



Do basic psychological needs affect student engagement in medical school?

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Purpose: The purpose of this study is to verify the effect of basic psychological needs of learners on student engagement in medical school.

Methods: A total of 91 first-year and second-year medical students participated in this study. Their basic psychological needs were determined. Student engagement scales were utilized to determine their engagement. Correlation and multiple regression analyses were conducted.

Results: Basic psychological needs showed a total explanatory power of 13% for student engagement ($F=5.27$, $p<0.01$). Competence ($\beta =0.295$, $p<0.01$) had statistically significant effect on student engagement.

Conclusion: Results of the present study verified that student engagement could be determined by learner's traits. Among psychological traits of learners, student engagement was significantly affected by competence. Thus, medical school should provide various experiences to satisfy competence as a basic psychological need of learners.

Key Words: Psychological, Needs, Engagement, Medical school, Medical student

Introduction

With emphasis on learner-centered education, there is a growing awareness of the importance of learner engagement in the learning process. Various studies on engagement taking place overseas have focused on concepts such as 'student engagement' and 'academic engagement' [1]. Student engagement refers to voluntary and proactive engagement of students in class-related activities in order to comprehend and become familiar with course contents covered [2,3].

Recently, active learning exercises such as teamwork,

debates, case studies, problem-based learning, and inquiry-oriented strategies that require active student engagement are being emphasized in medical schools [4]. For these kinds of student-centered learning activities to be successful, it is essential to understand psychological traits of students. This includes understanding whether the learner has an extroverted or introverted personality, a high or low level of sociability, and a high or low level of self-directed learning ability. According to preceding studies, students with high level of student engagement are enthusiastic about learning with strong tendency to internalize contents they learn [5,6].

The present study focuses on basic needs theory. Basic

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needs theory identifies the three psychological needs of autonomy, competence, and relatedness as the source of students' inherent and proactive intrinsically motivated tendency to seek out novelty, pursue optimal challenge, exercise and extend their capabilities, explore, and learn [7]. Autonomy refers to the belief that causes of behavior can be found within ourselves and that we are the main agents and regulators of our own behavior. Competence refers to a sense of confidence and effectiveness achieved through action while relatedness refers to an exchange of interests with other people. These three needs are essential and basic psychological needs that humans are born with rather than acquired universal attributes. Thus, the theory of basic psychological needs assumes that humans can determine their behavior in a way that will satisfy basic psychological needs [8].

This study limits its scope to basic psychological needs among psychological traits of learners. The reason for this is that basic psychological needs can reveal learners' traits as inherited, rather than acquired attributes. The purpose of this study was to verify the effect of basic psychological needs of learners on student engagement and suggest what kind of teaching strategies should be established to increase student engagement in medical school.

Methods

1. Participants

This study was conducted at Ajou University School of Medicine in South Korea in academic year 2015. A total of 91 first-year and second-year medical students replied to the questionnaire (100%). The distribution of year and gender are shown in Table 1. It took about 15

minutes to complete the questionnaire.

2. Instruments

1) Basic psychological needs

Basic psychological needs scale developed by Lee and Kim [9] based on the study of Deci and Ryan [10] was used. This scale contained 18 items and three subscales (autonomy, competence, and relatedness). These items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Cronbach α coefficient for the reliability of this scales was 0.87. For the three subscales, their Cronbach α coefficients were 0.70, 0.75, and 0.79, respectively.

2) Student engagement

Student engagement scale was developed by Cha et al. [11] to measure students' engagement in class. This scale included 16 items in five subscales (instructional preparation, performing instructional activities, expressing oneself, extending instruction, instructional enthusiasm) rated on 5-point Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree). Cronbach α coefficient for the scale was 0.90. For the five subscales, Cronbach α coefficients were 0.83, 0.80, 0.85, 0.80, and 0.78, respectively.

3. Analysis

Mean scores and standard deviations were calculated. The relationship between students' basic psychological needs and student engagement was analyzed using Pearson's correlation. Multiple regression analysis was

Table 1. Number of Year and Gender of Medical Students

Year	Gender		Total
	Male	Female	
Ms1	34	14	48
Ms2	24	19	43
Total	58	33	91

MS: Medical student.

conducted to determine effects of sub-factors of basic psychological needs on student engagement in class. Data were analyzed using SPSS ver. 12.0 (SPSS Inc., Chicago, USA).

