

The Mediating Role of School Engagement in the Relationship between Attitude toward Learning and Academic Achievement

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ABSTRACT

The aim of the present study was to investigate the mediating role of school engagement in the relationship between attitude toward learning and academic achievement. The study was carried out on 438 high school students. The Scale of Attitudes Toward Learning and the School Engagement Scale were applied to the participants, and students' academic achievement scores were obtained from the school administration. In the study, the Pearson product-moment correlation coefficient and the ordinary least squares regression-based approach and Bootstrap method were used to determine the effects of the mediation model. According to the research findings, a relationship between attitude toward learning, academic achievement, and school engagement was found. It was determined that school engagement plays a partial mediating role in the relationship between attitude toward learning and academic achievement. The results revealed the importance of school engagement in improving students' attitude toward learning and academic achievement, and it was recommended to discuss and interpret the results.

Key words: Academic Achievement, School Engagement, Attitude Toward Learning

INTRODUCTION

Learning is a continuous change in behavior (Bacanlı, 2011; Mutlu, 2004; Terry, 2011). This change should exhibit permanent characteristics that do not appear temporarily with conditions such as fatigue, maturation, drug use, etc. (Bower & Hilgard, 1981; Hergenhahn & Olson, 2009; Senemoğlu, 2004). According to Washburne (2006), learning is the ability of an individual to solve problems, and it is accepted that the individual has learned something when he/she succeeds in what he/she has learned. In this context, learning is, in general, a permanent change in behavior that occurs independently of physical development such as maturation and growth and that is not formed temporarily.

When the learning theories are examined in general, it is observed that behavioral theories are based on observable behaviors in learning, while cognitive theories take mental processes, reasoning and thinking into consideration (Hill, 1977, cited by Senemoğlu, 2004; Schunk, 2001). Cognitive theorists explain learning as a style of information processing and define it as associating new information with information learned previously that does not necessarily require being observed and occurs in mind (Ormrod, 1990).

A positive attitude toward learning causes students to have positive feelings toward school, lessons, friends, and teachers. Pierce et al. (2007) revealed in their study that in case of positive attitudes toward learning students are more willing to learn and study and have a high sense of school en-

gagement. In the study carried out by Karagiannopoulou and Christodoulides (2005), it was determined that eagerness to learn, the learning environment and attitude toward learning rather than scores obtained from the university entrance examination had an effect on effective in predicting academic achievement in the university. The effect of attitude toward learning on achievement cannot be ignored. It was observed that students having a positive attitude toward English were more successful in English lessons (Anbarlı-Kırkız, 2010; Anuradha & Rengaraj, 2017; İnan et al., 2005; Tran & Duong, 2013; Rukh, 2014). Some studies demonstrate that students' achievement is higher in case of positive attitudes toward mobile learning (Elçiçek & Bahçeci, 2017; Korkmaz, 2010; Mcconatha et al., 2008). The above-mentioned research findings show that a positive attitude toward learning plays a role in increasing achievement.

Achievement is regarded as a concept that is important at all stages of human life and that is perceived as a positive situation such as reaching the determined goals, realizing what you want to do, and transforming what you think into action. While Wolman (1973) expresses achievement as progress in achieving the desired goal, the Turkish Language Association (2011) defines it as a positive product of actions exhibited by individuals in the measurement of their abilities. Achievement can also be expressed as the positive development and change of individuals from all aspects. In general, the first concept that comes to mind when it comes to achievement in

education is academic achievement. Academic achievement has been defined differently by different scientists. According to Özgüven (2002), it is the level of benefiting from a certain academic program or course, according to Güleç and Alkış (2003), it is grades that students get in schools, and according to Silah (2003), it is the level of reaching the goals set in the school. While Ahmann and Glock (1971) describe academic achievement as changes apart from the individual's emotions and behaviors, according to Uzman (2001), academic achievement is an expected and desirable condition and is important to the same extent. In the world with rapidly developing technology, there is a need for individuals, who are well-equipped, have self-development skills and interact with their environment. The emotions of individuals are shaped according to their achievement. Successful individuals are happy and achieve personal satisfaction, while those who fail experience disappointment and unhappiness (Keskin & Sezgin, 2009). Students' achievement is generally assessed according to their success in school exams and national exams, and the extent to which they use what they have learned in school in real life is ignored. Therefore, it is important to determine what the indicator of achievement is, and individuals consider themselves successful when they reach predetermined goals.

