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Validity and Reliability of Student Engagement Scale

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Abstract: The aim of this study was to develop a student engagement scale (SES) and determine its validity and reliability. Factor analysis and reliability studies were conducted using data on 400 high-school and middle-school adolescent students (239 females, 161 males). The exploratory factor analysis (EFA) of the structural validity of the scale accounted for 46.74% of the total variance, with 31 items clustered in 3 factors. In the process of naming three subscales, the content of the items and the literature were taken into consideration. Following a review of the literature, the explored factors were emotional, behavioral, and cognitive engagement. To test the validity of the instrument, a school climate scale was used and correlation of .51 (p<.001) was concluded. The Cronbach's alpha were .88 for emotional, behavioral and .83 for cognitive subscales-ranged alpha values. After an interval of three weeks, a result of the test-retest correlation coefficient was found to be .77 (p<.001). There were a significant difference in the upper 27% and lower 27% groups in the SES

Key Words: Student engagement, validity, reliability

Öğrenci Bağlılık Ölçeğinin Geçerlik ve Güvenirliği

Özet: Bu çalışmanın amacı, Öğrenci bağlılık ölçeğini geliştirmek, geçerlik ve güvenirliğe ilişkin kanıtlar elde etmeye çalışmaktır. Ölçek geliştirme çalışması için 400 lise ve ortaokul öğrencisi ergenden veri toplanmıştır (239 kız, 161 erkek). Ölçeğin yapı geçerliği için açımlayıcı faktör analizi yapılmış, ölçeğin toplam varyansının %46,74'ünü açıklayan bir yapı elde edilmiştir. Yapılan analiz sonucunda ölçek maddelerinin toplam 31 madde 3 faktörde toplandığı görülmektedir. Faktörler literatüre bağlı kalarak duygusal, davranışsal ve bilişsel bağlılık olarak isimlendirilmiştir. Ölçüt geçerliğine kanıt olması için, okul iklimi ölçeği kullanılmış, ölçümler arasında .51 (p< .001) ilişki bulunmuştur. İç tutarlılık düzeyine ilişkin hesaplanan cronbach α katsayıları, ölçeğin tümü ve alt boyutlarının sırası ile, .91, .88, .88 ve .83 olarak bulunmuştur. Ölçeğin 3 hafta ara ile yapılan test-tekrar test güvenirlik çalışmasında puanlar arasında .77 (p< .001) korelasyon bulunmuştur. Öğrenci bağlılık ölçeğinin tüm maddeleri açısından %27'lik alt ve üst gruplar arasında anlamlı fark elde edilmiştir.

Anahtar Kelimeler: Öğrenci bağlılık, geçerlik, güvenirlik.

1. INTRODUCTION

A review of the literature illustrates that the terms school engagement and student engagement are used interchangeably. The term school engagement can easily be confused with school attachment. Student engagement can be considered an individual quality, which can change according to how the term is interpreted, (Appleton, Christenson, Kim, & Reschly, 2006). School engagement includes the school curriculum, management, and teachers. Arastaman (2006) developed a scale that included the school administration, teachers, school curriculum, school environment, and inner engagement. The research preferred the term student engagement to be used. Another concept of student engagement includes student motivation, bonding with the school, and self-awareness with regard to learning.

Educators and researchers have long been interested in students' attitude to schools, as their school experiences may dictate later success in life and possibly their attendance at school. Researchers have conceptualized students' attitudes and experiences and used various concepts to explain these. When explaining students' attitudes, Marks (2000) applied the concept of engagement and defined this as a psychological process, emphasizing the student's interest, investment, and effort in the path of learning. McCarthy and Kuh (2006) focused on the term engagement by defining it as the investment by a student in learning, comprehending, and mastering knowledge and skills. Rotermund (2011) defined engagement as active participation in the school and considered it a key concept to understand U.S. high-school failures, leading to negative individual social side effects (Christenson & Thurlow, 2004) and drop-outs. Kortering and Christenson (2009) considered absenteeism as the most important indicator of disengagement and unhappiness in school and as an important precursor of dropping out of school. Student engagement also benefits disadvantaged students. As noted by Connell, Spencer, and Aber (1994), an increase in student engagement diminishes the success gap between disadvantaged and successful students.

