Research Article

Construction and standardization of Achievement Motive Test among high school students in the city of Tehran

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ABSTRACT

The current research was done in order to construct and standardize a questionnaire for measuring achievement motive among high school level students. The statistical population of this research was comprised of all high school students, educational district 7, city of Tehran which involved a sample of 450 people who were selected via random cluster sampling method. In order to eliminate drawbacks and adjust a primary 90 question questionnaire, it was preliminary administered to 39 students and thereafter, via estimating Cronbach's alpha coefficient, the test reliability was obtained 0/75 and the questions having little correlation coefficient with the total score were eliminated from the test (8 questions). In the next stage, an 82 question questionnaire was administered to a sample of 450 high school level students; thereafter, in order to examine the reliability of a set of questionnaire's questions, Cronbach's alpha coefficient and retest were applied. In order to investigate the factorial structure of the questionnaire, factorial analysis method was used. Given the value of variance explained by the factors, 8 factors were specified for rotation. Except for 15 questions which did not have a substantial factorial load on none of the 8 factors and were thus eliminated, the rest of the questions did have a substantial factorial load on the factors and in the end, the 67 question questionnaire was named Achievement Motive based on the questions' conceptual root. Research findings revealed that the researcher made questionnaire enjoys an acceptable and appropriate reliability and validity and a significant difference was found between girls and boys in terms of achievement motive scores and that average scores in girls was significantly higher than that in boys.

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INTRODUCTION

Motive is a term which is often synonymously applied with motivation; however, motive can be accurately defined from motivation as a certain state that engenders a specific behavior. In other words, motivation is the general factor generating behavior while motive is the exclusive cause of a specific behavior (Seif, 2015). The concept of motivation has always been of importance in the science of psychology, particularly educational psychology as one of the factors affecting behavior. Seifert (2004) has stated that motivation is an inclination or tendency to act in a special way. He also defines motive as a special need or want that would render in motivation. Since the important condition for then growth and flourishing of a society is the existence of conscious, effective and creative people; hence nurturing and enhancing achievement motive results in the creation of energy and suitable orientation of peoples' behavior, interests and needs in the direction of specific and valuable goals (Samadi, 2007).

Academic achievement motivation is meant as an all-out tendency to assessing one's performance in accordance with the most superb values and criteria of efforts for success in performance and enjoying pleasure which is followed by success in performance (Westland and Arches, 2001). Achievement motive is one of the main acquired

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motives of any individual which was for the first time introduced by Murray. Achievement motive is taken to mean one's tendency for going through barriers, efforts for attaining a better kind and maintain high level criteria. Those having higher achievement motive want to perfect and improve their own function. They are dutiful and prefer to do tasks which are challenging and attempt to do something such that an assessment of their progress becomes feasible (either in comparison to others' achievement or based on other criteria). These people enjoy self-esteem, prefer individual responsibility and would like to become aware of their own work results tangibly. Their curricular scores are good and participate in social and academic activities, prefer to cooperate with experts and scholars in doing works and show resistance against external social pressures. If they see they can do something, they are ready to venture, where's in some affairs like wagering in horse riding where results are fully accidental, they are not ready to risk (Biabangard, 2005). Achievement motive is among social motives which are of high importance in both educational systems and in economic systems and also due to the impacts these two might have in the direction of development and growth of societies. In this regard, McClelland (1982) argues that societies are progressing wherein the motive for doing business and progress among people is strong. Societies where their people lack motive, even despite superior facilities and natural conducive conditions will less likely have the chance for development and growth. The reason why achievement motive arises is that the society values it and the family, too attaches more value for the children seeking achievement.

Findings of some researches done are indicative of the role and importance of achievement motive in educational achievement. Research findings by Shaheni Yaylagh and Bonabi Mobaraki et al (2005) as regards examining inter-thematic and intra-thematic relations of educational motive (self-efficacy, assignment value, performance-oriented and performance-avoidant goal and proficiency) among fresh female high school students in the city of Ahvaz suggests positive and significant relations between these constructs and in various textbooks (Shaheni Yaylagh and Bonabi Mobaraki et al. 2005). In his study, Hasan Zade concluded that there is a significant relationship between internal motive and academic achievement and also internal control source and academic achievement (Pur Shafiei, 1990). Research by Alborzi, Seif, Latifian and also Alderman and Maher in 1990, Ames in 1992 and Leondari   et al in 1998 indicated relationship between achievement motive and academic achievement (Pur Shafiei, 1990; Alborzi and Seif, 2003; Latifian, 2003; Edmondson, 1998;Seif, 2010; Leondari 1998). Raees Saeed's study illustrated a direct relationship between educational self-concept, achievement motive and academic achievement (Raees Saeed, 2007). Aguero Golou and Walberg reported a positive correlation coefficient of .34 for the relationship between motive and academic achievement among first grade to twelfth grade students (Seif, 2010). Bloom has also reported the relationship between motive and academic achievement as .50 (Husseini Tabatabaei and Ghadami Moghadam, 2007).

