The Relationship between Self-Directed Learning and Motive of Progress and Learning Strategies in Students of Hamedan University of Medical Sciences

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Abstract

Background: As science is developing, the ability of students in self-directed learning becomes more and more important. The purpose of this study was to determine the relationship between self-directed learning and motive of progress and learning strategies in medical students.

Methods: This descriptive-correlational study was conducted on 283 undergraduate students in 2016. Sample size was determined based on guideline study and correlation coefficient between study variables. Data were collected by Fischer self-assessment questionnaire, Hermann's motivation for progression, and self-learning strategies through stratified sampling. Data were analyzed using SPSS software and descriptive and analytical statistics were used.

Results: The average participants' age was 22.85 3.97. 190 participants were males (67.2%). The mean score of self-directed learning, learning strategies, and developmental motivation was 84.24±7.96, 75.77±11.38, and 75.42±10.40, respectively. There was a direct and significantly positive correlation between self-esteem and developmental motivation (r=0.61) and learning strategies (r=0.60) (P<0.001). By fitting a regression model and considering the learning strategies and the motivation for progress as predictor variables and self-explanatory as a criterion variable (R=70%), R^2=50%, beta and alpha coefficients indicate the significance of the relationship between the variables studied.

Conclusion: Significant motivation to progress and learning strategies are considered as two predictor variables in self-directed learning. In this regard, promotion and management of the components affecting self-directed learning such as motivation for progress and learning strategies are highly significant.

Keywords: EDUCATION, LEARNING STRATEGIES, MOTIVATION, SELF-DIRECTED LEARNING

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Introduction

In medical sciences, the ability to guide and tailor the individual learning experiences is an important issue for success (1). Constant

changes in accessibility of information have doubled the importance of preparing graduates who are able to guide their own self-learning (2); therefore, empowering students to acquire the skills required in initiating self-directed learning should be one of the ultimate goals of the curriculum (1).

Self-directed learning is defined as the acceptance of responsibility for learning (1). Individuals with such a capacity are able to identify their learning needs, determine their learning goals, identify the resources and materials needed to learn, and evaluate appropriate learning pathways with or without the help of others (3). Active learners tend to learn more and better than inactive learners. This type of learning is more consistent with the processes of human psychological development (4), and is mainly based on student-centered (5) andragogy (6). Self-directed learning encourages learners to identify their own learning needs and requirements (7). Another benefit of self-directed learning is to increase the self-confidence and independent learning capacity (5).

There is a significant relationship between learning style and self-directed learning (8). Also, the thinking style tends to influence self-directed learning (9). Responsibility for learning and individual method of learning are necessary for self-directed learning, and people with problem solving skills are interested in learning (10). Learner's self-efficacy has a positive effect on the development of active learning (11). In addition to motivational issues that affect the goals and behavior of an individual, cognitive problems also have a significant impact on learning. One of the most important cognitive variables that can be acquired in learning is learning strategies (8). When students resort to motivational beliefs and learning strategies, their academic achievements increase (10).

Based on a study conducted by Ostadzadeh and colleagues, self-regulated learning and academic achievement has a positive and significant statistical relationship (12).

Motivation for progress and the desire to win involve successfully participating in the activities that involve the individual's abilities and endeavors (13). The more the incentive to progress, the more the individual's success (14). Individuals with a strong desire for development will respond better to a thrilling excitement such as hope, pride, and prosperity, while those who are in need of little progress tend to respond avoiding thrills such as anxiety, defensive mode, and fear of failure (15). Motivation for progress also has an influence on the educational planning (16). Studies regarding the role of interest in the field of study and the motivation for advancement offer different findings (17), which require further studies. Situational variables such as program, educational method, motivation for progress, and emotional and physical conditions tend to affect academic achievement (18).

Therefore, in order to strengthen self-learning in students, it is necessary to identify factors that are related to self-directed learning, so that self-learning can be fostered through manipulating these factors. In this regard, we aimed to determine the relationship between self-directed learning and the motive of progress and learning strategies in medical students of Hamedan.

