The Relationship between Course Experience and Academic Engagement in Medical Students: a descriptive-correlational study

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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 course experience (CE) and academic engagement (AE) of students in their academic process. The aim of this study was to determine the relationship between CE and AE 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, CE, and AE 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 CE, including good teaching, clear goals, appropriate assessment, appropriate workload, independence, and generic skills with AE showed a statistically significant relationship between all remaining subscales, except for the proper workload sub-scale (P=0.234).Conclusions The results of this study showed a significant positive correlation between the CE and AE. Therefore, steps can be taken to improve the quality of the educational system using active and student-centered teaching methods.

Background

One of the important goals of higher education is evaluation of the teachers to improve their teaching quality. Evaluation of teachers by students are the most common way in universities and schools [1]. Some theoreticians of medical education believe student evaluation of teachers is the best source of evaluation of teachers because the students were directly educated by teachers [2, 3]. Also, the student evaluation of teacher indicates the teaching quality of them.

The quality of teaching and learning is one of the most important quality dimensions in the higher education system [4]. Quality in the field of teaching is defined as 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 [5]. 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 [6]. Academic engagement (AE) is one of the most important indicators of the quality of education, teaching, and academic achievement [7]. 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 [8]. Janus et al. (2000) showed that variables associated with course experience (CE) are the best anticipators to meet academic achievements [9] .

AE is a construct that was first introduced to explain academic failure and considered as the basis for reformist efforts in the education field [10]. 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 described as 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 highly focused on it which can be defined as "being overwhelmed by the joy of doing a job" according to its specialized term in psychology [11]. The literature review has shown that learners who have more passion, enthusiasm, and mental resilience in doing their assignments enjoy higher academic achievements [12]. The AE also involves behavioral, cognitive and emotional dimensions [13]. 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 [14]. The vigor construct refers to the behavioral dimension of the engagement [11]. The emotional dimensional engagement of this type of engagement addresses the learner's emotional reactions in the classroom and university [15]. Emotional engagement involves internal interest in content and homework, valuing the textbook materials, having a positive effect, and lack of negative effects such as despair, anxiety, and anger while doing homework and learning [16]. Sacrifice is, in fact, an emotional component of the engagement [11]. However, cognitive engagement includes different types of processing procedures that learners use to learn, and consists of cognitive and metacognitive strategies. The absorption construct is considered as the cognitive dimension of the engagement [17]. In other words, AE is a flexible state formed by the university's environment [18]. AE involves a variety of practices. The amount of students engaged in doing homework[19], the amount of academic activities and being active in the classroom [20], the extent of the learner's effort in conducting targeted educational activities [21], their compatibility with the culture governing the university, and the effective communication with their teachers and classmates are some examples of practices regarding AE [22]. Janoos et al. showed in their research that the AE is closely related with academic factors to the extent that even students who are interested in studying drop out due to negative academic factors [23] . Shana et al. (2015) also showed that the AE could be useful in enhancing students' learning and educational settings [24]. Furthermore, intra-university interactions such as student-professor interaction, student-student interaction, and student interaction with other educational bodies affect the level of AE [25]. Therefore, the turning point of this effect is to choose the teaching style of the faculty so that they should be fully aware of their teaching styles and their impact on students' learning [26].

Golshan pointed to a high drop rate in higher education in Iran and referred to the professors' quality of teaching as the most important factor in this regard [27]. Fenn stated in a study that most of the determinants of teaching quality based on the learner's assessment of the teaching quality include organization, transparency of material presentation, instructor availability, and professor's level of motivation [28]. 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 other hand, instructors will be able to modify teaching methods and thus improve their teaching quality by understanding the importance of AE 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 opinions can be helpful as the beneficiaries of the education.

Design And Methodology

This descriptive-analytic study was conducted on anesthesia and operating room nursing students in the academic year of 2018-2019. 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 comprised three questionnaires including demographic questionnaire such as age, gender, place of residence, total grade, year of entry, CE, and AE questionnaire.

In order to assess the course experience, Wilson Lizio & Ramsden's CE questionnaire (CEQ) was used. 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)[29]. 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. Besides, the reliability and validity of CEQ were confirmed by Broomfield and Bly [30]. Abdi et al. (2014) confirmed the validity and reliability of the Persian version of CEQ with Cronbach's alpha coefficient of 95% [31]. In order to investigate the academic engagement, the AE scale proposed by Schofeli, Leeter, Maslash, and Jackson (1996) was used [32]. 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 the reliability of the vigor, dedication, and absorption components with reliability coefficients of 80%, 91%, and 75%, respectively [11]. Mohana et al., also reported a reliability coefficient of 0.91 for AE [33].

