An Analysis of High School Students' Classroom Engagement in Relation to Various Variables

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Abstract

This research aims to probe the ways of which classroom engagement levels of high school students are affected by some variables. It is designed as a descriptive study (Relational Screening Model). The sample of the research was constituted of 705 students attending 9th, 10th and 11th grades in 7 state high schools located at Ankara. Data were conducted through Classroom Engagement Inventory developed by Wang, Bergin and Bergin (2014) and adapted into Turkish by Sever (2014), as well as Attitudes Towards School Scale developed by Alıcı (2013). Data obtained from the study were analyzed through Kruskal Wallis Test, Mann Whitney U Test, Spearmen Rank Correlation Coefficient, Logistic Regression and Cluster Analysis. Research found out that classroom engagement of girls are higher than boys; there is a significant correlation between school attitudes and classroom engagement at different levels and towards different directions; students tend to engage with Turkish language and literature class while they show lesser tendency towards engaging with math classes; when girls perceive themselves as successful and see school as an important support for their personal development, their classroom engagement level tend to go higher.

Introduction

It is one of the important discussions what the attitude is and with what it needs to be related. In accordance with this, there exists many definitions of attitude in the literature. Generally, while describing the attitude, there is a tendency towards relating it with intellectual paterns of the mind. İndividuals, thus, tend to act and organize their relationships in line with mental patterns they developed (Tolan, İsen & Batmaz, 1985, p. 258). The commonality accross these definitions is taking attitude as a negative or positive pre-thought (Tolan et all, 1985; Aslan, 2003). Atitudes regarding many things in our lives interact each other. They establish structures which may turn in to habits (Ünal, 1981).

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What attitudes mean for schooling and education is the agenda for educational research for quite some time. This is because; researches show that attitudes towards school seriously affect both educational outcomes and school experiences. Attitudes towards school could be influenced by person's other attitudes as well as other people's atittudes. For example, Pişkin and Burcu (2005) reported that attitudes of students towards school are influenced by the attitudes of their friends and teachers. Besides, they found that students with higher self-efficacy and the girls tend to have more positive attitudes towards school. The study conducted by Erdinç (2006) asserts that gender, using foreign language, and total quality management influences attitudes towards school positively among teachers. Avcı (2012) mentioned that classroom structure also influences attitudes towards school. According to Uyan's (2012) study, 6th grade students who are taking special music education and students who do not found that there is a significant difference between them favoring students taking the music education. Attitudes towards school were investigated in accordance with motivation, self-confidence and satisfaction level by Berberoğlu and Balcı (1994). They found that in higher grades, satisfaction with the school tend to be lower while in contrast, it tends to be higher among girls who are coming from lower socio-economic classes. In a study conducted by Sözbilir, Akıllı and Ozan (2010), students' attitudes towards school were investigated in relation to various variables. They found that girls' attitudes towards school are more positive than boys; primary school students have more positive attitudes than secondary school students; bussed students' have more positive attitudes than the other students.

Similarly, Adıgüzel and Karadaş (2013) found that girls have significantly more positive attitudes towards school than boys. Additionally, students with low absenteeism rates tend to have more positive attitudes towards school in comparison to students with high absenteeism rates. Pişkin (2005) speaks on the same line and reports that girls have more positive attitudes than boys, as well as low absenteeism results in positive attitudes. Pişkin's research also confirms the findings of others that attitudes towards school are influenced to a great extent by their peers and teachers.

Class engagement refers to active involvement of students to the learning processes (Christenson, Reschly & Wylie, 2012). Studies concerning classroom engagement carry on the discussion over three major axes. Those are affective engagement, cognitive engagement and behavioral engagement. (Wang, Bergin and Bergin, 2014). Sometimes, the fourth dimensions could be added to these major three, that is, agency (Reeve, 2013; Fredricks, Blumenfeld & Paris, 2004). In the classroom, emotional or affective engagement corresponds to the positive feelings of students such as interest, excitement and amusement. Cognitive engagement refers to the accompanying processes such as meaningful-processing, strategy use, concentration and metacognition. Behavioral engagement refers to the observable behaviors such as asking questions, being active in team-works and completing tasks on time (Skinner, Kindermann & Furrer, 2009).

