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Determining the validity and reliability of measuring scale for entrepreneurship in sport

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ABSTRACT

The present study aims to measure the entrepreneurship of graduate students of physical education. In so doing, a 75-item entrepreneurship questionnaire was implemented on 300 last semester bachelor students of Physical Education and Sport Sciences in Azad and State universities of Tehran province, Iran. This scale consists of twelve subscales including responsibility, opportunity, confidence, seeking opportunity, progress motivation, risk tolerance, perseverance, need to progress, creativity, intelligence, assertiveness and decision- making and 75 items with statements on entrepreneurship in sport. Face and content validity [expert's opinions], structure [exploratory and confirmatory factor analysis] were used to validate questionnaire and Cronbach's alpha method [0.90] was used for making the questionnaire reliable. The results revealed that for entrepreneurial tool in sport, the priority of areas is: responsibility, chance, confidence, seeking opportunity, progress motivation, risk tolerance, perseverance, need to progress, creativity, intelligence, assertiveness and making-decision, respectively. It is necessary to do an action for recognizing the features, status and importance of entrepreneurs' works because entrepreneurship is the main factor of creativity and innovation. Without a doubt, studying characteristics of entrepreneurs and designing and constructing an instrument for identifying and supporting them are important.

Keywords: Entrepreneurship questionnaire, stability, reliability, factor analysis

INTRODUCTION

In studying the determination of employment growth rate, factors such as the development amount or rate of the labor force are considered in most developing countries like Iran. Given existing huge young jobseekers in Iran, supplying labor force is in the high level. In these conditions, creating job opportunities for many unemployed individuals in the country is the major and most important concern for policy-makers and decision-makers in the country. In the meantime, one of the largest and most important economic problems is providing employment and reducing unemployment especially among the educated class as a threat that can be turned into an opportunity [1]. What considered the most in this case is to find and use the potential opportunities in employment, particularly for young people and future-constructors of country and also create and develop entrepreneurial spirit and creative thinking that has a main effect in changing the employment culture in the community. As entrepreneurship is accepted as a job by most members of a community, that community will develop very fast [2]. The concept of innovation can include creating a new product to create a new distribution system or even creating a new organizational structure for performing the tasks. In the early eighteenth century, Bernard Doblidor, French economist, presented a more inclusive definition of entrepreneurship that was to buy the force work and ingredients in an undetermined price and sell products in the price in accordance with the contract [3].

