

Students' Perceived Learning Environment and Extrinsic and Intrinsic Motivation

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Abstract

Introduction: For many decades, the studies that were investigated the association between student outcomes and their perceptions of the classroom environment have revealed consistently associated student outcomes with the learning environment (Goh & Fraser, 2000). It is stated that there was a relationship between students' perceptions of classroom and learning environment and their cognitive, affective, emotional and behavioral outcomes. So, in this study the relationship between students' perception of learning environment and intrinsic and extrinsic motivation was examined.

Method: The statistical population was consisted nursing students' of Shiraz University of medical sciences. Stratified sampling method was used to select 230 participants. They completed self-report questionnaires tapping Dundee Ready Educational Environment Measure (DREEM) and Work Preference Inventory (WPI). All descriptive statistics, regression, and confirmatory factor analyses were performed with the SPSS 19 software.

Results: Simultaneous multiple regression of students' perceived learning environment on their intrinsic and extrinsic motivation showed that dimensions of the perceived learning environment predict students' motivation. These findings are discussed fully in the results section.

Discussion: The results of this study revealed that perceived learning environment is a significant factor in prediction students' motivation. Actually, caring for and supportive learning environment can increase students' motivation. Implications of the results are discussed in more details.

Keywords: Learning environment, Motivation, Nursing student.

Introduction

Universities, the world over, are seen as main environments where higher learning and research are facilitated. The "disciplines" or the departments within the universities have become known as the "academic homes" of students because of the intrinsic role they play in shaping the lives of students and the faculty members (Winteler, 1981, cited in Okwilagwe, 2004). Students, both at home and abroad have played significant roles in evaluating the quality of learning environments as well as the quality of instructions that go on in these institutions through self-rating of academic characteristics (Okwilagwe, 2004). Actually, classroom-based theories of learning stress the importance of the investigation of subjective learning environments in order to understand the nature of students' learning outcomes, for learning results are not a mere function of the learning environment since each student operates as a filter for the possible influence of the environment (Dochy, Segers, Van den Bossche, & Gijbels, 2003).

Learning environment embodies more than merely physical space; indeed it consists of the entire learning setting, including instructional processes, teacher-student relationships, student-student relationships and student attitudes. Learning environments can be conceptualized in terms of observable characteristics, such as school buildings, materials used for instruction, and externally observed interactions between and among learners and instructors. Alternatively, learning environments can be conceptualized as the teachers' or students' subjective perceptions of their learning setting (Frenzel, Pekrun, & Goetz, 2007). In other word, the term "learning environment" most frequently defines the social, psychological, or psychosocial environment in which learning or, as the case may be, teaching takes place (Cleveland & Fisher, 2014). Specifically, Bloom described the educational or learning environment concept as "the conditions, forces, and external stimuli which challenge on the individual. These forces may be physical, social, as well as intellectual forces and conditions". He conceived a range of environments from the most immediate social interactions to the more remote cultural and institutional forces. He regarded the environment as providing a network of "forces and factors which surround, engulf, and play on the individual". Genn defined the learning environment as "the curriculum's most significant manifestation and conceptualization, educational and organizational, which embraces everything that is happening in the medical school" (Youssef, El Wazir, Ghaly, & El Khadragy, 2013).

The authors found that teaching never directly affects learning; on the contrary, it operates through intermediary factors that includes perceptions of teaching, evaluation, the climate in the classroom, the content of the school subject, structure and similar. Research has shown that the student's assessment and perceived of learning environment is associated with a range of important outcomes for students (Radovan, & Makovec, 2015). Numerous studies have clearly demonstrated that the perceived learning environment is significantly related to student achievement (Fraser, 1994; McRobbie & Fraser, 1993; Moos, 1979, cited in Frenzel, Pekrun, & Goetz, 2007), as well as emotional and social outcomes (Anderman, Eccles, Yoon, Roeser, Wigfield, & Blumenfeld, 2001; Anderman, 2002; Turner et al., 2002). Also, research shows that the learning environment is one of the most important factors of learning, which affects both motivation for learning and learning achievements (Wang, Haertel, & Walberg, 1990, cited in Radovan, & Makovec, 2015). There is thus a close link between the learning environment and

students' motivational outcomes. For example, Walberg (1976, cited in Mitchel, 1996) proposed a perceptual model which holds that "the student's conscious perception of internal and external stimuli and his choices are the proximate, mediating determinants of learning". His findings reveal that consistent effects of perceived learning environment, on both motivation and performance, across different classroom subjects.