The notion classroom engagement has become the subject for many studies. Gürer (2013) points out the fact that there is a significant correlation between classroom engagement and student success. Besides, materials used in education and their design qualities have also an effect on classroom engagement. For Ünal (2008) asserts that teachers could improve classroom engagement by means of choosing right techniques of teaching. On the similar token, Günel (2014) argues that formative evaluation that would be used in the class may have positive impacts on students' engagement with class. A different approach like using open ended questions when evaluating students, according to Özcan (2010), has the potential of increasing classroom engagement. Kaya's (1995) research concerning second language learners found that there is a strong relationship between motivation, concern, self-confidence, being introverr/extravert and classroom engagement. Menteş (2011) asserts that confidence towards teaches influences classroom engagement. Other studies conducted with similar focus addressed that classroom environment and students' characteristics also have potential effects on classroom engagement.

Purpose

The purpose of this study is to investigate the levels of class participation of high school students in Ankara in terms of various variables. To reach that goal, the following questions will be answered:

1. Is there a significant difference in the level of class engagement in terms gender?
2. Is there a significant difference in the level of class engagement in terms of self-reported academic performance?
3. Is there a significant relationship between the school attitude and the level of class engagement?
4. Is there a significant difference in the level of class engagement in terms of course type?
5. Do the variables (gender, self-reported academic performance and school attitude) explain the class engagement?

Method

Research Model

This study was conducted in the relational survey model. According to Karasar (2008), correlational survey model is aimed at finding out the possible variatiosn between two or more variables and the range of it.

Study Group

Universe of this study is the students attending state high-schools in 2013-2014 spring semester in Ankara. Simple random sampling method was adopted to select participants. Some schools did not allow for the application, thus application was administered only in the schools which gave permission. Therefore, the study group was selected by using convenience sampling, consisted of 705 students (9 - 11th graders) attending seven high schools in Ankara in the spring term of 2013-2014 academic year. Fraenkel and Wallen (2009) stated that "when the sample could not be selected randomly or systematically, it would be right to prefer attainable and ready groups of people for the sampling".

Data Collection Instrument

"Classroom Engagement Inventory" and "School Attitude Scale" were used to collect data. "Class Engagement Inventory" was developed by Wang, Bergin and Bergin (2014) and adapted to Turkish by Sever (2014). In the original form, the inventory consisted of 24 items, but after the elimination of one item in the adaptation process, there remained 23. The inventory consisted of five sub-factors; "Cognitive Engagement", "Affective Engagement", "Behavioural Engagement - Compliance, "Behavioral Engagement- Effortful Classroom Participation", and "Disengagement". According to validity and reliability test results, the Cronbach Alpha coefficients are as follows; "Affective Engagement" .87, "Behavioral Engagement-Compliance" .82, "Behavioural Engagement- Effortful Classroom Engagement" .74, "Cognitive Engagement" .89, and "Disengagement". 69. These values show that the subscales of the inventory are consistent with each other. Inventory's model fit values are NNFI=0.97, CFI=0.97 ve NFI=0.95 ve IFI= 0.97.

School Attitude Scale, developed by Alıcı (2013) is a fivefold likert type scale and consists of 20 items. It attempts to identify the school attitudes of high school students. In the scale, there is one factor and three components. The components are "School as a barrier for personal development", "School as a supporive for personal development" and "School as an entity to be longed for". The Cronbach Alpha reliability coefficient for the whole scale is .90, for subscales .87, .81 and .78, respectively. These values show that the scale is consistent both for the whole scale and sub-dimensions. Scale's fit indexes are RMSEA= 0,056; CFI= 0,98; GFI= 0,92; AGFI= 0,90; RMR= 0,088.

