

THE RELATIONSHIPS BETWEEN STUDENT ENGAGEMENT AND THEIR ACADEMIC ACHIEVEMENT

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ABSTRACT

The purpose of this study was to examine the relationships between student engagement and academic achievement. In another saying, this study aimed at determining the extent to which student engagement explains or predicts academic achievement. The study was carried out with the correlational research. The research sample was made up of 304 students. Student Engagement Scale and Demographic Variables Form were used for data collection tools. For the analysis of the data, descriptive statistics, correlation analysis, two-step cluster analysis, independent samples t-test and regression analysis were applied. The results obtained via the analyses conducted revealed that there were significant relationships between the students' academic achievement and student engagement as well as between their academic achievement and especially the dimensions of cognitive engagement, behavioral engagement and sense of belonging. In addition, it was found out that cognitive, behavioral and emotional engagements - that is class engagement - predicted academic achievement and explained it with a rate of 10%.

Key Words: Student engagement; campus engagement; class engagement; student achievement; higher education.

INTRODUCTION: STUDENT ENGAGEMENT

Student engagement is an important study field of education psychology. Engagement requires not only being active but also feeling and sense making (Harper and Quayle, 2009). Bomia and colleagues (1997) define student engagement as students' willingness, needs, desire motivation and success in the learning process. Hu and Kuh (2001) and Kuh (2009a) refer to student engagement as the time allocated by students to educational activities to contribute to the desired outcomes and as the quality of their related efforts. According to Stovall (2003), student engagement includes not only the time students spend on tasks but also their willingness to take part in activities. Krause and Coates (2008) associated student engagement with the high quality in learning outcomes. All these definitions could be said to have common points for each school level. It is also important that student engagement in higher education is defined in a way to cover the processes of campus engagement and class engagement. In this respect, student engagement was defined by Gunuc and Kuzu (2014) as *"the quality and quantity of students' psychological, cognitive, emotional and behavioral reactions to the learning process as well as to in-class/out-of-class academic and social activities to achieve successful learning outcomes."*

In the past decade, student engagement has been examined as a multi-dimensional concept (Gunuc and Kuzu, 2014; Fredricks et al. 2004). In this study, the Student Engagement Scale (SES) developed by Gunuc and Kuzu (2014) as a multidimensional scale was used. In the study carried out by Gunuc and Kuzu (2014), student engagement was examined in two main components such as campus engagement and class engagement with 6 dimensions: Valuing, Sense of Belonging, Cognitive Engagement, Peer Relationships (Emotional Engagement-I), Relationships with the Faculty Member (Emotional Engagement-II) and Behavioral Engagement (Figure 1).

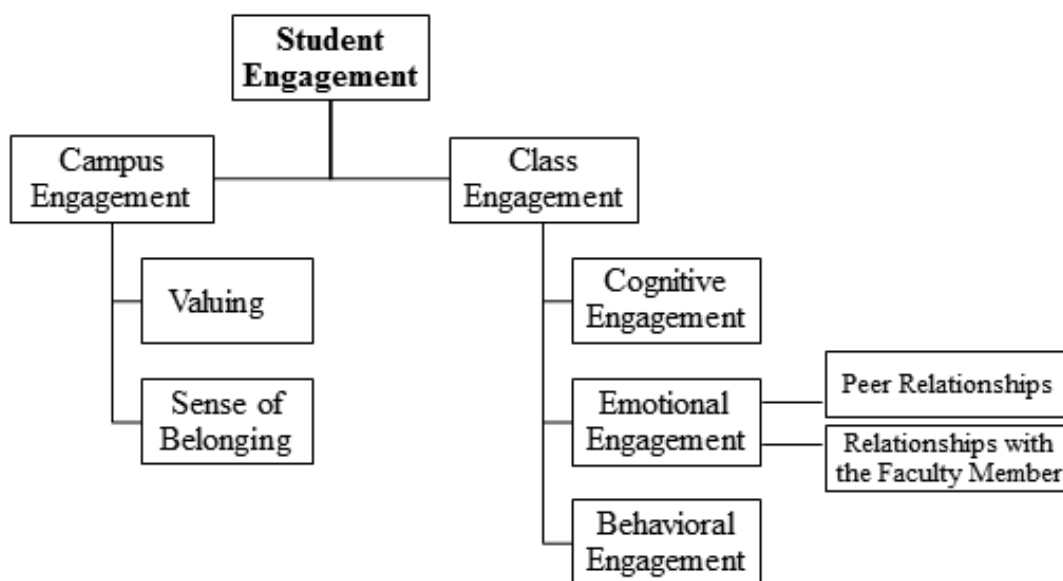


Figure 1: Student Engagement Structure

Campus Engagement

Student engagement in higher education has certain differences when compared to student engagement in other school levels, especially the context of campus or social life. It was observed that the campus itself and campus activities have indirect effects on students especially in higher education (Gunuc, 2013). Such concepts as giving value to campus (university) or to education, sense of belonging and participation in campus activities are considered to be among important parts of student engagement (Blimling, 1993; Chickering, 1975; Gunuc & Kuzu, 2014; Pike, & Kuh, 2005; Terenzini et al., 1996). In this respect, Willms (2003) defines engagement as students' sense of belonging, accepting the value of school and active participation in school activities. Voelkl (1996) refers to school engagement by emphasizing the themes of sense of belonging to school and value given to school. According to Goodenow (1992), sense of belonging occurs when students feel that they are accepted, supported and involved by other people in the social setting of a campus/school (other students, teachers and so on). On the other hand, sense of belonging is one of important components of psychology because sense of belonging could be said to have positive or indirect influence on academic achievement and on motivation (Goodenow, 1993; Kember, Lee & Li, 2001).