Given the fact that such a motive in adolescents will lead to economic, educational and political headways, the significance of the mentioned research will become more evident. Given the fact that students are qualified for undoubtedly relations in the social life and a large part of the country's progress and that of mankind is generated by students' thinking and since students, as future makers if any country possess an undeniable role in the progress and non-progress of any country, in our country, too due to the major role students play and the fact they have always been effective in various situations in the country; hence construction and standardization of a test for evaluation of students' achievement motive could help teachers to easily teach the need for achievement by using this test on the one hand and more familiarity with educational and psychological techniques on the other hand; because training achievement motive is the first step for administering psychological and educational textbooks and it is the end goal of Education at schools. Thus, teacher, based on this test need to identify people with small achievement motive and seek to train higher achievement motive among them and thereby to encourage commitment to fundamental social values such as freedom, personal responsibility taking for the outcomes of one's acts and active efforts for dominating over the environment in treks of criteria of superiority and promotion. In fact, the head responsibility grows through clarification and classification of thoughts of progress and sketching and training of success plans; thus, construction of such a tool seems totally necessary for helping teachers to get to their goals set. The overall goal of the research is to construct and standardize a test for measuring achievement motive among district 7 high school students, in the city of Tehran.

MATERIALS AND METHODS

The current research is a descriptive (non-experimental) research with a survey and standardization type. Given the fact that the current research seeks to examine psychometric properties of the students' achievement motive scale, this research is descriptive. The statistical population of the research consists of all female and male high school students (first, second and third grade level students) in district 7 of the city of Tehran who were studying in the educational year of 2013-2014 at state and non-profit schools of the mentioned district. In the research, according to the research objectives and research stages, there was a need for two samples; a sample for determining reliability and validity of the final test and a sample for examining correlation coefficient between two-time administration

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(questionnaire's reliability). Given financial abilities time constraints and human force needed for administering the scale, a sample of 450 people was determined by way of cluster random sampling method (in the end, data appertaining to 423 questionnaires were analyzed). Of 423 questionnaires obtained, 213 people were male and 210 ones were female. Therefore, in accordance with the mentioned material, the 90 question questionnaire was primarily administered to estimate content validity and also to examine questions in terms of writing and concept comprehension on 39 people sample which was selected randomly.

Research tools

In this part, in order to measure students' achievement motive, given definitions of this construct and available questionnaires, a questionnaire was formulated that would include questions and phrases that would accurately evaluate various aspects of achievement motive. For the same reason, construction and standardization of a reliable tool was formulated in order to investigate students' achievement motive. Researchers primarily made use of TAT (Thematic Appreciation Test) for measuring and identifying achievement motive. Objective tests, due to lack of objectivity gradually replaced so-called projective tests. In our country, an objective test is scant for measuring achievement motive. As a result, the researcher began formulating and examining statistical properties of this test as in the following.

RESULTS

To analyze data obtained from the research, descriptive and inferential statistics were applied. In the descriptive statistics art, such statistics as frequency distribution, graphs, central indices and scatteredness were used. In the inferential part, factorial analysis method was applied for examining g construct validity and factorial structure of this test. Also, to compare averages of the two independent groups (male and female), independent T test was applied. To estimate test's reliability coefficient, internal constancy method, i.e. an estimation of Cronbach's alpha coefficient and Retest method, i.e. an estimation of Pearson correlation coefficient among scores resulting from two-time administration of the test were used. Validity estimation of the measuring tool was done via using two methods of content and construct validity. To estimate the tool's construct validity, factorial analysis method was applied.