Data Analysis

Before data analysis, variables (classroom engagement-attitudes towards school) that will be evaluated to determine whether there is a significant difference, were evaluated through Kolmogorov–Smirnov Normal Distribution" and "Shaphiro Wilk Normal Distribution" tests. The test result showed that in both scales there is no normal distribution (p<.05). In an attempt to answer the research question "Is there a significant difference in the level of class engagement in terms gender?" Mann Whitney U Test; for the question "Is there a significant difference in the level of class engagement in terms of self-reported academic performance?" Kruskal Wallis Test; for the question "Is there a significant relationship between the school attitude and the level of class engagement?" Spearman Brown Rank Correlation Coefficient; for the question "Is there a significant difference in the level of class engagement in terms of course type?" Kruskal Wallis Test; for the question "Do the variables (gender, self-reported academic performance and school attitude) explain the class engagement?" Logistic Regression were used (Büyüköztürk, 2003; Green & Salkind, 2008; Kalaycı, 2005, Özdamar, 2013).

Results

Following results were obtained in this study investigating classroom engagement of high school students in relation to various variables.

Classroom Engagement and Gender

In order to reveal whether there is a significant difference in students' class engagement by gender, the obtained data were analyzed using Mann Whitney U Test. The findings are presented in Table 1.

Table 1. Engagement Level in regards to gender (Mann Whitney U Test)

Variable		N	Ranking Mean	Ranking total	U Value	p
Affective Engagement	Girls	351	367.03	128827.00	56852.000	0.058
	Boys	350	338.05	119333.00		
Behavioral Engagement/ Compliance	Girls	351	392.17	137652.00	**48027.000**	**0.000**
	Boys	350	313.05	110508.00		
Behavioral Engagement/Effortful Classroom Engagement	Girls	351	363.83	127706.00	57973.000	0.138
	Boys	350	341.23	120454.00		
Cognitive Engagement	Girls	351	372.65	130799.00	**54880.000**	**0.009**
	Boys	350	332.47	117361.00		
Disengagement	Girls	351	390.99	137237.00	**48442.000**	**0.000**
	Boys	350	314.23	110923.00		
Engagement total score	Girls	351	380.86	133683.00	**51996.000**	**0.000**
	Boys	350	324.30	114477.00		

As can be seen in Table 1 by gender of students;

- There is no significant difference in affective class engagement (U = 56852,000, p> .05),

- There is a significant difference (U = 48027,000, p< .05), in behavioural/compliance in class engagement; the difference is in favor of girls, (Girls=392.17; Boys=313.05) which shows that class engagement level of girls ($\overline{X}$ =15.30) was higher than boys ($\overline{X}$ =13.91).

- There is no significant difference in behavioral/effortful classroom participation level. (U = 57973,000, p> .05)

- There is a significant difference (U = 54880,000, p< .05) in cognitive class engagement, the difference is in favor of girls, which shows that class engagement level of girls ($\overline{X}$ =22.54) was higher than boys ($\overline{X}$ =21.20)

- There is a significant difference (U = 48442,000, p< .05), in disengagement with the class, the difference is in favor of boys, which shows that class engagement level of girls ($\overline{X}$ =11.38) was higher than boys ($\overline{X}$ =10.23) (because of reverse coding, low score means disengagement)

- There is a significant difference (U = 51996,000, p< .05) in class engagement total score; the difference is in favor of girls which shows that class engagement level of girls ($\overline{X}$ =75.25) was higher than boys ($\overline{X}$ =70.08).

Self-Reported Academic Performance and Class Engagement

In this study, students were asked to rate their academic performance. The Kruskal Wallis Test was utilized in order to reveal whether there is a significant difference in students' class engagement by their reported academic performance. The analysis findings are presented in Table 2.

Table 2. Self-reported success and engagement with classroom.