Also, according to Stern (2012) positive or negative effects towards school and learning environment are represented by attitudes towards school. McCoach's (2000, Cited in Stern, 2012) study identified positive relationship between attitudes towards school and motivation. According to Jessor et al. (1995, Cited in Stern, 2012), positive attitudes towards school affect academic achievement and academic motivation positively. Wentzel and Asher (1995, Cited in Kösterelioglu, & Kösterelioglu, 2015) also stated that affective commitment to school positively affects academic motivation.

In the past, despite some research, most of them have mainly focused on student conceptions (cognitively) rather than their motivation to learn (affectively). Lately, studies have focused on the affective domain of learning such as motivation along with the cognitive domain such as student conceptions. So, this research has been informative for science education literature by giving empirical evidences that student motivation to learn is affected by learning environment (Cetin-Dindar, 2016).

In this connection, the goal of this study was to examine the effects of students' perceived learning environment on their academic motivation. On the basis of the theory and research summarized above, we hypothesized that the perceived learning environment predicts students' motivation.

Method

The method of this research was descriptive-correlative. The statistical population was consisted nursing students' of Shiraz University of medical sciences. Stratified sampling method was used to select 230 participants. They completed self-report questionnaires tapping the Dundee Ready Educational Environment Measure (DREEM) and Work Preference Inventory (WPI). All descriptive statistics, regression and confirmatory factor analyses, were performed with the SPSS 19 software. To analyze the data, relationships between variables were examined, using Pearson's product-moment correlations. Also simultaneous multiple regression was performed to investigate the prediction of students' motivation through their perception of learning environment.

Measures

Two questionnaires including the Dundee Ready Educational Environment Measure (DREEM) and Work Preference Inventory (WPI) were used in the current study.

Dundee Ready Educational Environment Measure (DREEM):

This tool was originally designed in English by Roff and colleagues in 1997. The DREEM contains 50 statements relating to a range of topics directly relevant to education climate. The inventory can be administered by postal survey or face to face in the teaching session's room. Registrars are asked to read each statement carefully and to respond using a 5 point Likert-type

scale ranging from strongly agree to strongly disagree. It is important that each registrar applies the items to their own current learning situation and response to all 50 (Yusoff, 2012).

One of important implications of DREEM is that it provides a standardized way for international comparisons between medical schools as well as allowing them to benchmark their educational climate (Hammond, O'Rourke, Kelly, Bennett, & O'Flynn, 2012). In addition, it may locate areas of concern shared by the majority of students that might be unintentionally neglected by educators.

As well as the total DREEM score this tool has five subscales: 1) Registrars' perceptions of learning, 2) Registrars' perceptions of course organizers, 3) Registrars' academic self-perceptions, 4) Registrars' perceptions of atmosphere, 5) Registrars' social self-perception (Jakobsson, Danielsen, & Edgren, 2011).

The initial psychometric evaluation that was carried out by its developer showed that DREEM is a valid tool to measure educational environments (Yusoff, 2012). Also, the internal consistency of a tool is commonly measured and based on a single administration while the stability of a tool is measured based on multiple administrations on different occasions or time (Streiner & Norman, 2008). The DREEM has been reported to have a high level of internal consistency with the overall Cronbach's alpha coefficient being more than 0.7 (Dimoliatis, et al., 2010; Hammond, et al., 2012; Jakobsson, et al., 2011; Khan, Tabasum, Yousafzai, & Fatima, 2011; Riquelme, et al., 2009; Roff, et al., 1997, cited in Yusoff, 2012). It was also found to have a high level of stability with a test-retest correlation coefficient of more than 0.8 (Dimoliatis, et al., 2010).