In addition, in several studies, it was pointed out that the campus/school climate is likely to have influence on students' performance, their achievement and on their positive and negative behavior (Gunuc, 2013; Finn, 1989; 1993; Finn & Voelkl, 1993). Matthews and colleagues (2011) and Nauffal (2011) indicated that social learning areas or the campus itself have important contributions to the development of sense of belonging and student engagement. The concept of sense of belonging also includes participation in campus. Participation is regarded as taking part especially in out-of-class activities or in campus. It could be stated that giving value not just means giving value to the campus or to other related elements but also covers the value given to the concepts of school, university, education and learning (Gunuc & Kuzu, 2014).

Class Engagement

Class engagement involves students' cognitive, emotional and behavioral responses to in-class and out-of-class activities. Cognitive engagement includes investment in learning, value given to learning, learning goals, self-regulation and planning. Cognitive engagement has an important relationship with learning motivation. Cognitive engagement refers to students who invest in their own learning, who accordingly determine their needs and who enjoy the mental difficulties (Gunuc & Kuzu, 2014; Fredricks et al. 2004). Emotional engagement involves students' responses to the teacher, peers, course content and to the class which all include attitudes, interests and values (Bryson & Hand, 2007; Gunuc & Kuzu, 2014). In addition, such emotions as sense of belonging to school/university, loving the university and feeling oneself to be a member of a group

are also examined within the scope of emotional engagement (Fredricks et al. 2004). Behavioral engagement includes students' participation in academic, their efforts, their attendance in classes and their participation in class (Gunuc & Kuzu, 2014). The basic of behavioral engagement could be said to be related to class activities. The campus (out-of-class) and social activities are also examined within the scope of behavioral engagement (Fredricks et al. 2004).

Patrick and colleagues (2007) considered social and emotional environments in the classroom to be among prerequisites to students' engagement with activities and tasks. In addition, in several studies, it was reported that emotional engagement, emotional support or positive emotions increased participation in activities or behavioral engagement (Ladd et al. 2000; Li et al. 2010; Skinner et al. 2008). In another saying, positive emotions were found important to maintain the behavior and action (Clare, 1994; Fredrickson, 2001). Also, it was pointed out that positive emotions made contributions not only in behavioral context but also in cognitive context (Aspinwall, 1998). Li and Lerner (2013) demonstrated that behavioral engagement had influence on cognitive engagement. Similarly, Gibbs and Poskitt (2010) regarded emotional and behavioral engagements as prerequisites to cognitive engagement. In this respect, it was reported that the student is supposed to develop emotional and behavioral engagements prior to cognitive engagement. In addition, studies conducted generally revealed that there were mutual relationships between behavioral and emotional engagements (Li & Lerner, 2013; Skinner et al., 2008). Fredricks and colleagues (2004) pointed out that the cognitive, emotional and behavioral dimensions were not examined together in many studies and that examining these dimensions together was important. In this respect, in related literature, it is seen that mostly emotional and behavioral engagements were examined (Furrer & Skinner, 2003; Patrick et al. 1993; Ryan et al. 1994; Skinner & Belmont, 1993). One of the most important reasons for this could be the fact that it is much more difficult to measure cognitive engagement.

Theories/Models and Student Achievement in Student Engagement

Student achievement was also explained in certain theories and models regarding student engagement. Finn (1989), in the *Participation-Identification Model*, focused on behavioral and emotional dimensions and tried to explain students' school drop-out. The model was based on the idea that successful students identify themselves with their schools and that the unsuccessful ones can not do so. In the model, it was claimed that participation in school and class activities increases students' performance and their achievement and that students' performance has influence on their feeling of identifying themselves with the school. Csikszentmihalyi (1990; 1997) asserts that focusing deeply on teaching with the *Flow Theory* leads to a higher level of learning experience. Flow activities including mentally difficult tasks tend to be satisfying and pleasing as well (Shernoff et al. 2003). The Flow Theory was explained with the relationship between the challenges and the skills of an individual and with the balance in this relationship. This balance regarding the relationship in-between is fragile. According to the theory, based on this balance, either flow or apathy, anxiety and relaxation occur (Csikszentmihalyi, 1997; Shernoff & Csikszentmihalyi, 2009).

The frequency of the instructional activities in which flow occurs could be said to bring about student success. As can be understood from this theory and the models developed, the student's participation in class and activities is considered important for academic achievement. Finally, *Campus-Class-Technology (CCT) Model* was developed by Gunuc (2013). According to the model, for successful student outcomes, the relationships between student engagement and technology were theoretically explained. In this respect, the value given by the students to university life and university education was among the important factors which helped the students have the sense of belonging to university/campus, which allowed them to spend time in the campus and which resulted in increase in class engagement. Another factor influential on class engagement was technology. Effective integration of technology in class is important for increasing students' class engagement. An increase in class engagement not only increases students' level of academic achievement but also leads to positive outcomes. CCT Model continues in the form of a cycle. In other words, academic achievement and positive outcomes have influence on the value students give to learning and to university as well as on the sense of belonging to university.