Variable		N	Ranking mean	Sd	χ^2	P	Significant difference
Affective Engagement	Successful	203	502.53	2	228.880	**0.000**	**1–2, 1–3, 2–3**
	Unsuccessful	150	172.25				
	Middle Level	352	343.79				
Behavioral Engagement/ Compliance	Successful	203	478.87	2	139.371	**0.000**	**1–2, 1–3, 2–3**
	Unsuccessful	150	226.66				
	Middle Level	352	334.25				
Behavioral Engagement/Effortful Classroom Engagement	Successful	203	454.75	2	102.212	**0.000**	**1–2, 1–3, 2–3**
	Unsuccessful	150	235.53				
	Middle Level	352	344.38				
Cognitive Engagement	Successful	203	456.81	2	110.038	**0.000**	**1–2, 1–3, 2–3**
	Unsuccessful	150	227.82				
	Middle Level	352	346.48				
Disengagement	Successful	203	435.36	2	60.113	**0.000**	**1–2, 1–3, 2–3**
	Unsuccessful	150	269.84				
	Middle Level	352	340.94				
Engagement total score	Successful	203	498.41	2	206.574	**0.000**	**1–2, 1–3, 2–3**
	Unsuccessful	150	185.30				
	Middle Level	352	340.60				

As can be seen in Table 4 by self-reported academic performance;

It was determined that there is a significant difference (χ^2 = 228,880, p< .05) in affective class engagement level. In order to determine in which group or groups the difference occurs, nonparametric multiple comparison test (bonferroni post hoc) was applied. The result of the comparison indicates that there is a significant difference in affective class engagement between the high level group, that rated themselves high and the mid-level group that rated themselves of middle; there is also a significant difference between the low-level group, that rated themselves low and the mid-level group that rated themselves of middle. The group that is likely to participate more than the others is the high-level group. Then comes the mid-level group and the low-level group, respectively.

It was determined that there is a significant difference (χ^2 = 139,371, p< .05) in behavioural/compliance engagement in class level. In order to determine in which group or groups the difference occurs, nonparametric multiple comparison test (post hoc) was applied. The result of the comparison indicates that there is a significant difference in behavioural/compliance engagement between the high level group, that rated themselves high and the mid-level group that rated themselves of middle; there is also a significant difference between the low-level group, that rated themselves low and mid-level group, that rated themselves of middle. The group that is likely to participate more than the others is the high-level group. Then comes the mid-level group and the low-level group, respectively.

It was determined that there is a significant difference (χ^2 = 102,212, p< .05) in behavioural/ class engagement level. In order to determine in which group or groups the difference occurs, nonparametric multiple comparison test (post hoc) was applied. The result of the comparison indicates that there is a significant difference in behavioural/class engagement between the high level group, that rated themselves high and the mid-level group, that rated themselves of middle; there is also a significant difference between the low-level group, that rated themselves low and the mid-level group, that rated themselves of middle. The group that is likely to participate more than the others is the high-level group. Then comes the mid-level group and the low-level group, respectively.

It was determined that there is a significant difference (χ^2 = 110,038, p< .05) in cognitive class engagement level. In order to determine in which group or groups the difference occurs, nonparametric multiple comparison test (post hoc) was applied. The result of the comparison indicates that there is a significant difference in cognitive class engagement between the high level group, that rated themselves high and mid-level group that rated themselves of middle; there is also a significant difference between the low-level group, that rated themselves low and the mid-level group, that rated themselves of middle. The group that is likely to participate more than the others is the high-level group. Then comes the mid-level group and the low-level group, respectively.

It was determined that there is a significant difference (χ^2 = 60,113, p< .05) in not participating the class. In order to determine in which group or groups the difference occurs, nonparametric multiple comparison test (post hoc) was applied. The result of the comparison indicates that there is a significant difference in not participating the class between the high level group, that rated themselves high and the mid-level group that rated themselves of middle; there is also a significant difference between the low-level group, that rated themselves low and the mid-level group, that rated themselves of middle. The group that is likely not to participate more than the others is the low-level group. Then comes the mid-level group and the low-level group, respectively.

It was determined that there is a significant difference (χ^2 = 206,574, p< .05) in total score class engagement. In order to determine in which group or groups the difference occurs, nonparametric multiple comparison test (post hoc) was applied. The result of the comparison indicates that there is a significant difference in total score class engagement between the high level group, that rated themselves high and the mid-level group that rated themselves of middle; there is also a significant difference between the low-level group, that rated themselves low and mid-level group, that rated themselves of middle. The group that is likely to participate more than the others is the high-level group. Then comes the mid-level group and low-level group, respectively.