In Iran, Mohammadi & Mohammadi (2013) translated this tool to Persian for the first time. In their study, the researchers investigated the content validity of the DREEM. Content validity for use in Iran was approved by experts and scholars in this field. Also, Cronbach's alpha coefficient for 5 dimensions (mentioned above) was 0.75, 0.72, 0.71, 0.73, & 0.71 respectively.

In this study, for examining the validity of the scale, principle components analysis (factor analysis) was conducted. Factor analysis showed that the same factor solution was extracted from previous studies, confirming five factors of the scale.

Work Preference Inventory (WPI): To measure motivation, participants were administered the Work Preference Inventory, College Student Version (WPI; Amabile, Hill, Hennessey, & Tighe, 1994). The WPI is a series of 30 statements that participants can mark as 'Never true', 'Sometimes true', 'Often true' and 'Always true'. These statements are designed to measure a participant's preferred motivational style (intrinsic motivation and extrinsic motivation). Sample statements include: 'I am strongly motivated by the grades I can earn' and 'It is important for me to be able to do what I most enjoy' (Amabile et al., 1994). Both the intrinsic and extrinsic scales of the college student version of the Work Preference Inventory displayed strong test-retest reliability over a period of six months (intrinsic scale = .84, extrinsic scale = .94). There were no significant differences in scores found between men and women on either of the primary scales in the student version of the WPI (Amabile, et al., 1994). The Cronbach's alphas for the intrinsic and extrinsic primary scales of the student version of the WPI were .76 and .63 respectively thus demonstrating reliable internal consistency (Loo, 2001).

In Iran, for concluding reliability of this scale, Sheikholeslaami & Razaviye (2005) used Cronbach's alpha method. The obtained coefficient for intrinsic motivation was 0.74 and for extrinsic motivation was 0.93.

In this study, to determine the validity of the scale, principle components analysis (factor analysis) was conducted. Factor analysis showed that the same factor solution was extracted from previous studies, confirming two factors of the scale.

Results

Descriptive statistics

Before analyzing the data, demographic characteristics of population and descriptive statistic including means, standard deviations, minimum and maximum values, and Cronbach's alpha coefficients for all of the variables used in the study was carried out and the results are shown in Tables 1 and 2.

Table 1: Demographic characteristics of population

Variable	N	%
Gender		
Female	130	56.52
Male	100	43.48
Educational grade		
Bachelor	160	69.57
Masters	58	25.23
Ph.D.	12	5.19

N= 230

Table 2: Descriptive statistics of variables

Variables	N	M	SD	Min	Max	α
Perception of learning	230	3.31	0.95	1.08	5	0.90
Perception of course organizer	230	3.22	0.97	1.36	5	0.89
Academic self-perception	230	3.80	0.86	1.5	5	0.87
Perception of atmosphere	230	3.91	0.85	1.42	5	0.91
Social self-perception	230	3.88	0.87	1.29	5	0.85
Total score of DREEM	230	3.59	0.67	1.52	5	0.92
Extrinsic motivation	230	2.57	0.60	1.27	4	0.94
Intrinsic motivation	230	3.37	0.66	1.33	4	0.92

Correlations

An examination of zero-order correlations among variables shown in Table 3, demonstrated that students' perceptions of learning environment variables were related to intrinsic and extrinsic motivation.