In order for students to go through an effective learning process, they should have a high level of campus engagement and especially class engagement. Student engagement is regarded not only as an indicator of the education levels of societies and their education systems but also as one of the indicators of the quality of education given in an institution (Kuh, 2001a). In addition, student engagement is important and beneficial for students' academic competencies, achievements, socialization, welfare, life satisfaction as well as for effective learning (Harris, 2008; Krause & Coates, 2008; Lewis, 2010; Li et al. 2010; Park, 2005; Wang & Eccles, 2012; Willms et al. 2009). It is quite difficult to say that an education system with little or no student engagement will bear positive outcomes. In this respect, it is seen that there is a positive relationship between student engagement and learning outcomes or learning achievement (Carini, Kuh & Klein, 2006; Coates, 2005; Connell et al. 1994; Furlong & Christenson, 2008; Marks, 2000; Park, 2005). In other words, student engagement is considered necessary for learning, performance and achievement (Appleton et al. 2006; Carini et al. 2006; Fredricks et al. 2004; Klem & Connell, 2004).

Although some studies have drawn attention to the positive relationships between student engagement and learning outcomes or students' achievement, there is limited research directly investigating the relationships between the dimensions of student engagement and academic achievement especially in higher education. So it was wondered that directly student engagement's effect on academic achievement. Therefore, the basic purpose of this study is to examine the relationships between student engagement and academic achievement. In another saying, considering the dimensions included in student engagement, this study is aimed at determining the extent to which student engagement explains or predicts academic achievement. In addition, the study is also considered important because the results to be obtained are thought to allow higher education institutions to focus on the dimensions of student engagement, which was found to have a direct relationship with achievement, as well as because the study is believed to contribute to the development of strategies to be applied to achieve higher levels of these dimensions in future studies.

METHOD

Sample

Correlational research was used. The correlational research is done to determine relationships among two or more variables and to explore their implications for cause and effect (Fraenkel et al. 2012). The research sample was made up of 304 students attending the Education Faculty of Anadolu University in Turkey in the academic year of 2013-2014. Freshman students were not included in the research sample as these students' academic achievement scores were not determined at the time of the study (Table 1).

Table 1: Demographic Variables

Variable	f	%
Gender		
Female	196	64.5
Male	108	35.5
Total	304	100.0
Department		
Computer Education and Instructional Technology	59	19.4
Special Education	39	12.8
Foreign Language Education	89	29.3
Primary Education	63	20.7
Fine Arts Education	16	5.3
Educational Sciences	38	12.5
Total	304	100.0
Grade		

Variable	f	%
Gender		
Female	196	64.5
Male	108	35.5
2	165	54.3
3	88	28.9
4	51	16.8
Total	304	100.0

Data collection tools

Demographic Variables Form

In order to collect data regarding the students' gender, class levels, departments and their average academic achievement scores, a personal information form was used. For the students' average academic achievement scores, the students' average scores in all the courses they had taken by the time the present study was conducted were taken into account.

Student Engagement Scale (SES)

A SES developed by Gunuc and Kuzu (2014) was used. The scale applied was a five-point Likert-type scale made up of 6 factors with 41 items. The total variance explained regarding the six factors of the scale was calculated as 59%. The Cronbach Alpha (α) internal consistency reliability coefficient for the total scale was calculated as ,957 with the exploratory factor analysis (EFA) and as ,929 with the confirmatory factor analysis (CFA). As for the research sample in the present study, the reliability coefficient of the scale was calculated as ,932. The scale included two main components such as campus engagement and class engagement. There were two components and six dimensions (factors) in total: the factors of Valuing and Sense of Belonging found under the component of Campus Engagement; and the factors of Cognitive Engagement, Peer Relationships (Emotional Engagement-I), Relationships with the Faculty Member (Emotional Engagement-II) and Behavioral Engagement found under the component of Class Engagement. Higher scores to be produced by the scale indicated campus engagement and class engagement, while lower scores demonstrated either poor campus engagement and poor class engagement or disengagement.

Data analysis

The possible missing data and outliers were examined to get accurate results from the analyses conducted. Next, the normality, linearity and multicollinearity, which are all assumptions of multivariate analyses, were examined. As a result, the data were made appropriate to the analyses to be conducted (Mertler & Vannatta, 2005). The distribution of the research data was examined with skewness-kurtosis, histogram, P-P and Q-Q graphics. For the analysis of the data, descriptive statistics, correlation analysis, two-step cluster analysis, independent samples t-test and regression analysis were applied. For these analyses, SPSS 18.0 computer package program was used.