Class Type and Class Engagement

In an attempt to determine whether there is a significant difference between scores obtained from the subscales of the inventory and the class types, Kruskal-Wallis test was conducted. Non-parametric multiple comparison (Post-hoc) test was used to understand which classes generates significant differences.

Table 3. Class Type and Engagement

Variable		N	Ranking Mean	Sd	χ^2	P	Significant Difference
Affective Engagement	Turkish Language and Literature	229	386,46	2	9,378	,009	1-2 1-3
	Math	272	340,51				
	Chemistry	204	332,09				
Behavioral Engagement/ Compliance	Turkish Language and Literature	229	382,13	2	8,319	,016	1-2
	Math	272	329,72				
	Chemistry	204	351,33				
Behavioral Engagement/Effortful Classroom Engagement	Turkish Language and Literature	229	383,61	2	9,083	,011	1-2
	Math	272	328,94				
	Chemistry	204	350,72				
Cognitive Engagement	Turkish Language and Literature	229	387,00	2	9,489	,009	1-2 1-3
	Math	272	337,54				
	Chemistry	204	335,44				
Disengagement	Turkish Language and Literature	229	324,20	2	8,957	011	1-2 2-3
	Math	272	371,22				
	Chemistry	204	370,95				
Engagement total score	Turkish Language and Literature	229	382,13	2	12,016	,002	1-2 1-3
	Math	272	329,72				
	Chemistry	204	351,33				

According to Table 3, there is a significant difference among students in regards to affective engagement in relation to class types ($X^2(2)$ = 9,378; p< .05). It is seen that significant differences are between Turkish Language and Literature and Math; between Turkish Language and Literature and Chemistry. These results show that affective engagement is higher for the Turkish Language and Literature class in comparison to Math and Chemistry.

There is a significant difference among students in regards to behavioral engagement-compliance in relation to class types ($X^2(2)$ = 8,319; p< .05). It is seen that significant differences are between Turkish Language and Literature and Math classes. Students tend to engage more in Turkish Language and Literature in comparison to Math class.

There is a significant difference among students in regards to behavioral engagement-effortful classroom engagement in relation to class types ($X^2(2)$ =9,083; p< .05).). It is seen that significant differences are between Turkish Language and Literature and Math classes. Students tend to engage more in Turkish Language and Literature in comparison to Math class.

There is a significant difference among students in regards to cognitive engagement in relation to class types ($X^2(2)$ =9,489; p< .05). It is seen that significant differences are between Turkish Language and Literature and Math; between Turkish Language and Literature and Chemistry. These results show that cognitive engagement is higher for the Turkish Language and Literature class in comparison to Math and Chemistry.

There is a significant difference among students in regards to disengagement in relation to class types. ($X^2(2)$ =8,957; p< .05). It is seen that significant differences are between Turkish Language and

Literature and Math; between Math and Chemistry. These results show that disengagement is higher for the Math class in comparison to Turkish Language and Literature and Chemistry.

According to analysis results, there is a significant difference between total scores among students obtained in terms of class types ($X^2(2) =12,016$; $p< .05$). It is seen that significant differences are between Turkish Language and Literature and Math; between Turkish Language and Literature and Chemistry. These results show that engagement is higher for the Turkish Language and Literature class in comparison to Math and Chemistry.

Attitude- Class Engagement Relationship

The Spearman Brown formula was utilized to investigate whether there is a significant correlation between students' attitude and class engagement. The results are presented in Table 4.

Using "Spearman Brown" formula, answer has been sought and results were summarized at table 4.

Table 4. Corelation between classroom engagement and attitudes towards school.