Table 3: Correlations between perceived learning environment and extrinsic and intrinsic motivation

Variable	1	2	3	4	5	6	7	8
1. Perception of learning	1							
2. Perception of course organizer	0.50**	1						
3. Academic self-perception	0.30**	0.26**	1					
4. Perception of atmosphere	0.35**	0.23**	0.81**	1				
5. Social self-perception	0.40**	0.17**	0.80**	0.88**	1			
6. Total score of DREEM	0.73**	0.64**	0.77**	0.81**	0.80**	1		
7. Extrinsic motivation	0.34**	0.26**	0.01	0.01	0.04	0.21**	1	
8. Intrinsic motivation	0.24**	-0.02	0.43**	0.54**	0.56**	0.42**	0.03	1

**p<.001

Regression analysis

Simultaneous multiple regression was performed to investigate the prediction of academic motivation by perceived learning environment. The results showed that only “perception of learning” was a significant positive predictor of the “extrinsic motivation”. In addition, “perception of course organizer”, “perception of atmosphere”, and “social self-perception” positively predicted intrinsic motivation. The results are summarized in Tables 4 and 5. Also the results of t-test analysis showed that there were no significant differences between males and females in all variables, so the effect of sex variable was omitted in other examinations.

Table 4: Multiple regressions of perceived learning environment on extrinsic motivation

Predictors			Non-Standardized Coefficients		Standardized Coefficients	P<
	Adjusted R ²	R ²	B	Std. Error	β	
Constant			2	0.20		0.000
Perception of learning			0.20	0.05	0.31	0.000
Perception of course organizer			0.08	0.04	0.14	0.061
Academic self-perception	0.13	0.15	-0.03	0.08	-0.04	0.683
Perception of atmosphere			-0.11	0.10	-0.15	0.272
Social self-perception			0.04	0.10	0.06	0.645

Table 5: Multiple regressions of perceived learning environment on intrinsic motivation

Predictors			Non-Standardized Coefficients		Standardized Coefficients	P<
	Adjusted R ²	R ²	B	Std. Error	β	

Constant			1.78	0.19		0.000
Perception of learning			0.07	0.05	0.10	0.110
Perception of course organizer			-	0.04	-0.18	0.005
Academic self-perception	0.34	0.36	0.12	0.07	-0.08	0.420
Perception of atmosphere			0.23	0.09	0.29	0.018
Social self-perception			0.27	0.09	0.36	0.005

Discussion

In recent years, students’ perception of their learning environment was viewed as antecedents to their academic outcome. In the present study, we have examined the relationships among contextual and environmental aspects of learning and intrinsic and extrinsic motivation in nursing students. In sum, the results have shown that students, who have a greater sense of control of their learning, perceive their learning environment and atmosphere as a place that supports their learning and fosters autonomy and find their education to be useful and relevant are more intrinsically and extrinsically motivated, but as was mentioned, they experience intrinsic motivation more.

At first, the results about students’ perception of learning and academic self-perceptions showed that these variables have significant positive influences on students’ motivation. These findings are consistent with those gained in previous investigations (Wigfield, 2002; Areepattamannil and Freeman, 2008; Liu, 2010; Terzian, 2015). Actually, the ways students perceive themselves in the school or within their social and academic environment and their perceptions of learning, influence their motivation in different ways. For example, students who are more aware of their disability (a factor influencing their self-concept) are more sensitive to their non-disabled (regular classroom) peers and social environment, which in turn will probably affect their academic motivation, for example, students show less engagement in the class, less participation in the school activities, shyness...etc. (Terzian, 2015). Also, Wigfield et al. (2002) hypothesized that students’ task-specific self-concept and their perception of task difficulty predicts their learning behavior, which in turn explains their academic achievement motivation. Moreover, the researchers believe that the evaluation of a task according to the level of its difficulty and their self-belief (self-concept) directly influences the motivation and achievement of the students.

It is likely that students with high academic self-concept might have developed self-regulation system in terms of their self-learning abilities, which is translated into motivation (Bandura, 1997, cited in Terzian, 2015). In other words, self-concept influences and predicts student motivation by helping them become self-regulated learners in the classroom. The concept of self-regulation refers to the degree which students can regulate aspects of their thinking, motivation and behavior during learning (Pintrich and Zusho, 2002).

Moreover, learners who develop high academic self-concept can become more interested in their learning experience, display and set academic goals towards achieving certain learning outcomes and consequently become more motivated to learn. In short, the relation between

student's academic self-concept and motivation can be explained by the influence of self-regulated learning process that regulated and direct students learning experience (Trizan, 2015).

