, 93.8%) rather than incurred losses (N = 8, 5.6%). One company owner (0.7%) refrained from answering this question. In the previous year, the turnover increased for 81.9% (118) of the companies and decreased for 18.1% (26) of the companies. The number of people who maintained financial liquidity was 130 (90.3%), whereas 13 (9%) did not maintain liquidity, and one person (0.7%) did not answer. The majority of the respondents, 47.9% (69) believed that their business had high chances of development, whereas 43.8% (63) stated their business had an average chance of development, and 7.6% (Jong & Hartog, 2007) felt their chances of development were low. One person (0.7%) did not respond to this question.

The analyses of entrepreneurial success achieved by the respondents from the short-term and long-term perspectives provide interesting insights. For example, 38.9% (56) of the entrepreneurs whose levels of entrepreneurial success were low when they first opened their businesses reported similarly low levels of success in the last year of their operation. Correspondingly, 31.9% (46) who enjoyed high levels of success in the beginning of their ventures reported high success for the last year of their business. A minority of business owners achieved greater success in the short-term (i.e., the last year) after experiencing initial difficulties (N = 9; 6.3%) or, conversely, started failing in the short-term after experiencing a period of initial success (N = 15; 10.4%). Considering the postulate in the literature regarding the significance of the level of a company's success in the first years of operation as a predictor of entrepreneurial success in the coming years, the logic suggests that people who are successful at the beginning find it easier to continue that success in the future. However, the cases where failure follows initial success deserve closer examination because they give rise to another research perspective regarding the possibilities of predicting entrepreneurial success by analyzing a business's level of functioning during its initial stage of operation. Is there a difference between people who fail after an initial success and those who succeed after a period of initial failure?

3.2. Tools

3.2.1. Questionnaire of Entrepreneurial Success (QES) (experimental version)

This is the authors' 50-item self-reporting tool for measuring the entrepreneurial success of people who have been running a business for more than one year. The purpose of the instrument is its application in scientific (especially group) studies. The questionnaire, which comprises two parts, measures success over the short-term (i.e., the last year) and the long-term (i.e., since the commencement of the business but excluding the last year). The selection of the questions for each part of the questionnaire provides subjective and objective perspectives on entrepreneurial success, specifically, subjective short- and long-term and objective short- and long-term perspectives. Scores are calculated separately for each part/perspective by summing up the points reported for all relevant items, consistent with the response key. The sum of the points on the two parts forms a general indicator of entrepreneurial success relevant for the period from the commencement of business until the day of the study. The score ranges from 50 to 150, where a higher score indicates a higher the level of entrepreneurial success. The individual responding to the items must choose from among three options, definitely yes, somewhat, and definitely no.

3.2.2. Achievement Motivation Inventory (AMI)

The AMI is a 170-item tool developed by Schuler, Thornton, Frintrup, and Prochaska and adapted to Polish by Klinkosz and Sękowski (2013). This instrument, which consists of 17 scales of ten

items each that correspond to 17 motivational factors, measures achievement motivation.

- 1) *Flexibility* – willingness to take action in new situations and readiness to change
- 2) *Fearlessness* – lack of fear of failure
- 3) *Preference for Difficult Tasks* – levels of requirements and risks that one selects
- 4) *Independence* – self-reliance
- 5) *Confidence in Success*
- 6) *Dominance*
- 7) *Eagerness to Learn*
- 8) *Goal Setting*
- 9) *Compensatory Effort* – effort arising from fear of failure, serves to constructively overcome the fear
- 10) *Status Orientation* – desire to attain high status
- 11) *Pride in Productivity*
- 12) *Engagement*
- 13) *Competitiveness*
- 14) *Flow* – focus on tasks and problems without being distracted
- 15) *Internality* – generalized conviction of being responsible for cause some results
- 16) *Persistence* – endurance and strength to perform tasks or to assign others to perform tasks
- 17) *Self-Control* – ability to organize and carrying out tasks; similar to diligence.