FINDINGS

Preparing the Data for Analysis and Examining the Assumptions

Regression analysis is a type of multivariate analysis. Therefore, after the research data were gathered, they were typed into the statistical package program which was followed by such steps as examining the consistency of the data, checking the data entered and checking the missing data and outliers. In this way, the data were made appropriate to multivariate analyses. In this respect, the data found inconsistent (data thought to be marked randomly) were not entered in SPSS 18.0 package program. The research data were checked to see if there was any misentry, and the necessary corrections were made. In addition, the data set did not include any missing data with a rate higher than 5% in terms of the individual and the item. For the research data collected from 304 students in the research sample, z scores for univariate outliers and Mahalanobis distances for multivariate outliers were calculated (Huck, 2012; Kline, 2011). Z scores are suggested to be in the range of ± 3

(Hutcheson & Sofroniou, 1999; Kline, 2011). For this reason, as a result of the examination of the outliers in the sub-factors, the data collected from a total of 12 students were not included in the data set. As not only the z scores for the remaining 292 students but also the values in Mahalanobis chart were between acceptable limits, no other outliers were seen in the data set.

After the data set was checked, normality, linearity and multicollinearity, which are all assumptions of multivariate analyses, were examined (Hutcheson & Sofroniou, 1999; Kline, 2011; Tabachnick & Fidell, 2007). The data were examined separately in terms of univariate and multivariate normality. Univariate normality was determined by examining the skewness-kurtosis values, histogram, Q-Q and P-P graphics (Huck, 2012; Pallant, 2007). In literature, while some researchers suggest the range of ± 1 for the acceptance range of skewness and kurtosis, while some others suggest the range of ± 3 for skewness and the range of ± 10 for kurtosis (Kline, 2009). Table 2 presents the skewness and kurtosis values for achievement (dependent or predicted), SES and sub-factors (independent or predictor).

Table 2: Skewness and Kurtosis Values for Dependent and Independent Variables

Predictor/predicted variable	Skewness		Kurtosis	
	Statistic	Std. Err.	Statistic	Std. Err.
Valuing	-.680	.143	.880	.284
Sense of Belonging	-.492	.143	-.051	.284
Cognitive Engagement	-.554	.143	.268	.284
Peer Relationships (Emotional Engagement-I)	-.814	.143	.650	.284
Relationships with the Faculty Member (Emotional Engagement-II)	-.258	.143	-.019	.284
Behavioral Engagement	-.595	.143	.678	.284
Total-scale	-.451	.143	.333	.284
Achievement	-.101	.143	-.562	.284

For multivariate normality and linearity, the scatter diagram matrix was examined (Tabachnick & Fidell, 2007). The fact that there is an oval scatter between each pair of variables gives an idea about normality and linearity. In the data set, normality and linearity were examined between the pairs of variables with the scatter diagram, and all the variables were found to demonstrate an oval scatter. As a result, the data set was found to have a normal distribution.

Lastly, in the study, whether there was a multicollinearity problem between each pair of variables to be involved in the regression analysis was examined. Multicollinearity might occur with a high level of correlation ($r_{xy} > .90$) between two or more items. One way of testing whether there is multicollinearity problem or not is to determine the items with a value of .90 or higher by examining the item-item matrix (Field, 2009; Kline, 2011; Tabachnick & Fidell, 2007). For the multicollinearity problem, Table 3 presents the correlation coefficients between the variables, and Table 4 presents the tolerance and VIF values of the variables predicting the variable of achievement.

Table 3: Pearson Correlation Between Student Engagement and Sub-Factors

	Valuing	Sense of Belonging	Cognitive Engagement	Peer Relationships (Emotional Engagement-I)	Relationships with the Faculty Member (Emotional Engagement-II)	Behavioral Engagement	Total-scale
Valuing	1						
Sense of Belonging	.487*	1					
Cognitive Engagement	.372*	.462*	1				
Peer Relationships (Emotional Engagement-I)	.355*	.370*	.309*	1			
Relationships with the Faculty Member (Emotional Engagement-II)	.317*	.439*	.437*	.369*	1		
Behavioral Engagement	.312*	.313*	.605*	.300*	.360*	1	
Total-scale	.590*	.772*	.784*	.612*	.751*	.621*	1

* $p < .01$

As can be seen in Table 3, although there was a significant relationship between SES and the sub-factors, a high level of correlation was not calculated between the variables ($r_{xy} > .90$). In addition, the Tolerance and VIF values for the variables to be involved in regression analysis are suggested to be in acceptable limits. Table 4 presents the Tolerance and VIF values for the predictor variables.

Table 4: Tolerance and VIF Values for the Sub-Factors of Student Engagement

Dimension (sub-factor)	Tolerance	VIF
Valuing	.703	1.422
Sense of Belonging	.617	1.620
Cognitive Engagement	.528	1.893
Peer Relationships (Emotional Engagement-I)	.768	1.302
Relationships with the Faculty Member (Emotional Engagement-II)	.697	1.434
Behavioral Engagement	.610	1.639

In this respect, it is seen in Table 4 that the tolerance value of each variable was higher than .10 suggested in literature to conduct regression analysis and that the VIF value was lower than 10 as suggested in literature (Kline, 2011). As a result of these analyses, it was found out that there was no multicollinearity problem between the predictor variables.

Findings regarding the relationships between student engagement and academic achievement

Several analyses were applied to determine the profiles related to student engagements of the research sample prior to regression analysis. Depending on the total scores received by the participants from SES, two-step cluster analysis was conducted. In this way, the students' engagement scores were grouped as low, moderate and high levels.