4. Institutional Review Board approval

This study was approved by the Institutional Review Board of Ajou University School of Medicine (IRB approval no., AJIRB-SBR-SUR-14-240).

Results

The relationship between basic psychological needs and student engagement is shown in Table 2. There were statistically significant correlations between basic psychological needs subscales and student engagement with the exception of ‘autonomy’ subscale of basic psychological needs. Basic psychological needs showed positive correlations with competence ($r=0.36$, $p<0.01$) and relatedness ($r=0.28$, $p<0.01$).

Multiple regression analysis was conducted to evaluate the effect of basic psychological needs on student

engagement. Results are shown in Table 3. Basic psychological needs showed a total explanatory power of 13% for student engagement ($F=5.27$, $p<0.01$). Competence ($\beta=0.295$, $p<0.01$) had statistically significant effect on student engagement. However, autonomy ($\beta=0.009$, $p>0.05$) or relatedness ($\beta=0.168$, $p>0.05$) had no meaningful effect on student engagement.

Discussion

Based on self-determination theory, basic psychological needs comprise autonomy, competence, and relatedness. These three needs can influence one another [12]. Student engagement is a multidimensional concept that cannot be explained by a single factor. Basic psychological needs energize engagement and are conceptualized as psychological nutrients that the daily life events need to fulfill if one is to be psychologically, physically, and socially well [13].

The present study assumes that students can self-initiate learning in learning situations and that they will experience more internal motivation when these

Table 2. Descriptive Statistics and Correlations for Measures

	1	2	3	4
Autonomy	1			
Competence	-0.09	1		
Relatedness	0.13	0.39**	1	
Student engagement	0.00	0.36**	0.28**	1
Mean ± standard deviation	2.99 ± 0.47	3.33 ± 0.66	3.35 ± 0.44	2.98 ± 0.56

** $p<0.01$.

Table 3. Effects of Basic Psychological Needs on Student Engagement

Independent variable	Unstandardized coefficients		Standardized coefficients	t-value
	B	Standard error	β	
Autonomy	0.01	0.12	0.01	0.09
Competence	0.25	0.09	0.30	2.73**
Relatedness	0.21	0.14	0.17	1.54
$R_2=0.39$, adjusted $R_2=0.13$, $F=5.27$ **.				

** $p<0.01$.

three basic psychological needs are met. An earlier studies have reported that basic psychological needs are correlated with academic achievement, medical school dropout rates, and burnout [14,15]. Basic psychological needs explains why students sometimes show active engagement in learning activities but other times show a passive or even antagonistic involvements, as need satisfaction promotes active engagement, whereas the neglect and thwarting of these needs anticipates various manifestations of disaffection [12]. These studies are essential for understanding students in medical schools. However, there are few studies on the relationship between basic psychological needs subscales and student engagement in medical schools in Korea.

This study analyzed the effect of basic psychological needs on student engagement in medical school. Results of this study revealed that, among subordinate variables of basic psychological needs that affected student engagement, competence was the only factor that had significantly positive effect. This is consistent with results of preceding studies on the relationship between student engagement and autonomy, competence, and satisfaction of the need for relatedness [16]. Results of this study validated the importance of competence as a variable that could affect student engagement. Accordingly, satisfying the need for competence is important to increase the level of medical student engagement. This investigation is a step towards addressing the students' guidance of medical school. Our results provide insight into future research pertaining to how teachers have to do medical school students' competence support.

This study has some limitations. First, this study was conducted among students from a single medical school. Thus, caution is needed when generalizing results of this study. Also, examining only basic psychological needs among student traits may be viewed as a significant

limitation. The question of whether student engagement is determined by inherent needs may lead to a debate on the role of education and teachers. Consequently, future in-depth research should not only consider various student variables that can affect student engagement, but also teacher variables.

In conclusion, the present study verified that student engagement could be determined by the learner's traits. Among psychological traits of learners, student engagement was significantly affected by competence. It is fundamentally important for the learner to build confidence by accumulating experiences in order to increase engagement level. Medical school should provide various experiences to satisfy the need for competence as a basic psychological need of learners.

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