An academically successful student is a student who fulfills the requirements, receives high grades, and stands out with the desire to study. An academically successful student is always kept at the forefront (Bahçetepe, 2013). According to Berberoğlu and Kalender (2005), individuals who are able to transfer what they have learned into life and respond to the needs of society are successful people. There are many variables that affect the academic achievement of students and may be related to academic achievement. These may originate from the family, school, students' social environment, and their skills and competences, and psychological state. In general, there are positive relationships between students' desire to learn, study tendencies, and academic achievement (Nuthana & Yanagi 2009; Osa-Edohand Alutu 2012; Yang & Bliss, 2014). Students' desire to learn, a sense of curiosity, having a working environment, finding support in their study and achievements have a positive effect on achievement, and when the opposite is valid, school achievement decreases (Uluğ, 2012). Keskin and Sezgin (2009) revealed that there is a positive relationship between academic achievement and intelligence and stated that factors such as talent, personality, family qualities, parents' education level, family income, maternal employment status, and family relations are also related to achievement. Kocaman also stated in his study (2009) that only the effort of the student is not enough to become successful and that at the same time, personal characteristics, friendship relations, school-teacher factor, and the family affect achievement. It is expected that students' desire to learn and their achievement will be related to their school engagement.

School engagement is defined in many different ways. School engagement is defined in various ways such as students' positive emotions toward their school and friends, being sensitive about obeying school rules (Cueto et al., 2010;

Silins and Mulford, 2004), the time spent by the student on his/her homework, preparation for the lesson, participation in classroom educational activities (Cernkovich, Giordano, 1992; Finn, 1989), extra time allocated to school activities, and participation in classroom and school decisions (Maddox and Prinz, 2003). According to Erdoğan (2016), school engagement is students' sense of belonging to the school, adopting the school's goals and values, and as a result of this, adopting their duties and responsibilities related to the school and being more willing to achieve academic success. According to Jimerson et al. (2003), school engagement exhibits three-faceted characteristics, such as cognitive, behavioral, and affective. Accordingly, the affective dimension reflects the student's feelings about the school, teachers, and peers, the cognitive dimension expresses the student's beliefs and perceptions with regard to the school, students and the peer group, while the behavioral dimension includes the student's participation in extracurricular social activities and thus the observable behaviors and performance. When studies on school engagement are reviewed as a whole, it is observed that different variables are discussed. It is observed that students with a high level of school engagement are more academically successful (Bellici, 2015; Finn and Rock, 1997; Fredricks et al., 2004), their tendency to commit a crime is low (Akman, 2013; Balkıs et al., 2005; Cernkovic & Giordano, 1992; Hirschfield & Gasper, 2011), the school engagement of students in single-sex schools is higher compared to schools providing coeducation (Fullarton, 2002), and the school engagement levels of children from families with high socio-economic status are, in general, more favorable (Bellici, 2015; Fullarton, 2002; Osterman, 2000).

Literature reviews and researches indicate that there is a positive relationship between students' levels of school engagement and their desire to learn and that students with high school engagement are more academically successful, it is expected that school engagement plays a mediating role in the relationship between students' attitudes toward learning and academic achievement. Accordingly, the aim of present study was to determine whether school engagement plays a mediating role in the relationship between attitude toward learning and academic achievement. In accordance with this purpose, the hypotheses to be examined in the study are as follows:

1. There is a positive relationship between attitude toward learning and school engagement.
2. There is a positive relationship between attitude toward learning and academic achievement.
3. There is a positive relationship between school engagement and academic achievement scores.
4. School engagement plays a mediating role in the relationship between attitude toward learning and academic achievement.

METHOD

Research Model

The relational model was used in this study since it was aimed to reveal the mediating role of school engagement in the relationship between attitude toward learning and academic

achievement. According to the study by Heppner et al. (2013), the research conducted to reveal relationships between two or more variables is called the relational research type.

Participants

The study was conducted on 438 students studying in a high school in the Küçükçekmece district of Istanbul province. 261 of the participants (60%) were female, and 207 (40%) were male. 92 (21%) of the participants were high school first-grade, 163 (37%) were high school second-grade, 119 (27%) were high school third-grade, and 64 (15%) are high school fourth-grade students. Students were between 15 and 19 years of age. The academic average was 72.6 over 100 points.

Data Collection Tools

The Scale of Attitudes Toward Learning: It is an attitude scale developed by Kara (2010) to measure attitudes toward learning in the study. The scale has 40 items and 4 sub-dimensions in total. The high total score of the scale indicates that the attitude toward learning is positive. The scale is a five-point Likert-type scale, and the Cronbach’s alpha values of the subscales vary between .72 and .78. As a result of factor analysis, the KMO of the scale with four sub-dimensions was found to be .79, Bartlett’s test of Sphericity was found to be 3101.363, and Cronbach’s alpha was found to be .726. The total explanatory variance value of each subscale was above 50%, and this value indicated that the factor loads were acceptable. For this study, the Cronbach’s alpha value of the scale was recalculated, and the obtained reliability value was found to be .80.