Variables	N	r	P
Affective Engagement*School as a barrier for personal development	705	-0.266	0.000
Affective Engagement*School as a supportive for personal development	705	0.286	0.000
Affective Engagement*School as an entity to be longed for	705	0.259	0.000
Behavioral Engagement/Compliance*School as a barrier for personal development	705	-0.341	0.000
Behavioral Engagement/Compliance*School as a supportive for personal development	705	0.420	0.000
Behavioral Engagement/Compliance*School as an entity to be longed for	705	0.209	0.000
Behavioral Engagement/Effortful Classroom Participation*School as a barrier for personal development	705	-0.213	0.000
Behavioral Engagement/Effortful Classroom Participation*School as a supportive for personal development	705	0.358	0.000
Behavioral Engagement/Effortful Classroom Participation*School as an entity to be longed for	705	0.224	0.000
Cognitive Engagement*School as a barrier for personal development	705	-0.311	0.000
Cognitive Engagement*School as a supportive for personal development	705	0.413	0.000
Cognitive Engagement*School as an entity to be longed for	705	0.256	0.000
Disengagement*School as a barrier for personal development	705	-0.449	0.000
Disengagement*School as a supportive for personal development	705	0.303	0.000
Disengagement*School as an entity to be longed for	705	0.198	0.000
Classroom Engagement Total Score*Attitudes towards School Total	705	0.093	0.014

According to Table 4;

- It is seen that affective engagement and seeing school as a barrier for personal development correlate weakly, negatively, and significantly (r=-0.266, p< .01). There is a statistically significant, weak, and positive relationship between affective engagement and seeing school as a supportive for personal development (r=0.286, p< .01). Affective engagement and seeing school as an entity to be longed for correlate weakly, positively, and significantly (r=0.259, p< .01).

- Behavioural engagement and seeing school as a barrier for personal development correlate significantly, negatively, and moderately (r=-0.341, p< .01). Behavioural engagement and seeing school as an entity to be longed for correlate significantly, positively, but weakly (r=0.209, p<.01).

- Behavioural engagement and seeing school as a barrier for personal development correlate weakly, negatively, and significantly (r=-0.213, p< .01). Behavioural engagement and seeing

school as a supportive for personal development correlate moderately, positively, and significantly (r=0.358, p<.01). Behavioural engagement with courses and seeing school as an entity to be longed for, correlate positively, and significantly (r=0.224, p< .01).

- Cognitive engagement and seeing school as a barrier for personal development correlate negatively, moderately, and significantly (r=-0.311, p< .01). Cognitive engagement and seeing school as a supportive for personal development correlate moderately, positively, and significantly (r=0.413, p< .01). Cognitive engagement and seeing school as an entity to be longed for correlate weakly, positively, and significantly (r=0.256, p< .01).

- Disengagement and seeing school as a barrier for personal development correlate negatively, moderately, and significantly (r=-0.449, p< .01). Disengagement and seeing school as a supportive for personal development correlate significantly, positively, and moderately (r=0.303, p< .01). Disengagement and seeing school as an entity to be longed for correlate positively, significantly, and yet weakly (r=0.198, p< .01).

- Class engagement correlates with attitudes toward school weakly, positively, and significantly (r=0.093, p< .01).

Predictive power of gender, reported success, and attitudes on attendance to courses

It was thought that "Multiple Linear Regression Analysis" could be conducted in order to determine whether students' gender, reported academic performance and school attitude explain their class engagement or disengagement. In order to conduct multiple linear regression analysis, it is necessary that classroom engagement variable show normal distribution. Normalcy test showed that classroom engagement data are not distributed normally. Therefore, logistic regression analysis was conducted instead of multiple linear regression analysis.

It is necessary to categorize total attendance score before analysis because dependent variable in logistic regression is categorical. Thus, cluster analysis was carried out on total attendance score. Cluster analysis is a method of choice when there is no theoretical background about naturally occurred groups. Results indicated that participants with high engagement and low engagement scored between 72-115 and 23-71, respectively. Low engagement group and high engagement group that were formed by cluster analysis were tested using Mann Whitney U test in order to make sure if clusters are correctly defined. Whitney U test indicated that there is a statistically significant difference between two groups (U = 0.000, p<.05).

After verifying the correctness of clustering, logistic regressing analysis was run. Gender was coded as male and female; success was coded as successful and unsuccessful. Attitude was measured by using interval scale and the scale was designed to have three dimensions. Female and successful groups were reference category in logistic regression analysis. Score of attitudes towards school was used as a covariate in binary logistic regression. Analysis run with enter method was summarized at table 5.

