The Relationship between Teaching Quality and Academic Engagement in Medical Students: a descriptive-correlational study

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SUBJECT AREAS

Educational Philosophy and Theory

KEYWORDS

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Abstract

Background: One of the essential activities in improving the quality and effectiveness of teaching is to pay attention to the quality of teaching and engagement of students in their academic process. Thus, the aim of this study was to determine the relationship between teaching quality and academic engagement among Iranian nursing students.

Methods: This is a descriptive-correlational study. The present study was carried out on 124 anesthesia and operating room nursing students who were selected using simple random sampling in the year 2017. The research tools included standard demographic, course experience, and academic engagement questionnaires. Data analysis was carried out using descriptive tests, independent t-test, and Pearson correlation in SPSS ver. 24.

Results: The results of Pearson correlation analysis on the relationship between the subscales of teaching quality, including good teaching, clear goals, appropriate assessment, appropriate workload, independence, and generic skills with academic engagement showed a statistically significant relationship between all remaining subscales, except for the proper workload sub-scale (P=0.234).

Conclusion: The results of this study showed a significant positive correlation between the course experience and academic engagement. Therefore, steps can be taken to improve the quality of the educational system using active and student-centered teaching methods.

Background

The highest level of education in each country is university education. Therefore, necessary and effective steps should be taken to promote qualitative development along with quantitative development. Overall, paying attention to the quality is essential for the dynamism and focus of the higher education system, and any success in this regard will
lead to an increase in efficiency and productivity [1]. The concept of quality in the higher education system includes different meanings [2]. The quality of teaching and learning is one of the most important quality dimensions in the higher education system [3]. Quality in the teaching field means the degree of adaptation and compatibility of each indicator and main attribute of the teaching quality with desirable standards and qualities mentioned in various theories [4]. According to Marsh et al., the teaching quality can make the learning effective. It includes general teaching and learning components and is often related to higher education settings [5]. Academic engagement is one of the most important indicators of the quality of education, teaching, and academic achievement [6]. Richardson (2005) studied the educational experience of students with some subscales such as good teaching, standard and clear goals, appropriate assessment, appropriate homework and improvement of general skills [7]. Janus et al. (2000) showed that variables associated with course experience are the best anticipators to meet academic achievement [8].

Academic engagement is a construct that was first introduced to understand and explain academic failure and considered as the basis for reformist efforts in the education field [9]. In general, there are three dimensions of engagement, which can be considered as an academic engagement: Vigor is characterized by high levels of energy and mental resilience while working, and the willingness to do a specific job. Dedication is characterized by high passion and enthusiasm for doing something or encountering a subject. Absorption is characterized by intense focus on doing a job so that the person does not feel the passage of time during that job, as if both body and mind are so focused on it which can be defined as "being overwhelmed by the joy of doing a job" according to its specialized term in psychology [10]. The literature review has shown that learners who have more passion, enthusiasm, mental resilience to do their assignments enjoy higher
academic achievement [11]. The academic engagement also involves behavioral, cognitive and emotional dimensions [12]. Behavioral dimension refers to visible academic behaviors, such as effort and sustainability when facing problems during classroom assignments and the demand for assistance from faculty members or classmates in order to learn and understand the textbook materials [13]. The vigor construct refers to the behavioral dimension of the engagement [10]. The emotional dimensional engagement of this type of engagement addresses the learner's emotional reactions in the classroom and university [14]. Emotional engagement involves internal interest in content and homework, valuing the textbook materials, having a positive effect, and lack of negative affects such as despair, anxiety, and anger while doing homework and learning [15]. Sacrifice is, in fact, an emotional component of the engagement[10]. However, cognitive engagement includes different types of processing processes that learners use to learn and consists of cognitive and metacognitive strategies. The absorption construct is considered as the cognitive dimension of the engagement [16]. In other words, academic engagement is a flexible state formed by the university's environment [17]. Academic engagement involves a variety of practices. For example, the amount of student engagement in doing homework[18], the amount of academic activities and being active in the classroom [19], the extent of the learner’s effort in conducting targeted educational activities [20], and their compatibility with the culture governing the university and the effective communication with their teachers and classmates [21]. Janoos et al. showed in their research that the academic engagement is closely related with academic factors to the extent that even students who are interested in studying drop out due to negative academic factors [22]. Shana et al. (2015) also showed in their study the academic engagement could be useful in enhancing student learning and educational settings [23]. In the meantime, intra-university interactions such as student-professor interaction,
student-student interaction, and student interaction with other educational bodies affect the level of academic engagement [24]. Therefore, the turning point of this effect is to choose the teaching style of the faculty, and they should be fully aware of their teaching styles and their impact on student learning [25].