The School Engagement Scale: The School Engagement Scale used in the study is a 4-point Likert-type measurement tool developed by Appleton et al. (2006), and it consists of 35 items. Önen (2014) performed the adaptation of the scale to the Turkish culture. It is observed that the fit indices ($SB-\chi^2=2186.9661$, $SD=1036$, $GFI=0.90$, $AGFI=0.89$, $CFI=0.93$ and $RMSEA=0.031$) calculated as a result of the confirmatory factor analysis (CFA) of the scale were acceptable. The Cronbach’s values of the scale were also calculated for high school students, and the obtained value was .86. For this study, the Cronbach’s alpha value of the scale was recalculated, and the obtained reliability value was found to be .83.

Academic Achievement Grades: The students’ academic achievement grades were obtained from the average of the students’ report card grades for the previous year. The academic achievement average is obtained by dividing the sum of the grades obtained by students from all courses by the number of courses. Calculation of high school students’ grades in Turkey is performed according to the 100 system.

Procedure

The necessary permissions were obtained before the study, the students were informed about the aim of the study, and the measurement tools were applied to the volunteer students. 462 students participated in the study, but 24 measurement tools were not evaluated since some questions were

not answered or were responded randomly. The Pearson moment-product correlation coefficient was calculated to determine the relationship between school engagement, attitude toward learning and academic achievement. The skewness value of the Scale of Attitudes Toward Learning was -.55, the kurtosis value was .97, the skewness value of the school engagement scale was -.62, and the kurtosis value was .75, and the skewness value of the academic achievement scores was calculated as -.90, the kurtosis value was .85, and the distribution showed normality. In the study, whether the mediating effects of the tested model were statistically significant was tested by the method developed by Hayes (2012), and the data were examined using the Bootstrap method. The Bootstrap analysis of the study was performed using the “Multiple Mediation Model 4” by means of PROCESS Macro. Whether the mediating role of the mediator variable was statistically significant was examined upon 5000 Bootstrap sample. The variables of gender, income, and age with the possibility of influencing the outcome of the study were assigned as control variables (covariates). The analyses were performed using SPSS 25.0 package program.

RESULTS

In the study, the relationship between attitude toward learning, academic achievement and school engagement, and the descriptive statistics of the scales are presented in Table 1.

As seen in Table 1, the scores of the Scale of Attitudes Toward Learning were calculated as $M=146.40$, $SD=16.78$, the scores of the School Engagement Scale as $M=85.23$, $SD=10.22$, and the academic achievement scores were calculated as $M=72.6$, $SD=8.85$. A significant positive relationship was determined between attitude toward learning and school engagement ($r=.57$, $p<.01$), between attitude toward learning and academic achievement scores ($r=.33$, $p<.01$), and between school engagement and academic achievement scores ($r=.45$, $p<.01$).

Findings on the mediating role of school engagement in the relationship between attitude toward learning and academic achievement scores are presented in Figure 1.

As seen in Figure 1, the total effect of attitude toward learning on academic achievement ($c=.72$, $SH=.04$, $t=4.11$; $p<.001$) is significant (Step 1). Furthermore, the direct effect of attitude toward learning on school engagement, which is a mediator variable, which is significant ($B=.43$, $SH=.02$, $t=14.89$, $p<.001$)

Table 1. Descriptive statistics and pearson moment-product correlation coefficient values of the research variables

Variables	M	SD	1	2	3
Attitude Toward Learning	146.40	16.78	---		
School engagement	85.23	10.22	0.57**	---	
Academic achievement scores	72.6	8.85	0.33**	0.45**	---

N=438, ** $p<.01$

(Step 2). The direct effect of the mediator variable, school engagement, on academic achievement ($B=.38$, $SH=.05$, $t=7.02$, $p<.001$) is significant (Step 3). When attitude toward learning and the mediator variable, school engagement, were included in the equation simultaneously (Step 4), the relationship between attitude toward learning and academic achievement scores decreased in terms of the direct effect, but the significance value remained the same ($c'=.36$, $SH=.05$, $t= 6.98$, $p<.001$). According to this result, it is observed that school engagement plays a partial mediating role in partially mediates the relationship between attitude toward learning and academic achievement. Furthermore, it is observed that the whole model is significant ($F(2-837)= 48.75$, $p<.001$) and it explains 25% of the total variance in academic achievement.

Values of the effects between the variables of the model tested in the study are presented in Table 2.

Whether the indirect effect in the model tested in the study was statistically significant was examined upon 5000 bootstrap sample. The estimates were evaluated in the 95% confidence interval, and the bias-corrected and accelerated results are given in Table 2. As seen in Table 2, the indirect effect of attitude toward learning on academic achievement through school engagement (in other words, the difference/ $c-c'$ between the total and direct effect) is statistically significant (point estimate=.3319 and 95% BCa GA [.2183.,4542]).

