Original Article

Assessment of condition perception of educational -research environment and academic self-efficacy

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Abstract:

INTRODUCTION: Academic self-efficacy is the learners' belief in their abilities in academic process. Perception of the educational-research environment is one of the effective factors on academic self-efficacy. The aim of this study was to examine the perception of educational-research environment and academic self-efficacy in students of the University of Tehran in 2016.

METHODS: This cross-sectional study was done on 385 students of Tehran University of Medical Sciences. Samples were selected through stratified sampling method. Data were collected through questionnaires of perception of educational-research environment scale 24 and of academic self-efficacy scale 32 that reliability and validity of that were confirmed. Data analysis was performed using Pearson's correlation coefficient.

RESULTS: The mean age of participants was 25.31 (standard deviation [SD] = 3.94), and 56.1% of them were female and the rest were male. The mean perception of educational-research environment was 65.79 (SD = 13.13), and the mean academic self-efficacy was 107.44 (15.92). The Pearson's correlation test results showed that there was a statistically significant relationship between perception of educational-research environment with academic self-efficacy ($P = 0.001$, $r = 0.180$).

CONCLUSION: There was a significant statistical relationship between perception of educational-research environment and academic self-efficacy. Students who have high perception of educational-research environment are high academic self-efficacy. Academic self-efficacy can be improved by improving perception of the educational-research environment.

Keywords:

Academic self-efficacy, medical science, perception of educational-research environment, students

Introduction

The students' progress and academic achievement are one of the most important issues in the evaluation of higher education, and indeed, all the goals and efforts of the higher education system are defined in the implementation of this important issue.[1] On the other hand, academic failure and learning loss are of the important issues in the educational system at all levels of education.[2] Considering more attention to the factors affecting academic achievement, we can conclude that various factors influence academic achievement in addition to individual abilities.[1] One of the important factors influencing students learning and achievements is the educational environment.[3-5] Therefore, studying the educational environment can identify shortcomings in medical education and solve its problems.[6] The definition of educational-research environment is as a multitude of educational and interpersonal involved factors that affect the development and advancement of researchers in educational system.[7] The educational-research environment encompasses a broad range of education including internal sections (student–teacher interaction, relevance to students' psychological, and emotional

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needs), and external departments (physical structures and facilities)[8,9] and can be measured and changed.[10,11] In fact, the learning environment, as the majority part of teaching and learning activities, determines the motivation for progress in students[12] and plays an important role in academic achievement, satisfaction, and success.[13] Self-efficacy means self-understanding and perception of individuals and their perceived abilities about a given task. Thus, self-efficacy is an important consideration that worth considering. In other words, we can say that the experiences of individuals can be useful in identifying the level of their self-efficacy. Researchers agree on this idea that those who have a better understanding of their abilities regarding a given assignment, will probably perform that task better than those who do not feel fit to perform a task.[14-17] Therefore, the high levels of self-efficacy among students will lead to their resilience in fulfilling their duties and overcoming difficulties.[7]

The Bandura Social Cognitive Theory refers to the belief of individuals about their ability to make decision and performing activities based on their possible outcomes.[18]

Bandura referring to some research states that the self-efficacy has a direct relationship with performance and also is influenced by many environmental and social variables.[19]

One of these variables is the educational-research environment (educational environment, teaching components, infrastructure, and facilities).[20]

Therefore, one of the most important factors in students is perception of the educational-research environment as well as if their attitude and prospective are positive, it will increase their performance in education, and as a result, their academic self-efficacy will bring significant progress and success in them. Consequently, that perception of the educational-research environment will have an effect on students' academic self-efficacy. As well as because of the fact that no research has been conducted on the status of perception from the educational-research environment and academic self-efficacy in Tehran University of Medical Sciences (TUMS) students so far and also the studies which examined the relationship between perceptions of the similar research were rare in the country. This study was performed with the aim of determining relationship the perceptual status of the educational-research environment and academic self-efficacy students of TUMS.