Table 5: Two-Step Cluster Analysis Regarding the Student Engagement Scores

Group	n	Total %	Mean	sd
1	145	49.7%	167.228	10.644
2	103	35.3%	143.825	6.670
3	44	15.1%	116.796	11.139
Total	292	100.0%	151.373	20.401

As can be seen in Table 5, only 15.1% of the research sample (n = 44) had low levels of student engagement. In addition, Table 6 demonstrates the descriptive statistics regarding the average academic achievement scores of the students.

Table 6: Descriptive Statistics Regarding the Average Academic Achievement Scores

	n	Min.	Max.	Mean	sd
Achievement	292	1.55	3.87	2.81	.460

In Table 6, it is seen that the average academic achievement scores of the students in the research sample was 2.81. The students' academic achievement scores were calculated out of 4.00, and the lowest average score for the research sample was 1.55. The relationships between academic achievement and student engagement as well as the sub-factors were examined, and the findings obtained are presented in Table 7.

Table 7: Pearson Correlation Between Achievement and SES Total Scores

	Valuing	Sense of Belonging	Cognitive Engagement	Peer Relationships (Emotional Engagement-II)	Relationships with the Faculty Member (Emotional Engagement-II)	Behavioral Engagement	Total-scale
Achievement	.012	.139	.270	.050	.029	.255	.183
	<i>p</i>	.838	.017	.000	.396	.617	.000

As can be seen in Table 7, there was a significant relationship between the academic achievement score and student engagement total score ($r = .183$; $p = .002$) as well as the sub-factors of sense of belonging, cognitive engagement and behavioral engagement ($p < .05$). On the other hand, no significant relationship was found between the academic achievement score and the variables of valuing, peer relationships (emotional engagement-I) and relationships with the faculty member (emotional engagement-II). Although there was no significant direct relationship regarding these variables, it could be stated that an indirect relationship was likely to exist between the academic achievement score and the sub-factors since significant relationships were found regarding these variables (Table 3).

Student engagement total scores were grouped depending on those with high scores (group-1) and those with low scores (group-2) with the two-step cluster analysis. These two groups were analyzed with independent samples t-test according to their academic achievement scores as there was a normal distribution. The findings obtained are presented in Table 8.

Table 8: Comparison of the Group-1 and Group-2 According to Their Academic Achievement Scores

	Levene's test				t-test		
	F	p (Levene)	t	df	p	Mean Difference	Std. Err. Difference
Equal variances assumed	.633	.427	2,770	290	.006	.148	.054
Equal variances not assumed			2,758	270,177	.006	.148	.054

When the Levene test findings presented in Table 8 were examined, it was seen that the group variances were equal; in other words, there was no significant difference between the group variances ($p = .427$). Therefore, the values in the upper line were taken into consideration. According to these values, a significant difference was found between the academic achievement scores of the groups ($p = .006$, $p < .05$). As can be seen in Table 8, the mean difference was found positive. Thus, it was found out that the students with high student engagement scores had higher levels of academic achievement scores and that those with low student engagement scores had lower levels of academic achievement scores.

Lastly, regression analysis was conducted to determine the extent to which the sub-factors of student engagement (predictor variables) predict academic achievement (predicted variable); in other words, the purpose was to determine the extent to which academic achievement was explained. The findings obtained are presented in Table 9.

Table 9: Multiple Regression Analysis Regarding Predicting Academic Achievement

Model	Predictor variable	B	Std. err.	Beta	t	p
Model 1	(Constant)	2,143	.142		15,086	.000
	Cognitive Engagement	.019	.004	.270	4,771	.000
Model 2	(Constant)	1,909	.182		10,487	.000
	Cognitive Engagement	.013	.005	.182	2,582	.010
	Behavioral Engagement	.028	.014	.144	2,046	.042
Model 3	(Constant)	2,057	.195		10,551	.000
	Cognitive Engagement	.016	.005	.227	3,085	.002
	Behavioral Engagement	.032	.014	.164	2,313	.021
	Relationships with the Faculty Member (Emotional Engagement-II)	.009	.004	.129	2,051	.041

$R = .315$; $R^2 = .099$; $F = 10.567$, $p < .000$

In order to determine whether the model was useful, ANOVA test was run. The fact that the p -value of F test for the model fit in ANOVA results was significant ($F_{(3,288)} = 10,567$, $p < .05$) demonstrated that the model was significant and applicable.

For the regression analysis, the stepwise regression method was used with academic achievement (predicted variable) and the variables of valuing, sense of belonging, cognitive engagement, peer relationships (emotional engagement-I), relationships with the faculty member (emotional engagement-II) and behavioral engagement (predictor variables). In stepwise regression analysis, such techniques as stepwise, forward and backward were used. In this way, the contribution of each variable was calculated, and the model was formed with the

variables which had the highest rate of capability to predict or explain. The stepwise technique works by choosing forward and by eliminating backward. This method was used to determine which of the models formed by independent variables was better (Huck, 2012; Field, 2005).

As can be seen in Table 9, the best model was obtained in the third step, and the *t* significance values for the predictor variables were calculated to be lower than $p < .05$. It was found out that among the predictor variables, cognitive engagement was the strongest variable that predicted academic achievement ($B = .016$), which was followed by the variables of behavioral engagement ($B = .032$) and relationships with the faculty member (emotional engagement-II) ($B = .009$). As a result of the regression analysis conducted, the following model equation was obtained.

