Studying the Effect of Physical Space of Learning Environment on Students' Academic Achievement Motive
(Case Study: Payam-e-Nour University, Qeshm International Branch)

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Abstract
The current survey was carried out to study the effect of physical space on students' academic achievement motive in Payam-e-Nour University, Qeshm International Branch. For this purpose, all students of Payam-e-Nour University, Qeshm International Branch were selected as the statistical population and the statistical sample included 350 students. Random stratified sampling method was used given to the structure of the university in terms of majors including technical-engineering, basic sciences and human arts among male and female students. Researcher self-made questionnaire with the Likert scale and historical study were tools of data collection. The collected data were analyzed via descriptive statistics method. First, measures of central tendency, and data dispersion and distribution were determined. Then, the hypotheses were tested using inferential statistics such as regression coefficient (one-variable and multi-variable). The results disclosed that there is a significant relationship between physical space and academic achievement motive.

Key words: Physical Space, Academic Achievement Motive

Introduction
A group of factors should be provided in the process of education. In any learning-teaching process, there is a learner who enters the process of learning with his/her special characteristics and is exposed to events of the external environment. Each learner involves in learning factors proportional to his/her special situation. Such interaction brings about some changes in the learner and results of learning can be observed in him/her. A huge capital is allocated each year to academic success of students in the community; as a result, the competent and efficient graduates who have the required scientific ability enter the community and the employed capital will have an optimal output. In contrast, academic failure means to lose human, social, economic, and national capitals. Given to the effect of the educational system on all elements of the community, it is essential to change our viewpoint towards the education and educational system and invest more and perform more favorable measures for

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academic achievement in education (Zandinia, 2011). Due to the importance of motivation in learning, the current survey studied the effect of physical space on students' academic achievement motive and presented suitable strategies to reinforce this motivation. The effective factors that will be explored in this survey include teaching method, classroom management, reward and encouragement, physical space and learning environment, and content and assessment. Considering the vital role of motivation for academic achievement in the process of learning and students' achievement, it is essential to study these factors as much as possible and evaluate their effect on the process of academic achievement. Hence, it will be possible to show the effect level of such factors and use it for curriculum development and reduction of educational problems. It is noteworthy that multivariable regression method was used to identify the relationship among the above variables (Tamanaee Far, 2012). Achievement motive is the most important motive in educational psychology and the researches conducted in this regard are an attempt to improve students' academic achievement and it has the most important applications in education (Musavi Rad, 2004). The most important and qualitative curricula require the essential possibilities and equipments for implementation. Too much students in the classroom, compressed curricula, lack of textbooks and educational aids, and schools in remote areas are effective (Afrouz, 1997). Achievement motive is willingness to perform the tasks well in comparison with the superiority measure. It is proposed when the individual considers a superior measure as a model in his/her activity or wants to be successful (Reuo, 2005). By achievement motive, it is meant the score that students achieve in their academic achievement motive questionnaire (Biabangard, 2000). Achievement motive is comprehensive attitude towards performance assessment given to the best measures, trying for successful performance and enjoying the pleasure accompanied by success in performance (Hashemi, 2011). Given to the vital role of achievement motive in the process of learning and students' achievement, it is necessary to provide the optimal social, cultural, mental and family conditions to enhance this motivation, decrease its negative factors and direct it. Therefore, a dynamic community will be trained and competitions and capacities of people are exploited competently towards the purposes of a civil and accountable community. McKland believes that the communities in which people do not have motivation have less chance for development even if there are excellent possibilities and natural suitable circumstances. Also, via accurate studies, he found out that climatic situation of a region cannot be an important factor in economic development. Finally, he concluded that economic, social and cultural growth of a community depends on people's achievement motive. According to him, in countries where parents have trained the achievement motive in their children, they will look for knowledge development in adulthood and will help their economic growth (Asvadi, 2001). The need to achievement or achievement motive is one of the needs about which numerous studies have been conducted. Ghich and Berlainer have defined achievement motive as the tendency or interest in total success or success in a special activity. Researches show that people are very different in terms of this need. Some people have a high level motivation and try hard to be successful in competing with others. Some others do not have a high motivation for achievement and victory and are not ready to take risk because they fear failure (Seif, 2007). Achievement motive accelerates learning of homework; thus the individual gains honor via qualitative knowledge and success. The need to achievement is adjusted by the motive to avoid failure (Karimi, 2012). Discussion on achievement motive was proposed by Mori referred to as