According to Kuratko [2001], characteristics of entrepreneurs include access to and utilization of opportunities, access to resources, creativity, insight, intellectual independence, hard work, optimism, innovation, taking risk, and leadership [4]. Generally, in the country, given the increase in admissions in these groups and the flood of graduates, employment crisis of Sport Science and Physical Education experts has been a serious challenge in the sport section of country and teaching entrepreneurial skills is an undeniable necessity among students and graduates of these groups. It is clear that with respect to the policy of third and fourth development programs, the state sector has not the possibility to recruit these graduates and the market of private sector cannot respond to this size of experts. Therefore, for finding new markets and services and innovating new methods in employing Physical Education and Sport Science graduates, training entrepreneurial skills is an inevitable necessity. In physical education sector, the emphasis on the professional and continuing education is essential for entrepreneurs and opportunities the creation of entrepreneurship spirit during the study should be designed among students of physical education, curriculum and learning [6]. In a study in titled studying factors affecting developing activities of entrepreneurial women in the country, Glrd [2002] studied factors effecting the success of commission and development of entrepreneurial activities of Iranian women while he stated the status of women's entrepreneurship in the world and its essential and importance. He divided the most important factors effecting women's entrepreneurship into four personal, networks organizational and environmental sectors [9]. In a study in titled entrepreneurial preparation in sport, Tejari and Khodayari [2004] studied the entrepreneurial preparation of male and female students in the field of physical education and sport sciences in sport area and they concluded that there was not a significant relationship between sex and entrepreneurial scales and that men and women showed the same preparation in the sport field for entrepreneurship. Also, about 50% of subjects notified their preparation in the high extent to starting work during next 5 years and 43.3% of subjects notified their skill level in moderate level for success in entrepreneurship in sport profession and 40.5% of subjects believed that they must learn too much to become a successful entrepreneur in sport [6]. Allahverdi [2006] performed a study in titled studying the practicality of validity, reliability, and scaleseeking of entrepreneurship scale for teachers in Tehran education department in which he concluded that for this group, the important entrepreneurial areas were responsibility, creativity, confidence [4]. Rizvandi and Orofzade [2010] conducted a research in titled studying the entrepreneurship rate of MA students in the field of Sport Management and the research results indicated that the rate of entrepreneurial features was higher than average level among MA students in the field of Sport Management and no significant difference was found between sexes [8]. Jalilvand et al [2011] performed a research in titled the relationship between demographic characteristics and entrepreneurship in Physical Education department in Sistan and Baluchestan, and concluded that there was a relationship between age, sex and education rate and organizational entrepreneurship and the strong education rate could be the predictor of entrepreneurship [7]. Omidi et al [2011] conducted a study in titled the identification of environmental barriers to organizational entrepreneurship in the Ministry of Sport and Youth and the research results showed that the total of political, legal, economic, socio-cultural, technological, and international factors had effected organizational entrepreneurship [5]. Moskutiz [2004] presented a report on the study of reviewing activities of Boston entrepreneurs during a baseball tournament. They provided new opportunities for employment and entrepreneurship in the field of competitions creating opportunities for advertising in sport stadiums [21]. In a research in titled the effect of business regulations on the entrepreneurship of new job, Wen Stll et al [2006] concluded that for starting a new job, the minimum capital for initiating a new job should be done by government assistance and considering the entrepreneurship in the country. Also, for entrepreneurship, a manager should consider issues such as time, costs and production needs in his job [10]. Leica et al [2008] conducted a research entitled a review on entrepreneurship education and identified a clear direction and method for research on the entrepreneurship education [11]. In a study, Chonka et al [2010] cited age, sex and education as factors effecting entrepreneurship [20]. In a research, Berglan et al [2011] found that the tendency towards entrepreneurship is profitable and increases the income diversification and for becoming an entrepreneurial person, family resources [income], sex and working environment are expressed [19]. Accordingly, entrepreneurship has now become one of the most common research areas in the management area and it will not be exaggerated to say that entrepreneurship has been one of the important subjects raised in the community, education and scientific researches in recent decades [11]. Sport is an entrepreneurial process. In the last decade, entrepreneurship and fields of sport management have significantly improved and the entrepreneurial approach in sport can provide a mechanism for the economic crisis [7]. Given the necessity of this importance, the present study considers a scale of measuring entrepreneurship for the sport experts and performs determining its reliability and validity.

MATERIALS AND METHODS

Statistical population

The statistical population of the present study consists of senior students and graduates of Physical Education and Sport Sciences of Tehran universities. Due to the need to perform factor analysis [that the minimum sample size should be 200], to get more confidence about the research results, 300 individuals were selected from the entire

desired population and senior students or graduates of Physical Education and Sport Sciences by random sampling stratified method and the studied questionnaire was implemented on them.

Instruments

This questionnaire has been ranked based on Likert scale. Its questions have been stated as sentences that are valuated from full agree to full disagree or from 1 to 5 by samples in answers in terms of agreement rate with them. In the present study, the grades have been designed as descending. The content of the questionnaire measures 12 main factors for the characteristics of entrepreneurs as the following: 1- need to development, 2- risk tolerance, 3-Belief in Fate [chance], 4- perseverance, 5- confidence, 6- creativity, 7- making-decision, 8- assertiveness, 9-seeking opportunity, 10- progress motivation, 11- intelligence 12- responsibility and each factor has 4 to 8 subset questions.

Given the available documents and internet and library sources, a preliminary questionnaire with 80 questions was developed. First, given the valuation of these professors, this became formal among a population of 10 individuals consisting of professors and experienced experts of physical education and entrepreneurship in Ph.D. degree in Sport Management and Distribution Entrepreneurship and according to these professors' views, changes were done in how to state some questions and also the appearance form of questionnaire and the questionnaire was obtained for the experimental distribution explained in the section of credit and validity of instruments. Cronbach alpha coefficient of 75-item questionnaire was also calculated equal to 0.90 for the final implementation.