Also, the findings exhibited that students' perception of course organizer (teacher) have a significant positive influence on motivation. This result is consistent with previous research (Gorham and Christophel, 1992; Koka and Hein, 2005; Standage, Duda and Ntoumanis, 2003a, 2003b). This indicates that teachers can use the learning atmosphere to positively influence students' motivation and encourage active learning in their students. This could increase students' motivation and facilitate the successful completion of teaching objectives.

In interpreting the findings of their research, Inbar, DonitsaSchmidt and Shohamy (2001) assume that factors such as the school's educational policy and teachers' beliefs and actions play a decisive role in forming students' motivation. Also, Guay and Vallerand's (1997) claim that teaching styles and learners' perceptions of these styles impact motivational orientations.

The first teacher-related factor influencing motivation is concerned with the management of the class. According to the students, it is the teacher's responsibility to set the right pace that is appropriate for the group. They also expect the teacher to maintain discipline in the classroom as well as arouse and sustain learners' interest in the subject (Heitzmann, 2009).

The second teacher-related factor accountable for the atmosphere of the classroom refers to the methods that teachers employ and their concept of knowledge. What appears as a result of particular interest is that there is often a difference between students' and teachers' conceptualizations of knowledge and what learning and development involves, which offers a plausible explanation of why learners' attitudes and motivation differ in various classes (Heitzmann, 2009).

Finally, the third teacher-related component that was found to influence the atmosphere of the classroom is the teacher's experience and personality. Research suggests that a helpful, attentive and reassuring teacher has better chances to motivate her students effectively (Heitzmann, 2009).

Also, the results of this study showed that students' perception of atmosphere and students' social self-perception had positive influences on students' motivation. These findings are consistent with previous studies (Heitzmann, 2009; Ghath, 2003; Terzian, 2015). These researches suggest that a negative classroom atmosphere might lead to decrease in motivation.

In our opinion, the results of this study have practical implications for teachers because they provide a greater understanding about the different aspects of the learning environment and how those aspects predict student motivation. Actually, students will more likely develop intrinsic motivation and enjoy studying when they view their course as relevant, interesting, and supportive. Of course, these goals are difficult to achieve with the use of the top-down approach to teaching that is mostly controlled by the teacher. While some level of teacher-controlled didactic strategies are necessary for achieving his or her instructional goals, the results of our study suggest that a bottom-up approach that involves teaching strategies that increase student engagement and take into account their needs and interests (or in general student-centered teaching) could be more appropriate.

On the basis of the results of the study, it is suggested that each educational institution needs to explore the perceptions of their learning environment and approaches to learning among its students to enhance the quality of their education and consequences of it, increase the level of students' motivation.

It would also be of interest for researchers to examine relationships between perceived learning environment and outcomes in other domains. For example, studies investigating multivariate outcomes could look at perceptions of the learning environment in relation to motivation, knowledge attainment, and motor-skill acquisition. To incorporate such a variety of outcomes into a research study using a single sample could be advantageous. Most certainly, it would provide both researchers and practitioners with a more complete picture of teaching and learning than can be achieved by conducting numerous single outcome studies with different samples.

This study has also some limitations. At first, although the sample size of the study statistically was adequate to conduct the analysis, the study was limited to 230 college students. Sample size of the study could be increased and larger data could provide different results.

Second, though a growing number of studies have shown that student perceptions of school experiences are critical components in understanding their developmental outcomes (e.g., Wang & Holcombe, 2010) however, relying on student self-reports in assessing perception of school context raises an important validity concern, which is that students could answer questions about their behavior or that of their teacher in ways that they perceive to be socially desirable. Future inclusion of multiple sources of information (teachers, principals, parents), as well as multiple methodologies (interviews, observations, surveys), will provide a more robust, valid method of identifying school effects related to engagement.

Finally, research from our motivational frameworks presumes a causal sequence that the perceived learning environment contributes to individual motivational beliefs. However, it also has been suggested that the extent to which students are motivated in learning environment may also influence their responses to the learning environment. It is possible that students with high motivation are more likely to perceive environment positively. Thus, future research should examine the prospective reciprocal relations between learning environment and students' motivation.