Methods

This descriptive-correlational study was conducted in Hamadan University of Medical Sciences (2016) using stratified random sampling (from four faculties of nursing and midwifery, health, and paramedics, and rehabilitation). Data collection tools consisted of a questionnaire for identifying strategies, Hermann's motivational development questionnaire, and Fisher's self-directed learning questionnaire. The sample size was determined based on the guideline study and the correlation between the two variables of motive of progress and learning strategies, which was about 50% (P <0.05), and considering the sample size determination

formula,

$$n = \left[\frac{\left(z\alpha + z\beta\sqrt{1-r^2}\right)}{r}\right]^2 + 3$$

a total of 283 students were selected (including undergraduate students in nursing, midwifery, radiology, laboratory sciences, anesthesia, operating room, library, health, rehabilitation). The criteria for the study included being an undergraduate student with no further education prior to study in the current field.

In order to collect data, according to the number of students in each field of study, the ratio was determined.

They were randomly assigned to the students on different days of the week after coordination with the faculty department. Having coordinated with the students at the university where the study was supposed to be conducted, study objectives and confidentiality of the students' demographic information were emphasized, and a written consent was obtained from the participants. Research questionnaires were distributed before the class started. Data were analyzed using SPSS software version 16 and Pearson Correlation Coefficient, Multiple Linear Regression, and Critical Path Analysis were used.

Fischer's self-directed learning questionnaire consists of 40 items with a five-point Likert scale (ranging from "I totally agree" to "I totally disagree") measuring self-directed learning readiness in three areas of self-control (15 items), willingness to learn (13 items), and self-management (12 items). The questionnaire was translated into Persian by Nadi and colleagues in 2008 and its validity was verified (19). Reliability of the questionnaire was confirmed by Cronbach's alpha coefficient to be 0.9.

The Herman's Achievement Motivation Questionnaire (AMQ) consists of four general factors: self-esteem, hard work, perseverance, and perspectives, which account for 27.74% of the total variance. In addition to verifying the validity of the questionnaire, Akbari confirmed its reliability by the internal consistency method

and Cronbach's alpha to be 83%. The reliability of the questionnaire was also obtained using the test-retest method to be 0.74, as well as the Cronbach's alpha coefficient for the sub-scales of the questionnaire including self-esteem (0.72), perseverance (0.65), prospective (0/60), and hard work (57/0). Reliability of the questionnaire was confirmed by Cronbach's alpha coefficient to be 80%. In the Progressive Motivation Questionnaire, 29 multiple-choice items have been included, so that all items have the same weight. The score obtained from the questionnaire, which can range from 29 to a maximum of 116, indicates the level of motivation for progress in individuals. The scoring of the questionnaire is done according to the characteristics of the questions on which it was prepared, that is, for questions 1, 4, 9, 10, 14, 15, 16, 23, 27, 28, and 29, option A scores 1, option B receives 2, option C scores 3, and option D gets 4. For questions 2, 3, 5, 6, 7, 8, 11, 12, 13, 17, 18, 19, 20, 21, 22, 24, 25, and 26 option A scores 4, option B gets 3, option C receives 2, and option D scores 1. Questions 1, 4, 9, 14, 16, 26, and 27 are related to self-confidence. Questions 18, 23, and 25 concern perseverance, questions 3, 5, 13, 17, 21, 22, and 28 are related to prospective, and questions 2, 6, 7, 8, 12, and 19 are related to hard work (20). Self-Regulation Learning Strategies Questionnaire consists of two parts: self-governing strategies (cognitive and metacognitive strategies) and motivational beliefs that contain 47 questions in a five-level Likert scale. Students were supposed to assign the maximum point (5) to the parts with the most correspondence to their learning, and the minimum point (1) to those with hardly any match. Mousavi Nezhad reported three factors including low-level cognitive strategies, high-level cognitive strategies, and meta-cognitive self-regulation using Cronbach's alpha method with an alpha coefficient of 0.98, 0.79 and 0.84, respectively (21). Furthermore, the reliability of the questionnaire was investigated by Hosseini Nasab using factor analysis. The results for self-efficacy, internal evaluation, test anxiety, and cognitive and meta-cognitive strategies were

0.68, 0.41, 0.77, 0.64, and 0.68, respectively (22). The reliability of the questionnaire was calculated by Cronbach's alpha (81%).