Achievement = 2.057 + (Cognitive Engagement * .016) + (Behavioral Engagement * .032) + (Relationships with the Faculty Member (Emotional Engagement-II) * .009)

As can be understood from the values of *R* and R^2 obtained for the model ($R = .315$; $R^2 = .099$), the variance explained by the model was found to be 10%. In other words, the sub-factors regarding student engagement explained academic achievement with a rate of 10%. The fact that academic achievement was explained only by student engagement with a rate of 10% gave an idea about how important student engagement was for academic achievement.

DISCUSSION AND CONCLUSION

One of the most important objectives of education is to achieve effective learning. Therefore, in order to increase students' achievement, it is important to examine the factors influential on their achievement. In the study described in this article, the relationships between higher education students' average academic achievement scores and student engagement as well as between their average academic achievement scores and the dimensions of student engagement were examined.

The study described in this article investigated the relationship especially between student achievement and the dimensions of student engagement. In line with the purpose of the study, correlation, *t*-test and regression analyses were conducted for the dimensions of student engagement and the average academic achievement scores of the students. The results obtained via the analyses conducted revealed that there were significant relationships between the students' academic achievement and student engagement as well as between their academic achievement and especially the dimensions of cognitive engagement, behavioral engagement and sense of belonging. Although sense of belonging was found to have direct influence, no strong relationship was found with academic achievement. Also, in literature, it was stated that a sense of belonging contributed to better quality learning outcomes (Kember et al., 2001). In addition, it was also found out that students with high level of student engagement had higher levels of academic achievement and that those with low level of student engagement had lower levels of academic achievement. Lastly, in order to determine the extent to which the dimensions of student engagement explained achievement, regression analysis was conducted. Differently from correlation findings, the variable of relationships with the faculty member (emotional engagement-II) was determined as a variable predicting academic achievement. Thus, it was found out that cognitive, behavioral and emotional engagements - that is class engagement - predicted academic achievement and explained it with a rate of 10%. Although the dimensions of valuing and sense of belonging found under the component of campus engagement were not found in the regression findings, it could be stated that campus engagement and campus life are important dimensions for students' development, engagement and for their motivation (Blimling, 1993; Chickering, 1975; Gunuc, 2013; Pike & Kuh, 2005; Pascarella & Terenzini, 1991, 2005; Terenzini et al., 1996). Social dimensions in integration are as important as the academic (Bryson, Hardy & Hand, 2009). In addition, students' perceptions of the college environment or social involvement represented another source of influence on learning and intellectual development (Pascarella, 1985; Pike, 1999; Pike, Kuh & Gonyea, 2003).

As the results of this study reveal, cognitive, emotional and behavioral engagements had a strong relationship with academic achievement, it is important to increase students' cognitive and behavioral engagements. However, as can be seen thanks to the results obtained in the present study, cognitive engagement is quite important especially for the student's academic achievement. On the other hand, the dimension of *Peer Relationships (Emotional Engagement-I)* was not in direct relationship with academic achievement could be explained with such individual factors as the high-level learning skills of the students in the research sample. Therefore, it is suggested that the direct effects of peer relationships on students should be examined in detail. Consequently, in the present study, a significant relationship was found between student engagement and the average academic achievement of a student. For this reason, there is a need for studies investigating the methods and strategies to be applied to increase student engagement, especially their class engagement, which is associated with academic achievement. As one of the limitations of the present study, it was conducted with 304 participants from one faculty of a higher education institution. The other limitations were variables regarding campus/university environment and Turkish culture. It means that campus spaces and life can be different at every university or culture. Thus, campus engagement can affect on academic achievement more at the other universities or cultures. In this respect, these factors and variables should be examined in future studies. In addition, future studies to be conducted with a larger size of research sample from different higher education institutions and faculties could focus on the effects of such factors as different institutions, cultures and faculties on the relationships between academic achievement and student engagement.

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REFERENCES

- Appleton, J. J., Christenson, S. L., Kim, D. & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. *Journal of School Psychology, 44*(5), 427-445.
- Aspinwall, L. G. (1998). Rethinking the role of positive affect in selfregulation. *Motivation and Emotion, 22*, 1-32.
- Astin, A.W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Development, 25*, 297-308.