need for the first time (Bahrami, 2005). He proposed several needs for humans that some of them are physiological and some others are mental. Achievement motive is a social need and is overcoming the obstacles, achieving superior standards, competing with others and preceding them (Darabi, 2002). It is a personality characteristic that people are different according to it and certain behaviors can be predicted based on this characteristic. Achievement motive is an attitude to precede others for achievement given to certain standards and trying to gain success (Shokrkon & Bagheri, 1995). Psychologists believe that achievement motive is one of the acquisitive motives of humans (Hashemi, 2011). Pintrich and Degroot (1990) showed that self-regulation, self-efficacy and anxiety are the best predictors of academic performance and self-regulation has a higher power of prediction than the other two factors. Also, Pintrich and Schunk (1996) proved that motivation is one of the important and effective factors on human learning and performance. Agoroglu and Walberg, too, have showed that mean value of correlation coefficients among motivation and academic achievement is equal to +0.34. In some studies, the relationship between motivation and academic achievement has been reported equal to +0.50 (Seif, 2007).

Research Background

Findings of Logan's study (2004) showed that appropriate facilities and welfare possibilities have a positive effect on students' academic achievement (Tamanaeefar et al., 2008). Educational space is considerably effective on students' learning level. Suitable temperature is one of the necessities in the classroom; otherwise as a disturbing factor, it can prevent the students' attention to the teacher and lesson. If the classroom is not suitable for sitting and walking or if it does not have appropriate light or all students cannot see the blackboard comfortably, there will be academic failure (Biabangard, 2000). The governing rules and conditions in most schools propose some measures that all teachers and authorities have to employ and not observing them is an offence, although they do not have an accurate academic and reasonable basis in most cases and have been enacted arbitrarily. Consequently, growth, evolution and training of students' talents, learning how to acquire knowledge and information are affected by such rules and regulations; curiosity and the ability to discover, innovate and interpret them are suppressed and cannot grow. Emotional and psychological stability of students will be directed towards anxiety and disorderliness due to inappropriate conditions of classrooms and schools, official and unofficial threats and reproaches, and frequent punishments; hence, academic failure will be resulted owing to such unfavorable and inefficient circumstances (Aminfar, 1989). The most important and quantitative curricula require the essential possibilities and equipments for implementation. Too much students in the classroom, compressed curricula, lack of text books and educational aids, and schools in remote areas are effective (Afrouz, 1997). A good teacher under limited conditions can also be effective. But there is no doubt that appropriate educational environment and equipments are very influential on teaching quality. Appropriate educational environment, big classrooms, comfortable benches, regular educational devices, auditorium, library, chapel, gymnasium, and other possibilities can affect teaching method (Karimi, 2012).

Qualitative analysis of findings regarding the effect of apparent environment of schools in formation of the curriculum was conduced via opinions of the scholars and Maslow's humanism