It should also be noted that among the ethical issues considered in this study, obtaining informed consent from the participants, the anonymity of the questionnaire, and the freedom to withdraw from the study were more acknowledged. Data analysis was carried out using SPSS ver. 24 which has two parts: 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 second, 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 AE and CE 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 AE and course experience, indicated 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 course experience.

The findings also showed that the mean ± SD of CE and the AE was 105.60 ± 15.38 and 53.06 ± 16.80, respectively. Pearson correlation test also showed a statistically significant difference between mean scores in CE and AE (P <0.001).

The relationship between CE subscales with AE (Table 3)

The results of Pearson's correlation analysis on the relationship between the CE subscales, including good teaching, clear goals, appropriate assessment, appropriate workload, independence, and generic skills with AE 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 CE 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 connected to the learners' academic engagement.

The relationship between the AE subscales with CE (Table 4)

The results of Pearson correlation analysis on the relationship between the AE 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 AE subscales, including vigor, dedication, and absorption, only the vigor subscale (P <0.001) is related to the teaching quality of learners.

The relationship between AE and CE with the satisfaction rate

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

Discussion

The aim of the present study was to investigate the relationship between CE and AE of students of Iran University of Medical Sciences. Overall, the findings of the present research indicate a significant correlation between CE and AE among the above students. The findings of this study were consistent with the results of Abdi et al.'s research (2014), which investigated the relationship between the CE and the deliberate practice study approach among nursing students [31]. On the whole, in this study, among the CE sub-components, good teaching, independence, and clear goals had the most correlation with the academic engagement, which in fact confirmed the results of Ramsden's study, which examined the relationship between the CE and the study approach. Ramsden also showed 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 approaches [34].

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, suggesting a positive correlation between the CE sub-components such as independence and good teaching with a student's AE [22]. Similarly, it showed a direct and significant relationship between the teaching style and AE [35]. Janoos also revealed that AE was affected by the teaching style [23]. Doter et al. also suggested a direct and significant relationship between the educational environment and AE [36]. They also showed that AE 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 AE is, the higher their academic achievement will be, which is consistent with the current research. Ketonen et al. (2016) 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 [37].

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 AE [38]. Joyce et al. (2018) also showed that AE 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 [38].

The results of the current study regarding the gender-based evaluation of the AE showed no significant difference between boys and girls in terms of AE. However, Sirin et al. and Folarten showed that gender was associated with the academic performance and academic engagement, and the level of AE was significantly higher in girls than boys [36, 39]. Kassos et al. also conducted research on students of the University of Medical Sciences and concluded that the AE of female students was higher than that of male students. They also showed that students with higher AE gained more favorable academic achievements [40].

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 AE was another limitation of the present study. Since the relationship between teaching quality and AE among Iranian students is rarely studied the results of this study should be compared with the results obtained in other countries and similar domestic studies, which would challenge the outcomes of this study, as there were no researches relevant to the subject of the research.

Conclusions

It can be generally said that there is a significant correlation between CE and academic engagement. Among the CE-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 AE 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.

Abbreviations

CEQ: Course Experience Questionnaire

AE: Academic Engagement

CE: Course Experience

Declarations

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Availability of data and material

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Author's Contributions

AH contributed to Conceptualization, Data curation, Investigation, and Writing – original draft. EGH contributed to Data curation and Investigation. HA contributed to Conceptualization, and Writing – review & editing. BA contributed to Supervision and Writing – review & editing. AHB contributed to Conceptualization, Data curation, Investigation, Analysis, Supervision, and Writing– review & editing. All authors read and approved the final manuscript.

Ethical approval and consent to participate

All procedures performed in the present study involving humans were in accordance with the ethical standards of Ethical Committee of Saveh University of Medical Sciences, Tehran, Iran (approval no. IR.SAVEHUMS.REC1395.19). Online consent and a downloadable document was available to participants prior to participation in the study. Also, the authors would like to state that the participants were protected by hiding their personal information during the research process. They knew that their participation was voluntary and provided written informed consent. Furthermore, they could withdraw from the study at any time.

Consent for publication

Not applicable

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
academic engagement	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	
	average	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
teaching quality	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		variables
003/0	022/0	002/0	234/0	013/0	046/0	P-value	academic engagement
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	absorption		variables
001/0>	001/0	058/0	P-value	teaching quality
368/0	286/0	171/0	correlation coefficient	