- Astin, A. W. (1993). *What matters most in college: Four critical years revisited*. San Francisco, CA: Jossey-Bass.
- Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journal of College Student Development*, 40(5), 518-529.
- Blimling, G. (1993). The influence of college residence halls on students. In J. Smart (Ed.), *Higher education: Handbook of theory research*, 9, pp. 248–307, New York: Agathon.
- Bomia, L., Beluzo, L., Demeester, D., Elander, K., Johnson, M. & Sheldon, B. (1997). The impact of teaching strategies on intrinsic motivation. Champaign, IL: ERIC Clearinghouse on Elementary and Early Childhood Education.
- Bryson, C., & Hand, L. (2007). The role of engagement in inspiring teaching and learning. *Innovations in Education and Teaching International*, 44(4), 349-362.
- Bryson, C., Hardy C. & Hand, L. (2009). An in-depth investigation of students' engagement throughout their first year in university. UK National Transition Conference, University College London, April 24th.
- Carini, R., Kuh, G. & Klein, S. (2006). Student engagement and student learning: Testing the linkages. *Research in Higher Education*, 47(1), 1-32.
- Chickering, A. W. (1975). *Commuting versus Resident Students: Overcoming the Educational Inequities of Living off Campus*, Jossey-Bass, San Francisco.
- Clore, G. L. (1994). Why emotions require cognition. P. Ekman & R. J. Davidson (Ed.). *The nature of emotion: Fundamental questions* içinde (s.181–191). New York: Oxford University Press.
- Coates, H. (2005). The Value of Student Engagement for Higher Education Quality Assurance. *Quality in Higher Education*, 11(1), 25-36.
- Connell, J. P., Spencer, M. B. & Aber, J. L. (1994). Educational risk and resilience in African-American youth: Context, self, action, and outcomes in school. *Child Development*, 65, 493-506.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: HarperPerennial.
- Csikszentmihalyi, M. (1997). *Finding flow: The psychology of engagement with everyday life*. The masterminds series. New York: Basic Books.
- Field, A. P. (2009). *Discovering statistics using SPSS: And sex and drugs and rock 'n' roll* (3. ed.). London: Sage Publications.
- Finn, J. (1989). Withdrawing from school. *Review of Educational Research*, 59(2), 117-142.
- Finn, J. D. (1993). *School engagement and students at risk*. Buffalo, NY: U.S. Department of Education, National Center for Educational Statistics (ERIC Document Reproduction Service No. 362-322.)
- Finn, J.D. & Voelkl, K.E. (1993). School characteristics related to school engagement. *Journal of Negro Education* 62(3), 249–268.
- Fraenkel, J.R., Wallen, N.E. & Hyun, H.H. (2012). *How to design and evaluate research in education* (8th ed.). New York: McGraw-Hill.

Fredricks, J. A., Blumenfeld, P.C. & Paris, A.H. (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research*, 74(1), 59-109.

Furlong, M. J. & Christenson, S. L. (2008). Engaging students at school and with learning: A relevant construct for all students. *Psychology in the Schools*, 45, 365-368.

Furrer, C. & Skinner, C. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology*, 95, 148-162.

Gibbs, R & Poskitt, J. (2010). *Student engagement in the middle years of schooling (years 7-10): A literature review*. Wellington: Ministry of Education.

Goodenow, C. (1992, April). *School motivation, engagement, and sense of belonging among urban adolescent students*. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.

Goodenow, C. (1993). Classroom belonging among early adolescents students' relationships to motivation and achievement. *Journal of Early Adolescence*, 13(1), 21-40.

Gunuc, S. (2013). Determining the role of technology in student engagement and examining of the relationships between student engagement and technology use in class. (Unpublished doctorate thesis). Anadolu University, Turkey.

Gunuc, S. & Kuzu, A. (2014). Student engagement scale: Development, reliability and validity. *Assessment & Evaluation in Higher Education*, DOI: 10.1080/02602938.2014.938019.

Harper, S. R. & Quaye, S. J. (ed.) (2009). *Student Engagement in Higher Education*. New York and London: Routledge.

Harris, L. R. (2008). A Phenomenographic Investigation of Teacher Conceptions of Student Engagement in Learning. *The Australian Educational Researcher*, 5(1), 57-79.

Hoyle, R. H. (1995). *The structural equation modeling approach: Basic concepts and fundamental issues*. *Structural equation modeling: Concepts, issues, and applications*, R. H. Hoyle (Ed.) içinde (s.1-15) Thousand Oaks, CA: Sage Publications, Inc.

Hu, S. & Kuh, G. D. (2001). *Being (Dis) Engaged in Educationally Purposeful Activities: The Influences of Student and Institutional Characteristics*. Paper presented at the American Educational Research Association Annual Conference. Seattle, WA, 10-14 April.

Huck, S. (2012). *Reading statistics and research* (6. ed.). Boston: Pearson.

Hutcheson, G. D. & Sofroniou, N. (1999). *The multivariate social scientist: An introduction to generalized linear models*. Sage Publications.

Kember, D., Lee, K., & Li, N. (2001). Cultivating a sense of belonging in part-time students. *International Journal of Lifelong Education*, 20(4), 326-341.

Klem, A.M. & Connell, J.P. (2004). Relationships matter: Linking teacher support to student engagement and achievement. *Journal of School Health*, 74(7), 262-273.

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3.ed.) New York: The Guilford Press.

Kline, R. B. (2009). *Becoming a behavioral science researcher: A guide to producing research that matters*. New York: Guildford Press.

Krause, K. and Coates, H. (2008). Students' engagement in first-year university. *Assessment and Evaluation in Higher Education*, 33(5), 493-505.

Kuh, G. D. (2001a). Assessing What Really Matters to Student Learning. Inside the national survey of student engagement.

http://cpr.iub.edu/uploads/Assessing_What_Really_Matters_To_Student_Learning_%28Kuh,%202001%29.pdf
Kuh, G. D. (2009a). What student affairs professionals need to know about student engagement. *Journal of College Student Development*. 50(6), 683–706.

Ladd, G. W., Buhs, E. S. & Seid, M. (2000). Children's initial sentiments about kindergarten: Is school liking an antecedent of early classroom participation and achievement?. *Merrill-Palmer Quarterly*, 46, 255-279.

Lewis, A. D. (2010). *Facilitating student engagement: The importance of life satisfaction*. Unpublished doctorate thesis, South Carolina University.