DISCUSSION, CONCLUSION

The aim of the present study was to examine the mediating role of school engagement in the relationship between at-

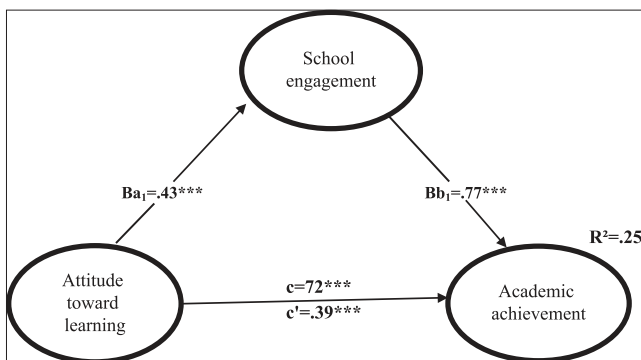


Figure 1. Mediating Role of School Engagement in the Relationship Between Attitude Toward Learning and Academic Achievement and Non-Standardized Beta Values. * $p<.05$, ** $p<.01$, *** $p<.001$

titude toward learning and academic achievement. The obtained results have revealed that there is a positive relationship between attitude toward learning, school engagement and academic achievement and as is expected, school engagement plays a mediating role in the relationship between attitude toward learning and academic achievement. According to the research results, when the attitude toward learning is positive, individuals are more academically successful, and when academic achievement is high, positive emotions toward school engagement have a mediating role. When the sense of school engagement is positive, students participate in school activities more (Adelabu, 2007), they are more internally motivated toward lessons, and their academic achievement is higher (Cemalcilar, 2010). The conducted studies have demonstrated that there is more positive school engagement in students with high academic achievement (Conchas, 2001), students with high school engagement have more desire to learn and research outside the school e.g. while doing homework (Dotterer et al., 2007). It is observed that students with the low level of school engagement have lower school achievement, they tend to come to school late, have no desire to learn and they exhibit problematic behaviors at school (Firestone, 1987). LeCroy & Krysik (2008) state that students with school engagement try to become more academically successful and tend to participate more in school and learning activities.

Some points should be taken into account while interpreting the interpretation of the research results. One of the main assumptions of the study is that attitude toward learning predicts school engagement. The school contributes positively to the mental, social and emotional development of an individual. This develops students' sense of school engagement. According to Covell (2010), there is a relationship between students' participation in the learning process and learning activities and school engagement. Similarly, according to Audas and Willms (2001), it is possible to identify students' participation in academic activities with school values. There is a positive relationship between student's desire to learn and school engagement (Archambault et al., 2009). In the study, as expected, it was found out that attitude toward learning predicts academic achievement. Achievement, undoubtedly, emerges when the individual's desire to learn, research and develop himself/herself is in question. It is expected that the desire to learn of students who are ambitious and highly motivated is higher. There are opinions that students' beliefs in learning and their motivation increase academic

Table 2. Effects between the variables in the model of attitude toward learning, school engagement, and academic achievement

Effects	Point Estimate	Product of coefficients			Bootstrapping 95% BCa Confidence Interval	
		Sh	z	p	Low	High
Indirect effect	0.3319	0.6006	6.982	0.000***	0.2183	0.4542
Total effect	0.7203	0.1031			0.5179	0.9229
Direct effect	0.3884	0.9446			0.2030	0.0573

N=438 K=5000, Control Variables (Covariates): Gender, Income, Age * $p<.05$, ** $p<.01$, *** $p<.001$ BCa: bias-corrected and accelerated 5000 bootstrap sample

achievement (Diseth, 2007; Rodriquez & Cano, 2007). The conducted studies have indicated that students who take responsibility for learning are more academically successful (Davis & Murrell, 1994; Gynnilda et al., 2008; Laurillard, 1997) and students with a positive attitude toward learning a particular course are more successful in that course (Güven, 2008; Perkins et al., 2005; Pierce et al., 2007).

Recommendations

The limitations of the study should be taken into consideration in the interpretation and generalization of the research results. First of all, the research data were obtained from students studying in a high school located in the Küçükçekmece district of Istanbul province who volunteered to participate in the study. The generalization of the research results is possible by contacting this and similar studies in different groups. Since the study was conducted in the relational model, it is inconvenient to draw the cause-effect relationship from the research results. No qualitative measurement was performed since the study was limited to the data collected from the measurement tools. In the study, the mediating role of school engagement in the relationship between attitude toward learning and academic achievement was tested. In this context, other variables that may affect academic achievement should also be put forward. Based on the research results, it is considered important that school counselors and educators conduct studies that increase students' school engagement.

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