Methods

Subjects
This study is a cross-sectional study. The participants of the present study consisted of students of all Schools of TUMS in the academic year of 2016–2017. The sample of this study (385 students) was selected from seven schools (medicine, dentistry, pharmacy, health, paramedical, nursing, midwifery, and rehabilitation) in a stratified sampling method. The sample size of 385 students was divided into the number of students in each faculty due to that number, and samples were collected randomly by refereeing to the university colleges. The data gathering tool was based on the educational-research environment questionnaire developed by Ghadampour et al. in a study on the relationship between perception of the educational-research environment and research self-efficacy with the academic achievement of postgraduate students in Mashhad University of medical sciences in the academic year of 2011–2012. However, the Cohen Educational-Research Environment Research Questionnaire including educational components (9 questions) and interpersonal relationships (8 questions) was used to construct this questionnaire, and since Cohen's questionnaire has more emphasis on communication ability, there is no item about teaching quality and infrastructures; hence, the questionnaire of Ghadampour et al. has 24 questions and three educational environment subcomponents (8 questions), the components of the infrastructure and facilities (8 questions), and the quality of teaching components (8 questions). Furthermore, in the study of Ghadampour et al., the Cronbach's alpha coefficient was calculated as 92% for the whole of the educational-research environment questionnaire, 84% for the components of the learning environment, 81% for the components of the facilities and infrastructure, and 92% for the components of the teaching quality,[21,22] and is 5-grade scales for this questionnaire (from 1 for never to 5 for very much). The minimum achieved score is 24 and the maximum is 120. Self-efficacy questionnaire contains 33 questions by On and Framan, and the questions are ranked from 1 to 5 (very low to very high) that in the Persian version of this questionnaire, which was first translated into Persian by Saadat et al. the 28th question does not exist as 28th phrase is related to laboratory and all the courses did not contain laboratory lesson and this questionnaire also contains 32 questions. The Cronbach's alpha of this questionnaire is estimated as 90% based on the study by Saadat et al. for female students, and 91% for male students. Moreover, scores are ranged from 1 to 5 for very low to very high in this questionnaire and calculated the degree of student confidence in relation to taking notes, classroom attention, asking questions in case of ambiguity, use of computers, and etc.[23,24] In fact, the total score of these questions expresses the degree of academic self-efficacy in students. A third questionnaire was used to collect demographic information including age, gender, academic level, studying course satisfaction, economic status, and faculty.

Statistical analysis

The collected data were statistically analyzed by SPSS (PASW Statistics for Windows, Version 18.0, Chicago: SPSS Inc., USA). Data analysis was performed using Pearson's correlation coefficient at a significant level <0.05.

Ethical considerations

This study was approved in 2016 at the Research Center of Health Faculty of TUMS and has a code of ethics IR.TUMS.VCR.REC.1395.105.It is also a cross-sectional study, and the individuals were participated with a tendency in the study, and their information was confidentially reserved for the researcher. Therefore, this study did not have any ethical consideration problems.

Results

A total of 385 individuals were included in the study analysis. The mean age of the participants was 25.31, and the standard deviation (SD) was 3.94; the lowest age was 18, and the highest age was 44; the girls made up 56.1% of the people (216 persons), and the rest were boys. In terms of educational degree, 35/1% of the students were at general doctorate level, 13.8% had bachelor, 34.8% had master's degree, and 16.4% were specialist PhD students. In this regard, 91.9% (354 people) were satisfied with their field of study, and 8.1% (31 people) did not agree with their field of study. The most of the people lived in the dormitory (58.4%).Table 1 shows the demographic status of the participants.

The mean score of perception from the educational-research environment was 65.79 in the participants, and the SD was 13.13. In the case of the educational self-efficacy, the mean score of individuals was 107.44, and the SD was 15.92. According to the correlation test, a significant positive correlation was seen between the mean and the perceptions of the educational-research environment (r = 0.166, P = 0.001). Moreover, with the increase of students mean scores, the perception of the educational-research environment also increases. There was a significant correlation between academic self-efficacy and perception of the educational-research environment (r = 0.180, P = 0.001). According to this test, Table 2 shows the relationship between perceived educational-research environment and the academic self-efficacy.