Table 5. Blog "0" Prediction

Observation		Prediction		
		High Engagement	Low Engagement	Percent
Engagement Group	High Engagement	375	0	% 100
	Low Engagement	330	0	% 0
	Total percent			53.2

Table 5 shows that blog "0" was analyzed first. It specifically tells us that attendance of participants to courses was classified with 53 % accuracy if none of explanatory variables is taken into consideration.

Tablo 6. Blog "1" Prediction

Observation		Prediction		
		High Engagement	Low Engagement	Percent
Engagement Group	High Engagement	289	86	% 77.1
	Low Engagement	96	234	% 70.9
	Total Percent			% 74.2

Based on table 6, it can be said that when explanatory variables were entered into equation attendance was predicted with 74% accuracy.

Table 7. Omnibus test and test summary in relation to correlations in the model

		X^2	sd	P	Cox ve Snell R^2	Nagelkerke R^2
First Step	Step	251.838	6	0.000		
	Blog	251.838	6	0.000	0.300	0.401
	Model	251.838	6	0.000		

Significant Omnibus Chi-Square test indicated that independent variables improved the predictive power of the logistic regression model (X2=251.838, p< .05). In one sense, we can confidentially say that explanatory variables entered to the model make a significant difference compared by constant only model. Based on Cox and Snell R2, Nagelkerke R2 results, it can be inferred that 30% of the variance in the dependent variable ca be explained by independent variables.

Tablo 8. Hosmer and lemeshow test result

	X^2	sd	p
Blog 1	4.019	8	0.855

According to Hosmer and Lemeshow test, model's fit is not significant (p> .05). This means that model has acceptable fit.

Table 9. Relations in the Model

	β	Standart error	Wald	sd	p	Exp (β)
Constant	0.084	0.573	0.022	1	0.883	1.088
Gender (Boy)	0.227	0.184	1.525	1	0.217	1.254
Success (Unsuccessful)	3.007	0.303	98.721	1	0.000	20.220
Success (Middle Level)	1.462	0.230	40.248	1	0.000	4.314
School as a barrier for personal development	0.043	0.011	14.509	1	0.000	1.044
School as a supportive for personal development	-0.088	0.016	29.430	1	0.000	0.915
School as an entity to be longed for	-0.027	0.022	1.448	1	0.229	0.973

In the regression model, for the predicted variable, the reference group is successful group in classroom engagement; in gender, girls are reference group; in success, successful students are reference group. Interpretation of the table, therefore, made in accordance with these reference groups. Therefore;

- Constant is not significant in the model (p> .05). Thus, except for the predictive variable in the table, it cannot be determined whether any other variable could explain classroom engagement.

- In the model, being a boy variable is not significant (p> .05). In this situation, it can be said that girls have higher classroom engagement.

- According to model, it is a significant predictor that student see himself/herself unsuccessful. Therefore, students who see themselves unsuccessful would 20 times more likely disengage from classes than the other students.

- Seeing oneself as a middle level successful is a significant predictor according to model (p< .05). The probability of disengagement from class is 4.31 times higher for the students who see themselves as unsuccessful.

- Attitude which sees school as a barrier for personal development is a significant predictor (p< .05). This means that as students see the school as a barrier for their personal development, their disengagement probability increases 1 time more.

- Attitude which sees school as a supportive for personal development is a significant predictor (p< .05). This means that as the students see the schools as a supportive for personal development, their disengagement probability decreases 1.09 times.

As a result, if a student is a girl and sees herself successful, perceives school as a supportive for personal development, her classroom engagement will more likely increase.

Discussion, Conclusion and Suggestions

This research found out that there is a significant difference between girls and boys in terms of behavioral engagement-compliance and cognitive engagement favoring girls, while there is a significant difference about disengagement between boys and girls, this time against boys. On the other hand, there is no significant difference found between girls and boys in terms of affective engagement and behavioral engagement-effortful classroom participation. According to these results, one can say that classroom engagement of girls tend to be higher than boys. Literature also confirms that there is a difference between genders in terms of classroom engagement (Archer, Halsall & Hollingworth, 2007; Furrer & Skinner, 2003; Peterson & Fennema, 1985).