The respondent takes a stand with respect to each statement by selecting an option from 1 (this does not concern me at all) to 7 (this fully concerns me). The score for each scale (range from 10 to 70) is the sum of points obtained for the items comprising the subscale. The total score is the sum of all scores for the 17 scales. The reliability of the scale for a group of working people based on Cronbach's alpha ranged from 0.68 and 0.84. Regarding the total score for the given group, the reliability was 0.96.

3.2.3. Entrepreneurship Efficacy Scale (EES)

This is a 21-item instrument developed by Laguna (2006) that measures one's efficacy when engaging in actions connected with starting a business. The questionnaire comprised three subscales, namely, efficacy of collecting market information (six items), financial and legal efficacy (five items), and efficacy of business activity (ten items). The scores on the whole questionnaire and on the separate subscales are a sum of the points divided by the number of statements. In this way, the average intensity of conviction regarding one's efficacy in a given area can be calculated. The higher the score, the greater the intensity of the conviction. The respondents were required to mark their answers on a 100-degree scale, where 0 indicates "I cannot do it at all" and 100 means "I am sure I can do it." The reliability of the scale as measured by Cronbach's alpha was 0.96, and the Guttman's split-half reliability coefficient was 0.87.

3.2.4. Self-Esteem Scale (SES)

This is a ten-item tool developed by Rosenberg and adapted to Polish by Dzwonkowska, Lachowicz-Tabaczek, and Laguna (2007) to measure self-esteem. The task of the respondent is to take a stand on each statement by selecting one of four responses that range from definitely agree to definitely disagree. The total score is the sum of the points obtained for each test item. The general score ranges from 10 to 40 points, where higher scores indicate higher levels of general self-esteem. The reliability of the scale according to Cronbach's alpha ranges from 0.81 to 0.83.

3.2.5. Generalized Self-Efficacy Scale (GSES)

This is a ten-item tool developed by Schwarzer, Jerusalem, and Juczyński (2012) to measure the depth of one's general conviction

about his effectiveness to cope with difficult situations and obstacles. The scale is useful for individual and group studies examining healthy and unhealthy adults. The task of the respondent is to voice his opinion regarding each statement by choosing one of four options, i.e., no, somewhat no, somewhat yes, and yes. The total score is the general indicator of the one's own efficacy based on the sum of all points. The number of points ranges from 10 to 40, where higher scores indicate a greater intensity of one's own efficacy. The reliability of the questionnaire according to Cronbach's alpha was 0.85.

3.2.6. Personal details datasheet

This is the author's tool for collecting socio-demographic data regarding the enterpriser, such as gender, age, and age when beginning business, and data on the company, such as the year the business was established, voivodeship of the registered office, number of employees, scope of activities.

4. Results

Due to the editorial word limit, this paper presents only a part of the research results, including descriptive statistics and coefficients of discriminant power of test items, descriptive statistics and parameters of the distribution of the general score and the scores from various perspectives, intercorrelations, reliability and theoretical accuracy analyses (with GSES, EES, and SES). Analyses of the theoretical accuracy using AMI do not appear in this article. The article "Entrepreneurial Success versus Achievement Motivation – Preliminary Report on a Validation Study of the Questionnaire of Entrepreneurial Success" elaborates on this issue.

First, the values of the descriptive statistics of the individual items were calculated, including the minimum, maximum, arithmetic mean, standard deviation, skewness, kurtosis, and coefficients of discriminant power, i.e., the coefficients of correlation of an item with the general score adjusted by way of excluding the test item (Table 1). The obtained values of descriptive statistics for test items No. 1, 2, 5, 7, 9, 11, 12, 13, 14, 17, 18, 22, 23, 24, 25, 28, 30, 32, 34, 35, 36, 37, 38, 41, 42, 46, 47, and 48 indicate that the average results for these items are shifted to the right in relation to the average theoretical scale for responses ranging from one to three, whereas for test items No. 3, 4, 6, 8, 10, 15, 16, 19, 20, 21, 26, 27, 29, 31, 33, 39, 40, 43, 44, 45, 49, and 50, the shift is to the left in relation to the mean. Moreover, the values of skewness also confirm the findings.