and environmentalism theories. It reveals that the agreement among humanists, environmentalists and Neo-piagetian theoreticians, appropriate possibilities and the apparent environment of the school are effective on deeper learning of subjects and real academic achievement of students. For instance, in the schools under study where there were no adequate possibilities in the laboratory and workshops, the teacher stated the responses orally and students annotated them in their science book; students prepared practical activities in profession and technique lesson at home and brought it to the school or in most cases, they were performed by parents or elder siblings. As a result, real and deep learning was not fulfilled although these were not effective on scores of academic achievement (Bayanfar et al., 2012). Internal environment of the school and its social circumstances can be inconsistent with learners' needs and the community in which they live. Schools' buildings, their equipments, and books and curricula might be the factors of such inconsistency and alienation (Aminfar, 1989). "Class climate" is applied to that group of characteristics of teachers and students that enhances sense of security as well as understanding and attempt in students. It is important because it is effective on providing a pleasant environment for learning and students' achievement and satisfaction. Order and security in the classroom are necessary both for general motivation and personal motivation of learning. Schools should be healthy physically and mentally, so students can learn and cognitive and humanistic viewpoints provide a basic reason and logic for this element. One way to create a secure and regular environment is to employ a system of regulations that are stated clearly and executed fairly. Regulations are changed according to teacher situation. An important regulation that should be considered is that students should always avoid laughing, mocking, humiliating, and annoying their classmates. Violating this should be regarded as a moral sin. Permanent execution of this not only creates security but it will help establish a space in which students support each other (Karimi, 2012).

Statistical population

Statistical population is the one on which a study is carried out. This does not necessarily contain humans; rather it can include phenomena, things and living organisms. The statistical population in this survey included all students of Payam-e-Nour University, Qeshm International Branch equal to 3500 persons.

Statistical sample

The statistical sample was consisted of 350 students that was calculated via Cochran formula. Random stratified sampling method was used.

$$n= (N \times t^2 \times p \times q) \div (N \times d^2 + t^2 \times p \times q)$$

In the above formula, maximum permissible error (d) is equal to 0.05, confidence coefficient is equal to 0.95, and p and q are equal to 0.5 and the sample size is equal to N. P-value is considered equal to 0.5, because if p=0.5, n will have its maximum possible value and thus the sample is big enough (Sarmad et al., 2010).

Measurement tools

The measurement tools are physical space questionnaire and students' academic achievement motive questionnaire. Psychometric characteristics of this tool will be examined in the

following.

Physical space questionnaire and students' academic achievement motive questionnaire
Researcher self-made physical space questionnaire and Pintrich and Degroot's academic achievement motive questionnaire were tools of data collection. Reliability of physical space questionnaire was calculated via Cronbach's alpha. In order to test validity, questionnaires were distributed among 30 participants. Having studied the questions and omitted those with low reliability, the final questionnaire was confirmed by the advisor and supervisor professors. Then the reliable and valid questionnaires were given to the subjects. Other tools such as interview and historical study were used if necessary.

Implementation method
In order to prepare the physical space and students' academic achievement motive questionnaire, some questions were written to make the primary form of the scale using psychological and education texts and the conducted studies including Zandinia (2011), Tamaneeefar et al (2008), Pouladi (1997), and Biabangard (1997). At least one question was included in the primary version of physical space and students' academic achievement motive questionnaire to measure the reported components, thus the final questionnaire would have an acceptable comprehensibility. At first, some questions were written to measure physical space and students' academic achievement motive based on the Likert scale. These questions were tested on a group of students in a pilot study. They were asked to choose one of the items in front of each question and also mark the ambiguous questions to be modified later. Given to students' opinions, some questions were omitted and some were modified. The final questionnaire was confirmed by the advisor and supervisor professors. Then reliable and valid questionnaires were given to the subjects. Other tools such as interview and historical study were used if necessary.

Data analysis methods
The collected data were studied via descriptive statistics method to determine measures of central tendency, data dispersion and distribution. Then the hypotheses were tested using regression coefficient (one-variable and multivariable), correlation coefficient, frequency, standard deviation, and mean. SPSS18 software was used for data analysis and Cronbach's alpha coefficient was employed to determine the reliability.