According to self reported classroom success, there is a significant difference between students who perceive themselves successful in the class and who don't in regards to affective engagement, behavioral engagement-compliance, behavioral engagement-effortful classroom participation and cognitive engagement. Students reported themselves successful have higher engagement levels. When it comes to disengagement, students who reported themselves as unsuccessful in the class also tend to have higher scores at this subscale. Therefore, it could be said that students who perceive themselves successful engage with classroom while the others who do not see themselves successful prefer disengagement. In other words, there could be a safe link between seeing oneself as successful and engaging classroom. Many studies also found similar relationship between classroom engagement and academic success Adıyaman, 2008; Bush, Ladd & Herald, 2006; Carini, Kuh & Klein, 2006; Finn, 1993; Nystrand & Gamoran, 1991; Uysal, 1999)

There is a negative and low level significant correlation between affective engagement and perceiving school as a barrier for personal development. Same holds true for affective engagement and seeing schools as an entity to be longed for. Similarly, there is a significant, positive and low level correlation between affective engagement and seeing school as supportive for personal development.

On the other hand, in terms of behavioral engagement-compliance, there is a middle level, negative and significant correlation with seeing school as a barrier for personal development; middle level, positive and significant correlation with seeing school as supportive for personal development; and low level, positive and significant correlation with seeing school as an entity to be longed for.

When it comes to behavioral engagement-effortful classroom participation, there is a middle level, negative and significant correlation with seeing school as a barrier for personal development; middle level, positive and significant correlation with seeing school as supportive for persona development; low level, positive and significant correlation with seeing school as an entity to be longed for.

The other layer of the classroom engagement inventory is cognitive engagement. In terms of cognitive engagement, there is a middle level, negative and significant correlation with seeing school as a barrier for personal development; middle level, positive and significant correlation with seeing school as supportive for personal development; low level, positive and significant correlation with seeing school as an entity to be longed for.

On the subscale of disengagement, there is a middle level, negative and significant correlation with seeing school as a barrier for personal development; middle level, positive and significant correlation with seeing school as supportive for personal development; and low level, positive and significant correlation with seeing school as an entity to be longed for.

In general, when we look at the total scores, it would not be a mistake to say that there is a low level, positive and significant correlation between attitudes towards school and classroom engagement. Similar studies conducted in the field assert that there is a relationship between classroom engagement and affective attitudes (Eryılmaz, 2014; Furrer, Skinner, Gwen & Kindermann, 2006; Patrick, Ryan & Kaplan, 2007) and affective attitudes towards school (Finn, 1993; Fredericks, Blumenfeld & Paris, 2004; Jimerson, Campos & Greif, 2003; Libby, 2004; Yazzie-Mintz, 2007).

On the different plane, the study found out that on each dimension of engagement, cognitive, affective, behavioral-compliance and behavioral-effortful participation, students show more tendency towards engaging with Turkish language and literature class. On the contrary, students, again in each dimension of engagement, tend to engage with math classes to a lesser degree. And this difference between classes is statistically significant.

Girls in general seem to engage with classes higher than boys One of the most striking findings of this study is that students who perceive themselves as unsuccessful tend to disengage with classes 20 time more than students who see themselves successful in the same class. Similarly, students who themselves middle level successful tend to engage 4.31 times more with classes in comparison to students who think that they are unsuccessful.   If a student sees school as a barrier for personal development, he or she tends to disengage with classes one time more than students who do not see school as a barrier. In contrast, if a student sees the school as a supportive for personal development, his or her disengagement level tends to go down 1.09 times lesser than the other. As a result, if a student is a girl and sees herself successful, perceives school as a supportive for personal development, her classroom engagement will more likely increase.

On the other side of the isle, boys' engagement with class is lower than the girls. Therefore, future research could be conducted about the reasons lying behind the disengagement of boys. By hinging on these studies, some measurement could be taken which motivate students towards higher engagement. As it could be expected, students' engagement with math classes is lower. In order to understand why this is the case, particularly qualitative research studies could be designed in order to obtain in dept understanding. Finally, it was found that students who see themselves as successful also do not engage with class. The reasons behind the low achievement could be explored with an aim to increase classroom engagement.

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