Graph 1: Scree graph for determination of the number of factors
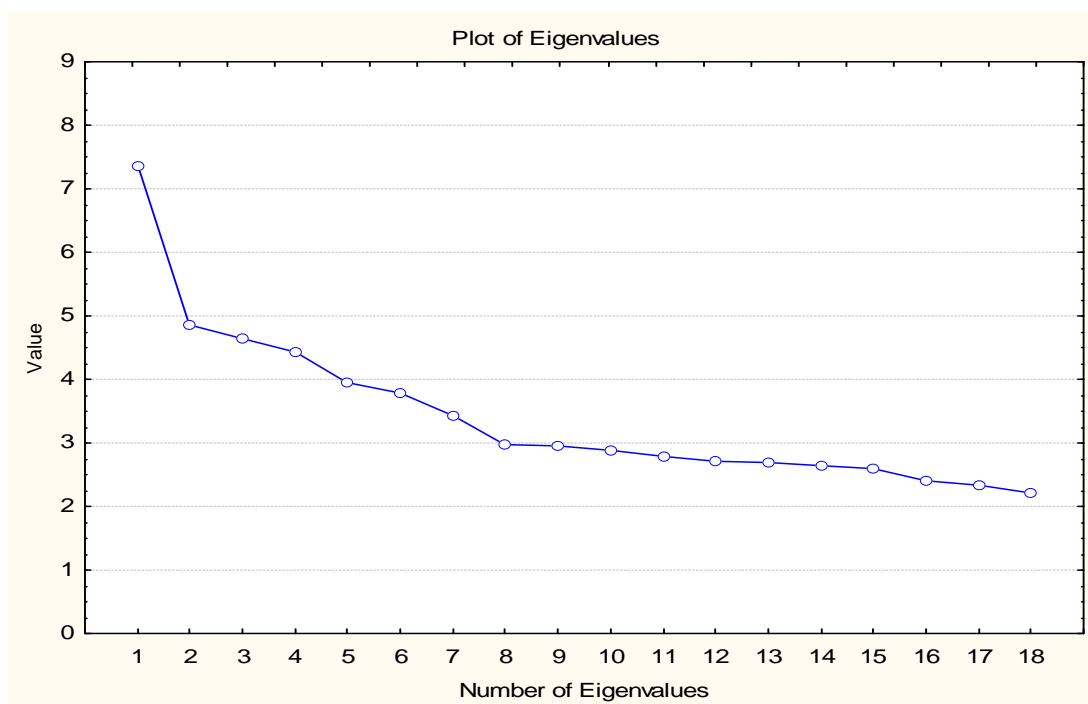
Upon paying attention to the graph, one can notice that only 8 factors of the questionnaire's factors are higher than the line's slope and the rest of the factors are almost in a range and close to each other. Therefore, Scree graph only places emphasis on 8 constituting factors in the research tools where 39/838% of the variance of this questionnaire is explained by these 8 factors. By way of analyzing main components and using varimax rotation, the 8 factors were rotated so that the simple test structure is met and the questions having substantial load on any factor are determined and weak questions are eliminated. Varimax method results reached a simple structure after 16 experimental rotations. Results of this analysis indicated that 15 questions have a factorial load higher than 0.3 on first actor

(expectation of success), 10 questions on the second factor (superiority seeking), 6 questions on the third factor (independence), 10 questions on the fourth factor (effort-centeredness), 6 questions on the fifth factor (challenge seeking), 9 questions on the sixth factor (realism), 6 questions on the seventh factor (goal-orientedness), and 5 questions on the eighth factor (competition). These 8 factors would explain 39/838% of the variance out of the total test. The number of 15 questions out of the questionnaire's questions, due to the fact they did not have a significant factorial load (0.3) on none of the eight factors was eliminated from a set of questions in the questionnaire. Prior to forming Norm Tables and norms pertaining to each of the factors, availability of difference between the two genders in each of the factors was placed under research so that in case of difference of norms in accordance with each gender separately, t tests are used.