References

- Amabile, T. M., Hill, K. G., Hennessey, B. A., & Tighe, E. M. (1994). The Work Preference Inventory: assessing intrinsic and extrinsic motivational orientations. *Journal of personality and social psychology*, 66(5), 950.
- Anderman, E. M. (2002). School effects on psychological outcomes during adolescence. *Journal of educational psychology*, 94(4), 795.
- Anderman, E. M., Eccles, J. S., Yoon, K. S., Roeser, R. W., Wigfield, A., & Blumenfeld, P. C. (2001). Learning to value math and reading: Individual differences and classroom effects. *Contemporary Educational Psychology*, 26, 76-95.
- Areepattamannil, S., & Freeman, J. G. (2008). Academic achievement, academic self-concept, and academic motivation of immigrant adolescents in the greater Toronto area secondary schools. *Journal of Advanced Academics*, 19(4), 700-743.
- Cetin-Dindar, A. (2016). Student Motivation in Constructivist Learning Environment. *Eurasia Journal of Mathematics, Science & Technology Education*, 12(2), 233-247.
- Cleveland, B., & Fisher, K. (2014). The evaluation of physical learning environments: A critical review of the literature. *Learning Environments Research*, 17(1), 1-28.
- Dimoliatis, I. D., Vasilaki, E., Anastassopoulos, P., Ioannidis, J. P., & Roff, S. (2010). Validation of the Greek translation of the Dundee ready education environment measure (DREEM). *Education for Health*, 23(1), 348.
- Dochy, F., Segers, M., Van den Bossche, P., & Gijbels, K. (2003). Students' perceptions of a powerful learning environment. *Learning Environments Research*.
- Frenzel, A. C., Pekrun, R., & Goetz, T. (2007). Perceived learning environment and students' emotional experiences: A multilevel analysis of mathematics classrooms. *Learning and Instruction*, 17(5), 478-493.
- Ghaith, G. (2003). The relationship between forms of instruction, achievement and perceptions of classroom climate. *Educational Research*, 45, 83-93.
- Goh, S. C., & Fraser, B. J. (2000). Teacher interpersonal behavior and elementary students' outcomes. *Journal of Research in Childhood Education*, 14(2), 216-231.
- Hammond, S. M., O'Rourke, M., Kelly, M., Bennett, D., & O'Flynn, S. (2012). A psychometric appraisal of the DREEM. *BMC medical education*, 12(1), 1.
- Inbar, O., Donitsa-Schmidt, S., & Shohamy, E. (2001). Students' motivation as a function of language learning: The teaching of Arabic in Israel. In Z. Dörnyei & R. Schmidt (Eds.), *Motivation and second language acquisition* (pp. 297-311). Honolulu, HI: University of Hawai'i Press.
- Jakobsson, U., Danielsen, N., & Edgren, G. (2011). Psychometric evaluation of the Dundee ready educational environment measure: Swedish version. *Medical Teacher*, 33(5), e267-e274.
- Khan, J. S., Tabasum, S., Yousafzai, U. K., & Fatima, M. (2011). DREEM on: validation of the dundee ready education environment measure in Pakistan. *JPMA-Journal of the Pakistan Medical Association*, 61(9), 885.
- Koka, A., & Hein, V. (2005). The Effect of Perceived Teacher Feedback on Intrinsic Motivation in Physical Education. *International Journal of Sport Psychology*, 36(2), 91-106.