This study was approved by the Research Council and the Ethics Committee of Hamedan University of Medical Sciences with the code IR.UMSHA.REC.1394522. All ethical considerations were observed in all stages of the research. To this end, participation in the study was voluntary, study objectives were fully explained to the participants and a written consent was obtained, and the information provided through questionnaires was kept confidential by excluding the names of the participants. Data analysis was performed using SPSS software version 16 and descriptive and analytical statistics were used as appropriated.

Results

In this study, a total of 309 questionnaires were distributed, of which 283 were analyzed. The mean age of the participants was 22.85±3.97 years (Table 1).

The mean score of self-directed learning, learning strategies, and developmental motivation was 75.42±10.40, 75.77±11.38, and 84.84±7.96, respectively. The relationship between self-directed learning and motivation

for progress (r=0.61), and the relationship between self-learning and learning strategies (r=0.65) were both direct and statistically significant (Table 2).

The correlation between progressive motivation and learning strategies was 0.53 (P<0.001).

By fitting a regression model and considering the learning strategies and the motive of progress as predictor variables and self-directed learning as the criterion variable, possible relationships were analyzed, which are presented as beta and alpha coefficients in the following equations. The power of the relationship between predictor variables and criterion variable is shown by beta coefficients. The correlation between the developmental motivation and learning outcomes was 0.53 (P<0.001). Fitness tests with R2=50% indicate the reliability and relevance of the relationship shown between the variables in this study (Table 2).

In the following equation, P is the motivation for progress, self-learning strategies represents learning strategies, and self-learning strategies=0.53+0.41P+0.38 indicates self-directed learning.

Discussion

This study aimed at determining the

Table 1: Demographic characteristics of the participants

Variables		Number (%)
Sex	Female	190 (6702)
	Male	93 (32.8)
Conditional pass history	Yes	10 (3.54)
	No	273 (96.5)
Guest or transfer student	Yes	16 (5.7)
	No	267 (94.3)
Gap between receiving high school diploma and starting the college	Without gap	136 (48)
	With gap	147 (52)
Interested in the Field of Study	Yes	201 (71)
	No	82 (29)

Table 2: Relationship between learning strategies and progressive motivation with self-directed learning in students of Hamedan University of Medical Sciences

	Standard coefficient β	P	Test statistics
Learning strategies	0.41	<0.001	R^2=50%
Progressive motivation	0.38	<0.001	R=70%

relationship between the motives of progress and learning strategies with self-directed learning in Hamadan University of Medical Sciences students. The results show that there is direct and positive relationship between motive of progress and learning strategies. The motivation for progress and the learning strategies are reliable predictive variables for self-directed learning (R=50%). In a study by Berimnejad and colleagues self-learning was considered as one of major goals of nursing education (23). In a study conducted by Yousefi and co-workers, motivation for progress was reported to be directly and statistically significant in self-directed learning (2), which is in line with the results of the current study. There is a direct and positive relationship between self-directed learning and the students' score in practical skills (2). Zhu and others investigated the impact of self-control and self-regulation on learning in integrated computing environments, and suggested that these variables could be employed to predict the final grade of the students (24). Therefore, it seems that the study of these variables can help educators in educational planning. In the present study, the relationship between Fisher's self-controlled learning dimension and academic achievement motivation and self-directed learning strategies was 0.5 and 0.61, respectively. Lee and colleagues investigated learning strategies including factors related to motivation, teaching and learning assignments, planning and timing, and cognitive factors, suggesting that each dimension of learning strategies can predict academic achievement (25). The present study aimed at evaluating the predictability of differences in learning strategies between undergraduate students because difference in learning strategy use between postgraduate and Ph.D. students is fairly predictable. It is suggested that further studies be focused on comparing learning strategies and their relationship with predisposing motivation and self-directed learning at different educational levels.

Conclusion

Based on the results of this study, motivation for learning and the strategies of learning can be considered as two predictors of self-directed learning. Considering the rapid development in the field of medical sciences and lack of time in teaching all these sciences to individuals, as well as the development of e-learning at most universities, more effective planning can be carried out in order to enhance self-directed learning in students through improving the components of effective self-directed learning such as motivation for progress and learning strategies. The components of self-directed learning identified in this study include motivation for progress and learning strategies.

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