Golshan pointed to a high drop rate in higher education in the country and referred to the professors’ quality of teaching as the most important factor in this regard [26]. Fenn states in a study that most of the determinants of teaching quality based on the learners’ assessment of the teaching quality include organization, transparency of material presentation, instructor availability, and professor’s level of motivation [27]. Therefore, the attention and recognition of the views of learners about the level and importance of teaching quality components provide the appropriate feedback for analyzing educational issues and strategic planning for higher education professors and staffs, on the one hand. On the other hand, instructors will be able to modify teaching methods and thus improve their teaching quality by understanding the importance of academic engagement and its role in educating and empowering the learners. In other words, it is assumed in this study that the teaching quality can be related to academic engagement. Therefore, the learner's views can be helpful as the beneficiaries of the education.

Methods

This descriptive-analytic study was conducted on anesthesia and operating room nursing students in the academic year of 2017-2018. The required sample size from each class was selected by simple random sampling from the roll call list. Having at least one semester of academic background at the college and having informed consent to participate in the study were considered as inclusion criteria. Exclusion criterion also included lack of completing the information of questionnaires returned. In order to collect data, the researcher first referred to the education experts of the faculty and collected
information about the classroom programs, and subsequently, the instructors of these classes were informed about the goals of the study. Then, the questionnaires were distributed among the volunteer students with the prior coordination with the corresponding professor and obtaining informed consent from the students during the first and last 10 minutes of the class. Also, data was gathered from students who were passing clinical skills in educational courses in educational hospitals with prior notice. Data collection tool included three questionnaires including demographic questionnaire such as age, gender, place of residence, total grade, year of entry, course experience, and academic engagement questionnaire. In order to assess the teaching quality, Wilson Lizio & Ramsden’s course experience questionnaire (CEQ) was used. This CEQ consists of 36 items and six components, including 1- good teaching (8 items) 2. Clear goals and standards (5 items) 3- Appropriate assessment (6 items), 4- Appropriate workload (5 items) 5- Emphasis on independence (6 items), and 6. Generic skills (6 items)[28]. Responses were scored based on 5-point Likert Scale (1. Totally agree to 5. Totally disagree). However, items 10, 15, 16, 17, 18, 19, 20, 21, 23, 24 were scored reversely. In this questionnaire, the possible score range was 36 and 180, respectively. Besides, the reliability and validity of CEQ were confirmed by Broomfield and Bly [29]. Abdi et al. (2014) confirmed the validity and reliability of the Persian version of CEQ with Cronbach's alpha coefficient of 95% [30]. In order to investigate the academic engagement, the academic engagement scale proposed by Schofeli, Leeter, Maslash, and Jackson (1996) was used [31]. This scale consists of 17 items and three constructs of vigor, dedication, and absorption, each with 6, 5, and six questions, respectively. The questions of CEQ are scored based on a 7-point Likert Scale ranging from zero to six. It is worth noting that Schofeli et al. confirmed that reliability of the vigor, dedication, and absorption components with reliability coefficients of 80%, 91%, and 75%, respectively [10]. Mohana
et al., also reported a reliability coefficient of 0.91 for academic engagement [32].

It should also be noted that among the ethical issues considered in this study included obtaining informed consent from the participants, the anonymity of the questionnaire, the freedom to withdraw from the study. Data analysis was carried out in this study using SPSS ver. 24. Data analysis was carried out in two parts, including descriptive statistics (mean and standard deviation), and analytic statistics (one-way analysis of variance, independent t-test, and Pearson correlation). The significance level was considered to be P< 0.05.

Results

In this study, out of a total of 135 students studied, 129 individuals completed the questionnaires, with a response rate of 95%. Of these, five questionnaires were excluded due to missing information, and finally, 124 questionnaires entered statistical analysis phase. The results of the descriptive analysis showed that the mean ± standard deviation of the age of the subjects was 21.21 ± 3.08 years. Also, the number of male and female participants was 38 (30.6%) and 86 (69.4%), respectively. The results showed that 52 (41.9%) and 72 (58.1%) of the participants were indigenous and non-indigenous, respectively. Concerning the GPA, 5 (4%), 23 (18.5%), and 96 (77.4%) of the subjects obtained scores ranging 10-14, 14-16, and above 16, respectively. The results of the study on the academic semester of the subjects showed that 42 (33.9%), 2, 43 (34.7%), 29 (23.4%), and 10 (8.1%) individuals were studying in the fourth, sixth, and eighth semesters, respectively. From the learners' point of view, the degree of satisfaction from the academic period was low, moderate, and optimal in 40.3%, 24.4%, and 36.3% of cases, respectively.