Research statistical methods

To determine the construct validity and identify factors existing in scale items, exploratory operating analysis method was used. Klein theory was used to remove markers or weak indicators. He acknowledged if the operating loadings are more than 0.6 [algebraic symptom is not criterion], they are estimated more and if they are more than 0.3, they are relatively estimated high. Other operating loadings [less than 0.3] can be ignored, here; acceptable boundary has also been considered 0.3 in the operating analysis [Klein, 2001 and Kim and Mueller, 1999]. The research data suggest that all the items in the questionnaire have operating loading more than 30% which are the reliability representative of the research instrument. To measure reliability, the consistency reliability assessment has been between the desired questions, since the most common internal consistency reliability test is Cronbach's alpha coefficient which is used for multi-scales questions or classes [ingeal hard and Nigil, 2003], Cronbach's alpha method has been used to assess the internal consistency of questions.

After collecting the research data, given the type of variables and required information to test the research hypotheses, for doing descriptive and inferential analyses, exploratory factor analytical tests, the correlation coefficient and the Cronbach's alpha coefficient of software of statistical analytical, SPSS version 20 and LESERL edition 8.52 were used.

RESULTS

In this part, results obtained from testing each specific objective are mentioned. It should be noted that all results in the level of p < 0.5 were examined. Cronbach alpha coefficient is equal to 0.90. First, to investigate whether the chosen sample size was enough, for operating analysis, the adequacy test of Kaiser - Meyer - Alkyn [KMO] sampling was performed. Also, to determine that the correlation between test materials is not zero, Bartlett's test was used [Heidarali, H. 2007]. The results have been reported in Table 1.

Table1. Adequacy test results of the sample size for performing operating analysis

The adequacy test of Kaiser - Meyer - Alkyn sample size	0.592
Bartlett's test and Chi-square approximation	51.6
Degree of Freedom	435
Level of Significant	0/001

KMO measure should be greater than 0.6. In the present research, its size is equal to 0.952 which is an acceptable rate. Also, Bartlett's test is significant in the level of p < 0.001. For the operating analysis of the scale, the element analysis method was first used. In the next stage, to identify the fundamental elements that form the scale infrastructure, Ablyk rotation method [by varimax method] was used.

Given the gravel figure and eigenvalues that determine how much variance is explained in the whole items by a factor, with 69% of variance of the whole scores, 12 operators have been placed over 1.00 eigenvalues and the attitude variance of students to scale indicates measuring entrepreneurship.

Table 2 The initial statistical parameters obtained from performing the operating analysis of entrepreneurship questionnaire