Discussion

This article examines the perceived status of the educational-research environment and the academic self-efficacy among TUMS students. In this regard, the results of this study showed that there is a significant positive correlation between the whole scale of

Table 1: The demographic status of the students

Variable	n (%)
Gender	
Male	169 (43.9)
Female	216 (56.1)
College degrees	
B.Sc	53 (13.8)
M.Sc	134 (34.8)
MD	135 (35.1)
PhD	63 (16.4)
Satisfaction of field	
Yes	354 (91.9)
No	31 (8.1)
Place of residence	
Dormitory	225 (58.4)
Being with family	160 (41.6)

Table 2: The correlation between grade point average and academic self-efficacy score and perception of educational-research environment score and its subscales in students

Variable	Grade point average	Academic self-efficacy
Perception of educational-research environment		
Correlation	0.166**	0.180**
P	0.001	0.001
Score of educational environment		
Correlation	0.185**	0.172**
P	0.001	0.001
Score of infrastructure and facilities		
Correlation	0.117*	0.150**
P	0.022	0.003
Score of teaching components		
Correlation	0.109*	0.120*
P	0.032	0.019
n	385	385

**$P<0.01$, *$P<0.05$

perception of the educational-research environment and academic self-efficacy, which Ghodampour et al.'s study also confirmed these findings. Furthermore, there was a significant positive correlation between the subscales of educational-research environment (all three subscales including educational environment, teaching quality, and infrastructures and facilities), and academic self-efficacy. However, the results of research by Ghodampour et al. showed that only the subscale of teaching quality has a positive and significant correlation with academic achievement, and there was no significant correlation with other subscales.[21] In the present study, the mean and SD of the study environment was 65.79 ± 13.13 from 120 points (54.82% of the total score) and was 107.44 ± 15.92 for the academic self-efficacy of 160 points (67.15% of total score). These results indicate that both items are modest. In other words, these results indicate that by increasing educational-research

perceptions among students, the academic self-esteem also increases among them. In addition, the results of study by Dreyer *et al*. showed that students' perception of the educational environment was positive, and the average score was 130 out of 196.[25] In the research conducted by Rochmawati *et al*., the results showed that the educational environment had a high score,[26] and these studies had higher percentages than the current study, which may be due to the university differences and the difference in the type of instrument used in the study.

However, in the study of Mohammad Andlib, it was found that the whole average score of the educational environment was 48%, being lower compared with our study.[27] Salehi, in a study entitled "Self-efficacy effect on motivation and academic achievement," it was showed that students can have the highest performance when they are more self-motivated and self-efficated about their tasks.[28] Structural and social organization of educational environment is effective on self-efficacy, efficiency, and finally on student performance.[29] Furthermore, Pearson's correlation coefficient test showed that there is a positive and meaningful correlation between the total score and the perception of the educational-research environment. In addition, based on this test, there is a significant positive correlation between the total mean variable and academic self-efficacy. The study of Pajares indicated that having high self-efficacy has a positive impact on student motivation and makes people tendency more to do their tasks.[30] In the study of Safari *et al*., students with higher mean score had higher self-efficacy. Persons having confidence about their individual abilities can have a significant and effective role in fulfilling their academic tasks and academic improvement.[6] One of the strengths of this study is the appropriate sample size, according to the population of the community, which can be generalized to the study population. We can point out to the lack of studies in the subject area of research, and the reluctance of some students to cooperate, as the limitations of this study, As the results of this research showed that an appropriate educational-research environment can affect student's academic self-efficacy and promote the academic achievement of students, it is suggested to pay more attention on the educational-research-based environment. It is also suggested that other researches also be conducted with this title in other universities. In this research, the educational-research environment was found to be moderate, and therefore, it is important to pay attention to its subscales including the educational environment, infrastructure, facilities, and teaching quality, which have significant impact on the academic self-efficacy, and the authorities should improve these factors with planning and doing some actions.

Conclusion

The results of this study showed that there is a correlation between perceived educational-research environment and the academic self-efficacy. Students with a high degree of perception of educational-research environment have high educational self-efficacy. Therefore, by improving the educational-research environment, students' academic self-efficacy can be improved. In addition, there was a positive correlation between the subscales of perception of educational-research environment including educational environment, teaching quality, infrastructures, and facilities with educational self-efficacy. According to the results of our study, the perceptions of educational-research environment and academic self-efficacy were moderate. Therefore, it is recommended to enhance and improve educational self-efficacy which leads to students' educational improvement and also the programs be planned for improving educational-research environment.

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Conflicts of interest
There are no conflicts of interest.

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