The strong relationship between student engagement and academic success has highlighted the need to understand the complex relationship between students' thoughts, behaviors, and emotions (Fredricks, Blumenfeld, & Paris, 2004; Marks, 2000). Finn (1989) considered engagement in a multidimensional model made up of behavioral (being part of a class and school) and emotional components (belonging to school and learning school values). Fredricks et al. (2004) used a similar model but added cognitive engagement, which refers to taking part in school life and developing complex reasoning skills. Appleton et al. (2006) also

developed multidimensional classifications of engagement, with academic, behavioral, cognitive, and psychological components. As Fredricks et al. (2004) mentions, the dimensions of engagement are highly related dynamically to each other but nonetheless are isolated processes. The dimensions aid understanding of the engagement structure as a whole and make it easier for researchers to investigate the subdimensions of engagement. Each dimension has its own subdimensions, and the student's performance in each dimension has implications for the student and the school. Low school attendance has been linked to a lack of behavioral engagement, academic failure has been associated with low cognitive engagement, and school infelicity has been suggested to the be result t of low emotional engagement (Fredricks et al., 2004).

Behavioral engagement focuses on specific student behaviors. Generally, students are considered to show a high level of behavioral engagement if they attend school regularly, do not get into trouble, and come to class prepared and ready to learn (Finn & Rock, 1997). According to various studies, there appear to be a positive relationship between a high level of behavioral engagement and academic success (Connell et al., 1994; Marks, 2000; Skinner, Wellborn, & Connell, 1990). In contrast, absenteeism, being late for classes, and truancy are indicators that the student is not really engaged in school and most probably will drop out (Rotermund, 2011).

Cognitive engagement refers to the student's dedication to learning and strategic decision making regarding learning. Cognitively engaged students are those who can make choices when they encounter a difficulty and who desire personal efficient more than its requirement for success (Newmann, Wehlage, & Lamborn, 1992). Students with high cognitive engagement implement the requirements and show high academic success (Greene, Miller, Crowson, Duke, & Akey, 2004).

Emotional engagement includes the student's interest and peppy in school. Emotional engagement is accepted as including the student's reactions in the classroom and the student's level of interest, boredom, unhappiness, happiness, and anxiety (Skinner et al., 1990). At the same time, it encompasses the student's feelings about academic success, with emotionally engaged students having feelings of satisfaction and pride when they are successful. Students with high emotional engagement demonstrate high cognitive engagement, and the level of emotional engagement is strongly associated with academic success and drop-out rates (Rotermund, 2011).

Paying attention, volunteering for class activities, and taking part in extracurricular activities are elements of the subdimensions of behavioral engagement. The subdimensions of cognitive and psychological engagement are less easy to observe. With regard to cognitive engagement, they include self-regulation, learning values, personal objectives, and self-determination. Psychological engagement elements include a feeling of belonging and relationships with teachers and peers.

A review of the student engagement literature clearly illustrates that among the many scales measuring different dimensions of engagement (Appleton, Christenson, & Furlong, 2008; Fredricks et al., 2004; Sharkey, You, & Schnoebelen, 2008; Stafford, 2011) and scales measuring engagement in two factors (Finn, 1989; Marks, 2000; Newmann et al., 1992), the three-dimensional structure is the most popular (i.e., scales consisting of cognitive, emotional, and behavioral, measurement tools) (Appleton et al., 2006; Fredricks et al., 2004; Jimerson, Campos, & Greif, 2003). Appleton et al. (2006) did not include academic engagement in their subdimensions of student engagement. Although there are various measurement tools in the literature, there was no evidence of measurement tools for mentioned dimensions (cognitive, behavioral, and emotional.