statistical results	Mean	Share content with other	Standard deviation	Participants in the study
questions		questions	deviation	in the study
1] in a competitive game, my preoccupation is to better play and not win	2.32	0.632	1.357	300
2] I believe that a bachelor of physical education should increase his knowledge with his students' development	2.32	0.709	0.697	300
3] To promote in my work, I am ready to ignore some of my financial progress	2.92	0.667 0.623	1.087 1.292	300 300
4] To promote in my job, I am ready to limit my relations with close family individuals 5] To promote coaching, I want to spend my money with knowing that this investment				
may not have the financial return	2.42	0.649	1.97	300
6] To succeed in my sport field, I constantly increase my knowledge through studying	1.72	0.732	0.825	300
7] To create new jobs in the field of physical education, I am ready to take my capital into a risk	2.77	0.724	1.171	300
8] I believe that risk is a part of our work	1.98	0.691	0.942	300
9] I am ready to try my luck for establishing a gym	2.04	0.679	1.031	300
10] Even if I am satisfied with my current situation, I am ready to risk for getting a better situation	2.12	0.696	1.038	300
11] I believe that in every work which there is a possibility of failure, there also is likely to win	1.68	0.657	0.803	300
12] Starting a new job worth risking	2.06	0.733	0.953	300
13] If the chance of win than losing is 40 to 60 in a competition, I am still ready to	2.08	0.742	1.014	300
participate in the game 14] certain order and rules prevails on the schedule and time-table of my daily work.	2/32	0.653	0.879	300
15] I often doubt in taking decisions.	1.41	0.709	1.160	300
16] In the decisions of my life, I am flexible with respect to the opinions of people around	2.29	0.697	0.998	300
17] As a manager, I am interested that my commands be performed without imperative.	2.79	0.697	1.130	300
18] I doubt in which area of physical education I will work in the future.	2.42	0.670	1.38	300
19] as a physical education expert, I believe that a good coach should not be influenced by the opinions of his team, even if some of these comments are reasonable.	1.72	0.612	1.35	300
20] I enjoy a high level of IQ.	2.77	0.736	0.856	300
21] Among my friends, I am known as an intelligent one.	1.98	0.699	0.925	300
22] I think that I have enough intelligence to create a career in physical education	2.04	0.679	0.824	300
23] I am often successful in solving difficult problems 24] I had a high average grade in my course.	2.12 1.68	0.720 0.701	0.844 1.116	300 300
25] After speaking with someone, I can greatly analyze his personality.	2.06	0.701	0.891	300
26] I usually can predict the economic developments of society.	2.57	0.774	0.991	300
27] I believe that success is the result of labor, not the result of chance.	1.72	0.681	0.940	300
28] I believe that the failure of a coach is the result of inadequate knowledge and experience and not chance.	1.76	0.751	0.896	300
29] As a coach, I believe that in most situations, the team's fate is in my hands.	2.29	0.652	0.975	300
31] In my opinion, an activist BA in Physical Education will be certainly successful.	1.73	0.701	0.868	300
32] When I face with a problem, I ignore to do it.	2.34	0.749	1.215	300
33] I believe that should be tried to promote the country sport even if it takes a long time.	1.75	0.738	0.921	300
34] If I fail to achieve my goal, I am not disappointed 35] as a sports analyst I am of the opinion that the policy should be based on sports and be	1.80	0.708	0.811	300
modified to ensure better results in the long term	1.56	0.676	0.743	300
36] I have a necessary confidence and preparedness to start and manage a sport career.	1.97	0.629	0.758	300
37] I raise my comments and opinions in sessions with my colleagues. 38] I feel I will be a successful individual to manage a sports complex.	1.89 2.05	0.703 0.668	0.861 0.948	300 300
39] In a public class, If I disagree with my teacher's opinions, I express it.	2.23	0.687	0.970-	300
40] I have the apparent conditions of a good coach.	2.01	0.690	0.874	300
41] In my opinion, an entrepreneurial sport should be trusted in ideas and thoughts	1.75	0.715	0.770	300
42] Sometimes I have so many ideas that I do not know what I would choose.	2.47	0.654	862	300
43] In the process of training a sport skill, I usually try the new methods.	2.20	0.671	0.849	300
44] to improve the relationship, I suggest constructive solutions to friend	2.02	0.651	0.773	300
45] To encourage people to exercise, it is better to force individuals in activities in the form of new and various games.	1.75	0.636	0.892	300
46] I love a uniform work in the calm environment.	2.95	0.725	1.382	300
47] I am interested in the experience of new jobs in the field of physical education.	1.95	0.701	1.002	300
48] I am interested to study the relationship between various sciences with physical education field.	1.90	0.737	1.012	300
49] I prefer to do the professional study in a particular science.	2.07	0.632	1.024	300
50] I combine exercises and create a new movement	2.32	0.638	0.948	300
51] I prefer, in a sports complex, to be decision maker than to be an executive	2.11 3.02	0.617	1.091	300
52] it is often difficult to make decision for me and cannot choose a solution 53] in collective decision-making, I follow the decision made by the majority and do not	2.88	0.694 0.647	1.190	300
offer disagreement				
54] among my friends, I often make decisions 55] I prefer to be unemployed until I find my desired job	2.60 3.29	0.749 0.718	1.114 1.394	300 300
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0.697 56] I believe that a successful coach has to have a precise schedule 1.41 0.724 300 57] I take any advantages to obtain skill and knowledge 0.612 0.890 300 1.87 58] I try to identify job opportunities related to physical education 1.83 0.733 0.861 300 59] opportunities must be seized even if they are small 1.58 0.732 0.871 300 60] I prefer to work whenever I'd like to 2.42 0.690 0.235 300 61] Other people often say that I am industrious 2.18 0.707 0.1008 300 63] I prefer to have a part-time job and take rest and go on vacations in my free times 2.58 0.733 1.313 300 63] while working, I have a great expectations of myself 1.84 0.633 0.884300 1.65 0.704 0.908 300 64] I do my best to be the best in any work 65] accomplishing a senior ranking in sport in the country is very important for me 1.06 0.704 1.113 300 66] I like the couches who study 1.63 0.625 0.944 300 68] I can do a work for a long time without being tired 2.13 0.699 1 101 300 68] if I am asked to do a work, I will do it in the best way 1.69 0.727 0.769 300 0.978 0/089 300 69] I feel responsible even for my friends' personal problems 0.668 70] as a physical education expert, I am also ready to reject my rest for promoting my 2.07 0.740 1.084 300 country sport. 2.48 0.700 1.066 300 71] If the team fails, I take its responsibility. 72] as a physical education expert, I am in charge of my country sport. 1.88 0.704 0.897 300 73] If I face with a injured or disabled person that can be help to his recovery, I lead him to 1.53 0.739 0.758 300 74] According to the science that I achieved in sport, I have a responsibility towards the 1.55 0.710 0.788 300 mobility of my family members 0.655 0.873 300 75] For helping disabled people, I am ready to learn them the benefit exercises for free. 1.71