The relationship between academic engagement and teaching quality with demographic and academic...
variables (Tables 1 and 2)

The results of one-way ANOVA, which was conducted on the relationship between age, gender, residence status, GPA, and semester status of the subjects with academic engagement and teaching quality, showed statistically significant relationship between the residence status ($P = 0.012$) with academic engagement, and age ($P = 0.001$), and semester status ($P = 0.020$) with teaching quality. The findings also showed that the mean ± SD of teaching quality and the academic engagement was 105.60 ± 15.38 and was 53.06 ± 16.80, respectively. Pearson correlation test also showed a statistically significant difference between mean scores in teaching quality and academic engagement ($P < 0.001$).

The relationship between teaching quality subscales with academic engagement (Table 3)

The results of Pearson’s correlation analysis on the relationship between the teaching quality subscales, including good teaching, clear goals, appropriate assessment, appropriate workload, independence, and generic skills with academic engagement showed a statistically significant relationship between all sub-scales, except for the proper workload sub-scale ($P = 0.234$). The multivariate linear regression model showed that among the teaching quality subscales, including good teaching, clear goals, appropriate assessment, independence, and generic skills, only two sub-scales of appropriate evaluation ($P = 0.002$) and generic skills ($P=0.043$) are related to the learners’ academic engagement.

The relationship between the academic engagement subscales with teaching quality (Table 4)

The results of Pearson correlation analysis on the relationship between the academic engagement subscales, including vigor, dedication, and absorption with teaching quality
showed that, except for the absorption subscale (P = 0.058), there was a statistically significant relationship between two other sub-scales. The multivariate linear regression model showed that among the academic engagement subscales, including vigor, dedication, and absorption, only the vigor subscale (P <0.001) is related to the teaching quality of learners.

The relationship between academic engagement and teaching quality with the satisfaction rate

One-way ANOVA also showed no significant relationship between the degree of satisfaction with the educational course with the teaching quality score (P = 0.821) and academic engagement (P = 0.743).

Discussion

The aim of the present study was to investigate the relationship between teaching quality and academic engagement of students of Iran University of Medical Sciences. Overall, the findings of the present research indicate a significant correlation between teaching quality and academic engagement among the above students. The findings of this study were consistent with the results of by Abdi et al.’s research (2014), which investigated the relationship between the course experience and the deliberate practice study approach among nursing students[30]. Overall, in this study, among the course experience sub-components, good teaching, independence, and clear goals had the most correlation with the academic engagement, which in fact was consistent with the results of Ramsden's study, which examined the relationship between the course experience and the study approach. Ramsden also showed in his study that all appropriate teaching scales, i.e., clear goals and standards, appropriate workload, appropriate assessment, and
independence had a positive and significant relationship with deep learning approach [33]. The findings of Shari et al.’s study (2014) also showed that students who choose the active and student-oriented teaching styles have a good academic engagement, which is consistent with the results of the present study, which suggested a positive correlation between the course experience sub-components such as independence and good teaching with a student's academic engagement [34]. Similarly, Downer et al. showed a direct and significant relationship between the teaching style and academic engagement [35]. Janoos also revealed in his study that academic engagement was affected by the teaching style [36]. Doter et al. also suggested a direct and significant relationship between the educational environment and academic engagement [37]. They also showed that academic engagement and achievement would increase in case of optimal teaching quality, the professor-student relationship, and low conflict level.

The findings of Elina et al.’s study (2016) showed that students' participation and interaction with the education process was useful in terms of academic achievement and progress, and the results of this study showed that the higher the academic engagement is, the higher their academic achievement will be, which is consistent with the current research. However, Ketonen has taken into account the individual differences of the learners, such as the amount of interest, attention, and learning, the physical conditions, such as fatigue, the uncertainty about the professional choice of the university discipline, etc. However, the present study has considered only the components of age, gender, and Indigenous status [38].

Schlenker et al. (2013) also concluded that scientific interaction during teaching process, student academic performance, and academic grades, like a triangular model, could be influenced by each other during the education process, which is consistent with the results of this study, suggesting the impact of teaching quality on the academic
engagement [39]. Joyce et al. (2018) also showed in their study that academic engagement is affected by teaching quality; and if the level of intellectual demand of the learners is appropriately measured, it will be effective on the teaching quality and other teaching criteria, and will be significantly correlated with the results of their learning and improved grades [39].