1.1. Aim of Study

The aim of the present study was to develop a scale consisting of three dimensions of student engagement (cognitive, behavioral, and emotional) and test the scale in middle- and high-school adolescent students.

2. METHOD

In this part of the research were given research process, working group, data collection tool and information about the analysis of the data.

2.1. Process

To develop the student engagement scale (SES), the literature was reviewed. A pilot scale, including emotional, behavioral, and cognitive engagement subdimensions, was then prepared the pilot scale was evaluated by six academicians and two assessment and evaluation specialists. To determine the items' grammatical acceptance and the understandability of the items, it was also assessed by four Turkish language and literature specialists. Inexpedient items were dropped. Finally, 60 items were retained and incorporated in the draft form of the scale. The draft form was again applied to a measurement tool similar to the research group

and according to the reactions to the scale; new editions were applied to the scale. Sixteen of the items were negative statements, and 44 were positive statements. Every item in the draft form was marked on a 5-point Likert scale, with “strongly agree = 5 points,” “agree = 4 points,” “not sure = 3 points,” “disagree = 2 points,” and “strongly disagree = 1 point.” The answers to the positive statements started with “strongly agree,” whereas those to the negative questions commenced with strongly disagree. High points on the scale denoted high engagement.

2.2. Analysis of Data

After gathering the data, the validity and reliability studies of the SES were assessed. To test its structural validity, EFA and item factor loading values were calculated. In the reliability studies, Cronbach Alpha was used for determine the internal consistency coefficients and the test-retest correlation coefficients was used. A *t*-test was also used to determine whether it was capable of detecting the source of the differences between the upper 27% group and lower 27% group. The SPSS 11.5 package software was used for the analysis of the data.

2.3. Study Group

In this research, factor analysis and reliability studies were conducted with 400 students, 239 females (60%) and 161 males (40%), from various high schools (9th, 10th, and 11th graders) (N=220) and middle schools (7th, 8th graders) (N=180) in Muğla, Bolu, Manisa, and Istanbul. Data were collected from another 62 high-school (30) and middle-school students (32) to test-retest the scale.

2.4. Data Collection Tools

The study used the school climate scale developed by Çalık and Kurt (2010). This scale consists of 22 items with the subdimensions “supportive teacher behaviors”, “focus on success,” and “safe learning environment.” The exploratory factor analysis (EFA) of the scale, which was tested in 462 students, showed that accounted for 44.78% of the total variance. In the reliability study, the coefficient of internal consistency for supportive teacher behaviors, focus on success, and a safe learning environment was .79, .77, and .85, respectively.

3. FINDING AND

3.1. Validity Study

3.1.1. Exploratory factor analysis: The results of the EFA test results of the structural validity of the SES were analyzed to determine whether a meaningful correlation existed between the items. Prior to performing a factor analysis of the data, sampling adequacy and Bartlett's sphericity tests were conducted. As mentioned by Büyüköztürk (2007), for the results of Bartlett's sphericity test to be meaningful, the KMO score should be higher than .60. In this study, the KMO sample adequacy coefficients of all the groups were .919 (>.60), and Bartlett's sphericity test (multivariate normal distribution indicator) was calculated as $\chi 2=5004{,}522$ ($p<.001$). These findings confirmed that the data were suitable for factor analysis. A maximum factor loading value of .32 is often cited in the literature. However, it is up to the researcher to determine the cut-off point for factor loading values (Büyüköztürk, Şekercioğlu, & Çokluk, 2010). In the present study, to ensure high factor loading values, the scale items were given a factor loading value of .50. Prior to the factorizing process, a factor analysis was performed with the factors identified in the EFA and principal components analysis. The item elimination started with those that were identical in more than two factors and continued until none of the items were the same. The analysis yielded three factors, with 31 items. Twenty-nine items having a factor loading value lower than .50 or comorbid were omitted from the scale. The three-factor scale with 31 items accounted for 46.74% of the total variance. Items 27, 31, 32, 33, 34, 37, and 38 were reverse-scored items. Table 1 explains each of the item's factor loading values, the total correlation of the items in the whole scale and the subdimensions of the scale, and Cronbach's α coefficient of internal consistency.