Table 3] Eigen Values more than one for four extracted factors

Factors	Mean	Standard deviation	The number of Participants
need to progress	2.162	0.600	300
risk tolerance	2.105	0.597	300
assertiveness	2.577	0.581	300
intelligence	2.213	0.482	300
chance	1.854	0.596	300
perseverance	2.114	0.476	300
confidence	1.984	0.559	300
creativity	2.169	0.472	300
making-decision	2.654	0.678	300
seeking opportunity	1.990	0.496	300
progress motivation	2.52	0.507	300
responsibility	1.848	0.559	300

The initial statistical parameters obtained in implementing the analysis of basic components have been shown in Table 2. It is observed that 12 factor values is larger than 1.00. Considering the number 1 as the basis for the minimum value, it is recommended by Kaiser [1960]. Also, the extracted factors along with the percentage of variance and concentration variance have been shown in this table. As it has been mentioned in the table, these all 12 elements are explained 69.11% of the whole variance of variability that the portion of the first factor is the 1.84 value [responsibility].

To determine whether the intended test has been saturated by some significant factors or not, the three following major indices are considered.

- 1)Eigen value
- 2) The proportion of variance explained by each factor
- 3) Diagram of the Eigen values of called Scree

Given the above-mentioned three cases, it was specified that the questionnaire have been saturated by 12 factors.

CONCLUSION

As many common personality traits of entrepreneurs have been given in the literature on entrepreneurship, and according to the previous studies, studies which are consistent with the factors in the current study include those in the country and abroad. The first factor as the need for progress has been given in the research by Hurrendi [1982] and Vulcan [1992] [12].

The second factor as risk tolerance [risk taking] has been given in the studies by Schumpeter [1934], Cantillon [1755], Vylkn [1992], Mac Klnd [1959], Lytznygr [1965], Kuratko [2001], James [1383], Sohrabi [2006] and Adhami [1384]. The third factor as determination has been given in the study conducted by Timmons [1985] [13].

The fourth factor as intelligence has been given in the studies by Kuratko [2001] and Timmons [1985] [14]. Factor five as luck [fatalism] has been considered in writings of the literature of entrepreneurship and psychological characteristics of entrepreneurs. The study by Aghaii [2005] can be noted too [15]. The sixth factor as diligently has been presented in studies by Hurendi [1982], Sexton [1980] and Kuratko [2001] [16]. The seventh factor as confident has been presented in studies by [1963], Timmons [1978] and Welch and White [1982] [17]. The eighth factor as creativity has been presented in studies by Welsh and White [1981] and Hurendi [1982] [18]. The ninth factor as decision making has been presented in studies by Jeffrey Timmons [1985] [19]. The tenth factor as an opportunity-seeking has been presented in studies by Jeffrey Timmons [1985] and Hurendi [20]. The eleventh factor as motivation for progress has been presented in studies by John Stuart [1848] and Timmons [1978]. The twelfth factor as responsibility has been presented in studies by Timmons [1985] and Kuratko [2001] [21]. Therefore, according to the findings of this research and extracting the 12 factors, it can be concluded that the twelve factors in this study have been presented by researchers and authors in several studies and reveal the validity of this study.

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