- Kösterelioglu, M. A., & Kösterelioglu, I. (2015). Effects of high school students' perceptions of school life quality on their academic motivation levels. *Educational Research and Reviews*, 10(3), 274.
- Liu, H. J. (2010). The relation of academic self-concept to motivation among university EFL students. *Feng Chia Journal of Humanities and Social Sciences*, 20, 207-225.
- Loo, R. (2001). Motivational orientations toward work: An evaluation of the work preference inventory (student form). *Measurement and Evaluation in Counseling and Development*, 33(4), 222.
- Mitchell, S. A. (1996). Relationship between perceived learning environment and intrinsic motivation in middle school physical education. *Journal of Teaching in Physical Education*, 15, 369-383.
- Mohamadi, A, Mohamadi, J. (2013). Students' Perception of the Learning Environment at Zanzan University of Medical Sciences. *Journal of Medical Education Development*, 6 (11), 50.
- Okwilagwe, E. A. (2004). Undergraduate students' perceived academic environmental characteristics as correlates of learning outcomes. *Makerere Journal of Higher Education*, 1(1), 85-93.
- Pintrich, P. R., & Zusho, A. (2002). The development of academic self-regulation: The role of cognitive and motivational factors. In A. Wigfield & J. S. Eccles (Eds.), *Development of achievement motivation* (pp. 249– 284). San Diego, CA: Academic.
- Radovan, M., & Makovec, D. (2015). Relations between Students' Motivation, and Perceptions of the Learning Environment. *CEPS Journal: Center for Educational Policy Studies Journal*, 5(2), 115.
- Riquelme, A., Oporto, M., Oporto, J., Méndez, J. I., Viviani, P., Salech, F., ... & Sanchez, I. (2009). Measuring Students' Perceptions of the Educational Climate of the New Curriculum at the Pontificia Universidad Católica de Chile: Performance of the Spanish Translation of the Dundee Ready Education Environment Measure (DREEM). *Education for Health*, 22(1), 112.
- Roff, S., McAleer, S., Harden, R. M., Al-Qahtani, M., Ahmed, A. U., Deza, H., ... & Primparyon, P. (1997). Development and validation of the Dundee ready education environment measure (DREEM). *Medical teacher*, 19(4), 295-299.
- Sheikholeslaami, R., & Razaviye, A. (2005). Prediction of Shiraz University Students' Creativity According to External Motivation, Internal Motivation and Gender, *Journal of Humanities and Social Sciences, Shiraz University*, 22(4), 94.
- Standage, M., Duda, J. L., & Ntoumanis, N. (2003a). A model of contextual motivation in physical education: Using constructs from self-determination and achievement goal theories to predict physical activity intentions. *Journal of Educational Psychology*, 95, 97-110.
- Standage, M., Duda, J. L., & Ntoumanis, N. (2003b). Predicting motivational regulations in physical education: the interplay between dispositional goal orientations, motivational climate and perceived competence. *Journal of Sports Sciences*, 21, 631-647.
- Stern, M. (2012). *Evaluating and promoting positive school attitude in adolescents*. Springer.
- Streiner, D. L., Norman, G. R., & Cairney, J. (2014). *Health measurement scales: a practical guide to their development and use*. Oxford University Press, USA.

- Terzian, G. (2015). The Relationship between Academic Self-Concept and the Academic Motivation of Lebanese Learning Disabled Students (Doctoral dissertation, LEBANESE AMERICAN UNIVERSITY).
- Turner, J. C., Midgley, C., Meyer, D. K., Gheen, M., Anderman, E. M., Kang, Y., & Patrick, H. (2002). The classroom environment and students' reports of avoidance strategies in mathematics: A multimethod study. *Journal of Educational Psychology, 94*(1), 88.
- Wang, M. T., & Eccles, J. S. (2013). School context, achievement motivation, and academic engagement: A longitudinal study of school engagement using a multidimensional perspective. *Learning and Instruction, 28*, 12-23.
- Youssef, W. T., El Wazir, Y. M., Ghaly, M. S., & El Khadragy, R. A. (2013). Evaluation of the Learning Environment at the Faculty of Medicine, Suez Canal University: Students' Perceptions. *Intellectual Property Rights: Open Access, 2013*.
- Yusoff, M. S. B. (2012). The Dundee ready educational environment measure: a confirmatory factor analysis in a sample of Malaysian medical students. *Int J Humanities Social Sci, 2*(16), 313-21.