However, in the second group of items, the positive value of skewness indicates that the distribution is right-skewed. Such parameters of distribution are justified if we consider the specificity of the group being studied, i.e., a group of people who achieved relative success and survived in the market for at least four years, in that they scored higher on questions regarding the level of satisfaction with business development, profits, number of clients, etc. Simultaneously, these people scored low on questions that would require reverse scoring, for example, "In the last year, the financial condition of my company was poor." Thus, low scores on this item point to a higher indicator of entrepreneurial success.

An analysis of the discriminant power of the test items reveals statements that are relatively weakly related to the general indicator of entrepreneurial success. An arbitrarily set value of the discriminant power less than 0.3 determined whether an item was included in the scale. Items with a discriminant power less than 0.3 did not undergo further analysis, which resulted in reducing the number of test items by 12 (marked in gray in Table 1). Hence, the final instrument comprised 38 items: 18 items were included in the first part (i.e., short-term) and 20 items were included in the second part (i.e., long-term) of the questionnaire.

Next, the descriptive statistics for the general score and the scores from different perspectives were calculated (Table 2). Because the scores regarding the different perspectives and the general score have

Table 1
Descriptive statistics and discriminant power coefficients of test items of the Questionnaire of Entrepreneurial Success.

Test item	Min	Max	M	SD	Skewness	Kurtosis	Discriminant power
1	1	3	2.41	0.62	-0.54	-0.60	0.54
2	1	3	2.41	0.68	-0.71	-0.60	0.40
3	1	3	1.31	0.69	1.91	1.86	0.28
4	1	3	1.66	0.89	0.73	-1.33	0.69
5	1	3	2.24	0.70	-0.38	-0.92	0.50
6	1	3	1.69	0.91	0.65	-1.49	0.60
7	1	3	2.56	0.74	-1.34	0.19	0.21
8	1	3	1.44	0.60	1.00	0.01	-0.61
9	1	3	2.13	0.59	-0.04	-0.22	0.50
10	1	3	1.51	0.78	1.10	-0.47	0.20
11	1	3	2.19	0.96	-0.40	-1.82	0.54
12	1	3	2.25	0.63	-0.25	-0.63	0.49
13	1	3	2.11	0.83	-0.23	-1.50	0.42
14	1	3	2.56	0.63	-1.13	0.18	0.36
15	1	3	1.17	0.48	2.81	7.13	-0.20
16	1	3	1.15	0.43	2.94	8.25	-0.21
17	1	3	2.67	0.63	-1.76	1.76	0.42
18	1	3	2.48	0.73	-1.04	-0.36	0.31
19	1	3	1.69	0.89	0.65	-1.43	-0.40
20	1	3	1.69	0.81	0.62	-1.19	-0.58
21	1	3	1.74	0.87	0.53	-1.47	0.55
22	1	3	2.65	0.60	-1.52	1.27	0.47
23	1	3	2.27	0.68	-0.40	-0.82	0.46
24	1	3	2.53	0.58	-0.80	-0.35	0.48
25	1	3	2.37	0.59	-0.31	-0.68	0.45
26	1	3	1.66	0.88	0.73	-1.32	0.45
27	1	3	1.81	0.93	0.40	-1.73	0.62
28	1	3	2.27	0.63	-0.28	-0.63	0.55
29	1	3	1.83	0.91	0.35	-1.71	0.56
30	1	3	2.54	0.74	-1.26	0.02	0.24
31	1	3	1.29	0.58	1.90	2.53	-0.45
32	1	3	2.25	0.54	0.14	-0.31	0.53
33	1	3	1.63	0.83	0.78	-1.09	0.24
34	1	3	2.20	0.97	-0.41	-1.82	0.40
35	1	3	2.44	0.58	-0.42	-0.74	0.57
36	1	3	2.16	0.64	-0.16	-0.62	0.41
37	1	3	2.19	0.77	-0.34	-1.25	0.39
38	1	3	2.45	0.65	-0.75	-0.50	0.17
39	1	3	1.30	0.57	1.77	2.15	-0.23
40	1	3	1.17	0.48	2.89	7.58	-0.23
41	1	3	2.71	0.60	-1.97	2.65	0.30
42	1	3	2.35	0.72	-0.62	-0.83	0.27
43	1	3	1.84	0.89	0.32	-1.68	-0.34
44	1	3	1.62	0.69	0.67	-0.70	-0.47
45	1	3	1.87	0.88	0.25	-1.66	0.39
46	1	3	2.51	0.64	-0.97	-0.14	0.61
47	1	3	2.26	0.60	-0.19	-0.54	0.48
48	1	3	2.80	0.50	-2.45	5.24	0.27
49	1	3	1.46	0.78	1.29	-0.08	-0.43
50	1	3	1.41	0.72	1.44	0.52	0.38