Descriptive data

Table 1. Exploring frequency, percentage, and cumulative percent of students at Qeshm Payam-e-Nour University

Gender	Frequency	Percentage	Cumulative percent
Female	212	60.6	60.6
Male	138	39.4	100
Total	350	100	

As the data in the above table show, among 350 participants, there are 138 males equal to 39.4% and 212 females equal to 60.6%. This is observed in Figure 1.
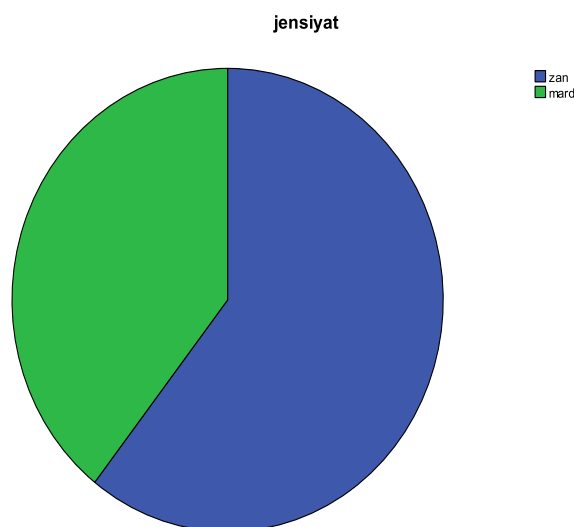

Figure 1. Studying mean number of female and male students participating in the survey

Inferential statistics

Research question: Is there any relationship between physical space of learning environment and academic achievement motive?

In order to respond to this question, the extracted data from questionnaires are displayed in the below table.

Table 11. Summary of the regression model of the effect of physical space of learning environment on academic achievement motive

Model	Correlation coefficient (R)	Coefficient of determination (R_2)	Adjusted R	Estimation error
1	0.406	0.165	0.162	11.945

The correlation coefficient shows that there is a correlation relation between physical space of learning environment and academic achievement motive equal to 0.406 and this relation is significant at level 0.01. Simultaneous regression was used to obtain the coefficient of prediction between physical space of learning environment and academic achievement motive. The findings are shown in Table 11.4. The obtained R_2 shows that physical space of learning environment can explain students' academic achievement motive at Qeshm Payam-e-Nour University equal to 0.165 and the remaining is explained by other factors.

Table 12. Summary of the results of variance analysis regarding the effect of physical space of learning environment on academic achievement motive

Model	Sum of squares	Degree of freedom	Mean of squares	F	Significance level
Regression effect	8717.151	1	8717.151		
Residue	44093.222	309	142.697	61.089	0.000
Total	52810.373	310			

Table 12.4 shows one-way analysis of variance. It is observed that the obtained F equal to 61.089 is significant at level 0.01.

Table 13. Summary of coefficients of simultaneous equation to predict the effect of physical space of learning environment on academic achievement motive

Model		Non-standard coefficients			t-value	Significance level
		β	Standard error	Standard β		
Physical space of learning environment	Motivation	115.569	2.610	0.406	44.298	0.000
		0.614	0.079			

Standardized beta coefficients, t-value, and significance level of the predictor variable are shown in the above table. Results of analysis demonstrated that physical space of learning environment has explained academic achievement motive with β= 115.569 positively and significantly.

Discussion and conclusion

Is there any relationship between physical space of learning environment and academic achievement motive? This question explores the effect of physical space of learning environment on academic achievement motive. It was concluded that there is a significant relationship (0.01) between physical space of learning environment and academic achievement motive. The results related to hypothesis four show that there is a significant difference between paying attention to educational factors and achievement motive. Thus, increasing of educational factors enhances achievement motive and reduction of the effective factors on education decreases achievement motive. As a result, there is correlation between the two variables. These results are consistent with findings of Harrison (2006), Mussavi Nasab (2002), Hashemi (2011), Golshokuh et al (2010) and Pintrich and Schunk (2010).

Suggestions

- It is suggested to researchers to carry out more studies about the effect of physical space on students' academic achievement motive in different academic terms. Also, efficiency and comparison of it among male and female graduates in urban and rural areas can be explored besides studying motivation.
- It is suggested to do more researches about academic achievement motive.
- Emphasizing student orientation instead of focusing on professor and utilization of students' talents and capabilities are suggested.
- More attention should be paid to educational possibilities and tools to enhance learning quality.
- Suitable circumstances should be provided for students' participation when the teacher is teaching.

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