Table 1: Independent T test between two genders

indices	No. boy	No. girl	Average boy	Average girl	SD boy	SD girl	Freedom degree	T test	Conf. level
Expectation of success	213	210	8/89	9/70	2/63	2/58	421	-3/05	0/00
Superiority-seeking	213	210	5/30	5/21	1/82	1/82	421	0/49	0/63
independence	213	210	3/49	3/56	1/07	1/02	421	-0/63	0/53
Effort-centeredness	213	210	5/47	6/16	1/70	1/49	421	-4/39	0/00
Challenge seeking	213	210	3/55	3/38	1/25	1/32	421	1/39	0/17
realism	213	210	5/01	5/27	1/79	1/79	421	-1/48	0/14
Goal-orienteers	213	210	2/98	3/24	1/52	1/52	421	-1/77	0/08
Competition	213	210	2/97	2/94	1/04	1/09	421	0/23	0/82
Overall motive	213	210	37/67	39/46	6/93	7/96	421	-2/48	0/01

As seen, the t observed in the factor of expectation of success (3.05) and factor effort-centeredness (4/39) is greater than the critical t and is significant in at the α=1%. Also the overall t (2/48) with the freedom degree of 421 is greater than critical t in the table and is significant at the α=1%. Thus, it can be said that females' scores in factors expectation of success and effort-centeredness are meaningfully higher than those of males; whereas in other factors, no significant difference exists between girls' and boys' scores. Also, as it is seen from the above table, there is a significant difference between girls and boys in terms of overall score of achievement motive and achievement motive scores among girls are higher than those in boys.

CONCLUSION AND DISCUSSION

In this research, five key questions were raised; in this part, they are briefly explained: Research first question: Does the researcher made questionnaire enjoy acceptable and appropriate reliability? To account for this question, two methods of Cronbach's alpha (.74) and correlation coefficient between two time administrations, i.e. retest (0/72) were used, indicating the questionnaire enjoys a favorable and acceptable internal constancy coefficient. Therefore, it can be concluded that the scale does have a good reliability for measuring achievement motive. Also, results of this current research are consistent with those of Bahargawa (1994) which reported reliability coefficient of 0.87 in a retest with an interval of one month and with comparison of responses in similar questions and with examining response for the test of measurement of aspects intended.

Research second question: Does the researcher made questionnaire enjoy acceptable and appropriate validity? To account for this question, content and construct validity was used; 1- content validity: in this research, to determine test's content validity, from a number of professors and scholars who were suspected of having enough familiarity with achievement motive and a number of M.A. students majoring in measurement, help was received. Meanwhile, questions not having content validity were eliminated from the test; 2-construct validity: to determine construct validity, factorial method was used. To attain the above goal, the resulting information was analyzed by way of main components and by using varimax rotation. Resulting findings revealed that question son components elating to them did have the highest factorial load. KMO value (sampling sufficiency) equals 0.7; therefore, external validity of the research which is a sample of sufficient sample is observed. Bartlett's test is also significant such that these results are in line with Zare's research (1984) a d Bahargawa (1994). Also, all values pertaining to questions' correlation with the overall test are in line with the analysis of main components higher than 0.7, indicating a higher correlation between each and every questions with the overall test.

Research third question: What factors is research made questionnaire comprised of? To account for that question, there was a need for a factorial analysis; however prior to administration of a factorial analysis, it was necessary to investigate two issues; sampling sufficiency (KMO) and confidence to the fact that correlation matrix being as the basis of the factorial analysis is not equal to zero in the population. In order to investigate the material, Bartlett's sphericity Test was used. In the sample under study, KMO value equals 0/691 and significance level of the Bartlett's sphericity character is 0/0001. After administration of Bartlett's sphericity Test and appropriately determination of data for a factorial analysis by using Scree graph and given using variance value explained by factors, 8 factors were

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specified for rotation. By way of analyzing main components and by using varimax rotation, 8 factors were rotated so to meet the test's simple structure and to eliminate the weak questions. Thus test's construct validity was confirmed.

Research fourth question: Is there a significant difference between motive scores among girls and boys? To answer that question, t test in two independent groups was used and results indicated that there was a significant difference between female and male students in the overall test and the average motive scores among girls was significantly higher than boys. Also, by examining subscales, it was determined that in subscales, expectation of success and effort-centeredness among girls were higher than boys while no significant difference was seen between the two groups in other subscales.

Research sixth question: What is the necessary norm for measuring achievement motive among students? After examinations relevant to reliability and validity and determination of subjects' scores percentage in the researcher made test, test's norms were estimated. In this research, raw scores of the subjects were primarily turned into Z scores and then to T scores and test norms were prepared. Given the fact that there is a significant difference between girls and boys in the overall test, Norm Tables were separately formulated for boys and girls.

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