Li, Y. & Lerner, R. M. (2013). Interrelations of behavioral, emotional, and cognitive school engagement in high school students. *Journal of Youth and Adolescence*, 42, 20-32.

Li, Y., Lerner, J.V. & Lerner, R.M. (2010). Personal and ecological assets and academic competence in early adolescence: The mediating role of school engagement. *Journal of Youth and Adolescence*, 39(7), 801-815.

Marks, H.M. (2000). Student Engagement in Instructional Activity: Patterns in the Elementary, Middle, and High School Years. *American Educational Research Journal*, 37, 153-184.

Matthews, K.E., Andrews, V. & Adams, P. (2011). Social learning spaces and student engagement. *Higher Education Research & Development*, 30(2), 105-120.

Mertler, C. A. & Vannatta, R. A. (2005). *Advanced and multivariate statistical methods: Practical application and interpretation* (3. ed.). CA: Pyrczak Publishing.

Nauffal, D.I. (2011). Assessment of student engagement: An analysis of trends. *Tertiary Education and Management*, 18(2), 171-191.

Newmann, F. & Wehlage, G. (1993). Five standards of authentic instruction. *Educational Leadership*, 50(7), 8-12.

Pallant, J. (2007). *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows*. Maidenhead: Open University Press.

Park, S-Y. (2005). Student engagement and classroom variables in improving mathematics achievement. *Asia Pacific Education Review*, 6(1), 87-97.

Pascarella, E. (1985). College environmental influences on learning and cognitive development: A critical review and synthesis. In J. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 1, pp. 1–61). New York: Agathon.

Pascarella, E.T. & Terenzini, P.T. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco: Jossey-Bass.

Pascarella, E., & Terenzini, P. (2005). *How College Affects Students: A Third Decade of Research*. Jossey-Bass, San Francisco.

Patrick, B. C., Skinner, E. A., & Connell, J. P. (1993). What motivates children's behavior and emotion? Joint effects of perceived control and autonomy in the academic domain. *Journal of Personality and Social Psychology*, 65, 781-791.

Patrick, H., Ryan, A., & Kaplan, A. (2007). Early adolescents' perceptions of the classroom social environments, motivational beliefs, and engagement. *Journal of Educational Psychology*, 99(1), 83-98.

Pike, G. (1999). The effects of residential learning communities and traditional residential living arrangements on educational gains during the first year of college. *Journal of College Student Development*, 38, 609-621.

Pike, G. R., & Kuh, G. D. (2005). First and second-generation college students: A comparison of their engagement and intellectual development. *Journal of Higher Education*, 76, 276-300.

Pike, G.R., Kuh, G.D., & Gonyea, R.M. (2003). The relationship between institutional mission and student's involvement and educational outcomes. *Research in Higher Education*, 44(2), 241-261.

Ryan, R. M., Stiller, J. D., & Lynch, J. H. (1994). Representations and relationships to teachers, parents, and friends as predictors of academic motivation and self-esteem. *Journal of Early Adolescence*, 14, 226-249.

Sherhoff, D. J. & Csikszentmihalyi, M. (2009). Flow in schools: Cultivating engaged learners and optimal learning environments. R. Gilman, E. S. Huebner, & M. Furlong (Ed.), *Handbook of Positive Psychology in Schools* içinde (s.131-145). New York: Routledge.

Sherhoff, D.J., Csikszentmihalyi, M., Schneider, B. & Sherhoff, E.S. (2003). Student engagement in high school classrooms from the perspective of flow theory. *School Psychology Quarterly*, 18(2), 158-176.

Skinner, E. A. & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effect of teacher behavior and student engagement across the school year. *Journal of Educational Psychology*, 85, 571-581.

Skinner, E. A., Furrer, C., Marchand, G. & Kindermann, T. (2008). Engagement and disaffection in the classroom: Part of a larger motivational dynamic? *Journal of Educational Psychology*, 100(4), 765-781.

Stovall, I. (2003). Engagement and Online Learning. UIS Community of Practice for E-Learning. <http://otel.uis.edu/copel/EngagementandOnlineLearning.ppt>

Tabachnick, G. G. & Fidell, L. S. (2007). *Experimental designs using ANOVA*. Belmont, CA: Duxbury.

Terenzini, P. T., Pascarella, E. T., & Blimling, G. S. (1996). Students' out-of-class experiences and their influence on learning and cognitive development: A literature review. *Journal of College Student Development*, 37, 149-162.

Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago, IL: The University of Chicago Press.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student retention*. Chicago, IL: The University of Chicago Press.

Voelkl, K. E. (1996). Measuring students' identification with school. *Educational and Psychological Measurement*, 56(5), 760-770.

Wang, M. & Eccles, J.S. (2012). Adolescent Behavioral, Emotional, and Cognitive Engagement Trajectories in School and Their Differential Relations to Educational Success. *Journal of Research on Adolescence*, 22(1), 31-39.

Willms, J. D. (2003). *Student engagement at school. A sense of belonging and participation*. Paris: Organisation for Economic Co-operation and Development.

Willms, J. D., Friesen, S. and Milton, P. (2009). *What did you do in school today? Transforming classrooms through social, academic & intellectual engagement*. (First National Report) Toronto: Canadian Education Association.