The results of the current study regarding the gender-based evaluation of the academic engagement showed no significant difference between boys and girls in terms of academic engagement. However, Sirin et al. and Folarten also showed that gender was associated with the academic performance and academic engagement, and the level of academic engagement was significantly higher in girls than boys [37, 40]. Kassos et al. also conducted research on students of the University of Medical Sciences and concluded that the academic engagement of female students was higher than that of male students. They also showed that students with higher academic engagement achieved more favorable academic achievements [41].

One of the limitations of this study is the lack of use of a qualitative research method, along with a quantitative approach, because more complete results can be obtained using qualitative methods such as deep and semi-structured interviews. Also, overlooking the role of the educational environment on the level of academic engagement was also a limitation of the present study. In addition, more significant results could be obtained if this study was conducted in a few specific training groups with a particular unit of course as well as a specific professor. However, the relationship between teaching quality and academic engagement among Iranian students is rarely studied.

Therefore, the results of this study should be compared with the results obtained in other countries and similar domestic studies, which would challenge the results of this study, as there were no researches relevant to the subject of the research.
Conclusion

Therefore, it can be generally said that there is a significant correlation between course experience and academic engagement and among the course experience-related components, there is a high correlation between good teaching, independence, and clear goals with academic engagement. Thus, it is possible to enhance productivity and improve the quality of the educational system by improving the quality of teaching and thus engaging more students through active and student-centered teaching methods.

Therefore, it is essential to plan and implement the education process in order to increase academic engagement and motivation among learners. In general, faculty members and educational staff can predict students' academic failure, or, take measures needed to improve this important variable.

Abbreviation:

CEQ: course experience questionnaire

Declarations

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Competing interests: The authors declare that they have no competing interests.

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Tables

Table 1 Difference between sub-variables of academic engagement according to demographic and academic variables
| Variable          | Demographic and Academic variables | Mean±SEM     | P-value |
|-------------------|-----------------------------------|-------------|---------|
| **Age**           | 19>                               | 59/17±08/50 | 169/0   |
|                   | 20-24                             | 09/15±30/55 |         |
|                   | 24<                               | 98/24±20/59 |         |
| **Sex**           | Male                              | 21/16±39/54 | 560/0   |
|                   | female                            | 11/17±47/52 |         |
| nativity status   | indigenous                        | 62/14±50/57 | 012/0   |
|                   | non-indigenous                    | 63/17±86/49 |         |
| academic engagement | 14-10                             | 65/9±60/62  | 294/0   |
|                   | 16-14                             | 04/18±86/49 |         |
|                   | 16<                               | 70/16±33/53 |         |
| academic semester  | 2                                 | 31/15±40/50 | 202/0   |
|                   | 4                                 | 70/17±39/51 |         |
|                   | 6                                 | 31/18±27/57 |         |
|                   | 8                                 | 81/11±20/59 |         |

Table 2 Difference between sub-variables of teaching quality according to demographic and academic variables
| Variable                  | Demographic and Academic variables | Mean±SEM  | P-value |
|---------------------------|------------------------------------|-----------|---------|
| sex                       | male                               | 96/13±55/106 | 605/0   |
|                           | female                             | 02/16±18/105 |         |
| nativity status           | indigenous                         | 71/16±96/107 | 148/0   |
|                           | non-indigenous                     | 21/14±90/103 |         |
| age                       | 19>                                | 26/16±31/100 | 001/0   |
|                           | 20-24                              | 92/12±67/110 |         |
|                           | 24<                                | 93/14±00/103 |         |
| average                   | 14-10                              | 61/10±20/113 | 511/0   |
|                           | 16-14                              | 19/14±43/104 |         |
|                           | 16<                                | 86/15±48/105 |         |
| academic semester         | 2                                  | 54/16±00/100 | 020/0   |
|                           | 4                                  | 56/14±55/108 |         |
|                           | 6                                  | 56/14±82/106 |         |
|                           | 8                                  | 20/9±90/112  |         |

Table 3: The correlation between academic engagement and sub-scale of teaching quality

| appropriate teaching | Clear goals | appropriate assessment | appropriate workload | independence | general skills | P-value | academic engagement | variables |
|----------------------|-------------|------------------------|----------------------|--------------|----------------|---------|---------------------|-----------|
| 003/0                | 022/0       | 002/0                  | 234/0                | 013/0        | 046/0          |         |                     |           |
| 266/0                | 205/0       | 279/0                  | 108/0                | 224/0        | 180/0          |         |                     | correlation coefficient |
### Table 4 The correlation between teaching quality and sub-scale of academic engagement

| vigor  | dedication | absorbtion | variables       |
|--------|------------|------------|-----------------|
| 001/0> | 001/0      | 058/0      | P-value         |
| 368/0  | 286/0      | 171/0      | correlation coefficient | teaching quality |