left-skewed distributions, more scores are present on the right side of the table. The Kolmogorov–Smirnov test indicated that the majority of the scores were statistically significant, thereby indicating a distribution dissimilar to the normal one, with the exception of long-term subjective entrepreneurial success, long-term success, and the general

Table 2
Descriptive statistics and the parameters of distributions of the total score and the scores “from various perspectives”.

Scale	Min	Max	M	SD	Skewness	Kurtosis	Kolmogorov–Smirnov test	
							Z	p
SSK	6	18	13.45	2.76	-0.38	-0.25	0.10	0.003
SSD	8	21	16.09	3.12	-0.37	-0.34	0.12	0.956
SOK	19	39	30.17	5.37	-0.09	-0.95	0.09	0.025
SOD	14	35	25.25	5.13	0.03	-1.03	0.09	0.011
SK	26	57	43.67	7.45	-0.29	-0.68	0.08	0.047
SD	22	56	41.39	7.27	-0.14	-0.69	0.07	0.200
Total score	56	112	85.18	13.53	-0.08	-0.85	0.07	0.200

Table 3
Matrix of intercorrelations (Spearman's rho) between the scores “from various perspectives” and the total score in the QES.

Scale	SSK	SSD	SOK	SOD	SK	SD	Total score
SSK	-	0.64 ^a	0.63 ^a	0.45 ^a	0.81 ^a	0.60 ^a	0.77 ^a
SSD	-	-	0.44 ^a	0.47 ^a	0.53 ^a	0.76 ^a	0.68 ^a
SOK	-	-	-	0.68 ^a	0.96 ^a	0.69 ^a	0.91 ^a
SOD	-	-	-	-	0.65 ^a	0.93 ^a	0.83 ^a
SK	-	-	-	-	-	0.71 ^a	0.94 ^a
SD	-	-	-	-	-	-	0.91 ^a

^a Significant correlation at level 0.05.

Table 4
Reliability coefficients Cronbach's alpha for the total score and the scores from various perspectives.

Scale	alpha
SSK	0.77
SSD	0.84
SOK	0.81
SOD	0.81
SK	0.86
SD	0.87
Total score	0.92

indicator of success.

An analysis of intercorrelation matrices confirms that the constructs under analysis are related to one another and suggests that they are relatively independent from one another. Simultaneously, high values of correlation coefficients (i.e., the Spearman's rho) reflect the internal coherence of the scale (Table 3).

The internal consistency method determined reliability. Table 4 presents the values of Cronbach's alpha, indicating a satisfactory level of reliability.

Matrices of Spearman's rho correlations are used to test the theoretical accuracy based on an analysis of correlations between entrepreneurial success and the generalized sense of one's own efficacy, self-esteem, sense of entrepreneurial efficacy, and number of employees (Table 5). The correlation coefficients reveal positive and predominantly statistically significant correlations between entrepreneurial success and the above variables. Furthermore, the results of a comparative analysis, the Kruskal-Wallis test, that reveals the correlations between the geographical range of a business's operation (i.e., local, regional, Poland-wide, and international) and entrepreneurial success indicate that companies operating internationally, on average, achieved greater intensity of success compared to those operating at the local, regional or country-wide level (chi-square = 8.68, P = 0.034). These data suggest that the scale is accurate.

Table 5
Spearman's rho correlations between the scores in the QES and the scores in the GSES, SES, and SSP.

Scale	GSES	SES	Effectiveness of collecting information	Financial and legal effectiveness	Activity effectiveness	Effective entrepreneurship	Number of employees
SSK	0.30*	0.21*	0.16	0.14	0.19*	0.18*	0.28*
SSD	0.27*	0.15	0.14	0.05	0.14	0.17*	0.22*
SOK	0.22*	0.23*	0.17*	0.14	0.13	0.12	0.50*
SOD	0.27*	0.13	0.19*	0.20*	0.23*	0.23*	0.64*
SK	0.27*	0.24*	0.17	0.08	0.15	0.15	0.47*
SD	0.27*	0.16	0.23*	0.22*	0.24*	0.26*	0.58*
Total score	0.28*	0.22*	0.24*	0.16*	0.22*	0.23*	0.56*

*SSK – subjective entrepreneurial success from a short-term perspective; *SSD – subjective entrepreneurial success from a long-term perspective; *SOK – objective entrepreneurial success from a short-term perspective; *SOD – objective entrepreneurial success from a long-term perspective; *SK – short-term success (objective and subjective); SD – long-term success (objective and subjective).

5. Conclusion

Due to the limitation on word count, this article presents only part of the findings (excluding analyses of the AMI results) from the research on the psychometric parameters of a new tool for measuring entrepreneurial success. The intention was to design a method that encompassed both subjective and objective indicators of entrepreneurial success and that allowed for the quantitative measurement of this success. An initial analysis of the psychometric parameters reveals that the experimental version of the QES (without the items eliminated due to low discriminant power) is highly reliable. The determination of theoretical accuracy revealed the expected correlations with other indicators of entrepreneurial success, including EES, SES, and GSES, which provides a good basis for further exploration of the questionnaire and introduces a new study perspective that encompasses comparative research on the family conditioning of entrepreneurial success among groups of potential entrepreneurs, business people who enjoy a high level of success, and those who have failed. Another intriguing research area within the systemic-integrating approach is the comparative analysis of four groups of entrepreneurs identified by the QES, namely, those who 1) have been successful from the beginning (i.e., the commencement of their business); 2) were initially successful but whose situation later deteriorated; 3) experienced initial difficulty but prospered later; and 4) encountered difficulty in the beginning and continued, as of the time of the survey, to struggle.

It is important to develop a good, reliable, accurate, and useful measure of entrepreneurial success, especially considering that the literature lacks such a method and that the entrepreneurial theoretical framework is relatively weak with respect to entrepreneurial definitions and indicators. We suggest that the development of a high-quality psychometric scale is the first step to overcoming this obstacle. Moreover, we contend that a primary strength of this study and a reason why this study is so thought provoking is that we open a new pathway to discussion about entrepreneurial success in which subjective indicators and objective perspectives are investigated simultaneously.

However, we emphasize that this paper reports findings from an initial stage of a psychometric analysis of QES and that further studies are required to develop this scale. Accordingly, other study samples (e.g., young/old entrepreneurs and various branches of entrepreneurs) should be examined to confirm the QES psychometric properties and their usefulness.

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