Table 1: SES Item Factor Loading Values, Correlations of the Total Items, t-Test Results

	Factor loading values			Correlations of total items				Upper-lower group diff.
Item no	Emotional eng.	Cognitive eng.	Behavioral eng.	Whole scale	Emotional eng.	Cognitive eng.	Behavioral eng.	*t*
M4	**.74**	.01	.06	.49	.63			-11.75*
M5	**.72**	.20	.09	.50	.61			-10.60*
M6	**.72**	.19	.10	.41	.61			-10.12*
M7	**.72**	.07	.21	.55	.66			-13.28*
M8	**.71**	.11	.10	.52	.64			-10.34*
M10	**.70**	.20	.12	.55	.67			-13.81*
M13	**.67**	.15	.13	.55	.66			-12.59*
M14	**.59**	.26	.17	.53	.55			-13.42*
M15	**.58**	.17	.05	.42	.53			-9.49*
M53	**.55**	.26	.15	.56	.58			-13.06*
M20	.16	**.74**	.13	.37		.44		-8.23*

M28	.19	**.73**	.14	.54		.59		-12.27*
M29	.23	**.71**	.20	.54		.55		-11.17*
M36	.10	**.67**	.21	.54		.63		-12.67*
M40	.21	**.67**	.24	.64		.69		-16.48*
M41	.13	**.66**	.04	.58		.69		-13.99*
M42	.08	**.65**	-.01	.59		.68		-13.88*
M43	.19	**.61**	.15	.62		.66		-14.39*
M48	.12	**.59**	.06	.40		.46		-9.23*
M58	.20	**.56**	.23	.42		.55		-10.34*
M59	.06	**.53**	.13	.44		.52		-10.64*
M60	.10	**.50**	.07	.48		.59		-11.41*
M27	.08	.07	**.80**	.31			.49	-7.16*
M31	.04	.07	**.70**	.37			.56	-7.88*
M32	.26	.15	**.66**	.45			.69	-7.15*
M33	-.02	.08	**.63**	.54			.61	-10.23*
M34	.19	.18	**.63**	.32			.43	-7.15*
M37	.15	.22	**.61**	.48			.56	-8.34*
M38	.23	.17	**.56**	.49			.57	-9.35*
M54	.21	.09	**.56**	.48			.51	-6.31*
M55	.12	.03	**.53**	.41			.48	-5.62*
Value	2.85	8.97	2.66					***p<.01**
Variance explained (%)	17.55	16.06	13.13					
Cronbach's α	.88	.88	.83	For whole scale **Cronbach's α: .91**				

As noted in the literature, cognitive, emotional, and behavioral engagement terms are used when creating pools before factor and after analysis.

3.1.2. Criterion validity

To test the validity of the items in the SES, the school climate scale develop by Çalık and Kurt (2010) was used. The criterion validity revealed a correlation of .51 (p<.001) between the results of the school climate scale and the SES. Thus, there seems to be a moderate correlation between these two scales.

3.2. Reliability Studies

3.2.1. Test-retest reliability: To test the reliability of the SES, it was retested in 3-week gaps with 32 middle-school and 30 high-school students, the target population in the study. The correlation between the values of the first and second application was .77 (*p*<.001, *N*=62). According to Tavşancıl (2010), the reliability coefficient should be positive and at least .70. Therefore, the SES can be said to be reliable.

3.2.2. Reliability of Cronbach's α*:* Cronbach's α values were checked to determine the consistency of the scale. The results were as follows: .91 for the whole scale, .88 for the emotional and cognitive engagement subdimensions, and .82 for the behavioral subdimension

(Table 1). As Özdamar (2004) pointed out, an internal consistency coefficient higher than .80 can be considered "good," and higher than .90 can be considered "very good." These findings show that the internal consistency of the scale is good.

3.2.3. Upper-lower group reliability*:* Another method in reliability studies is to compare upper 27%-lower 27% points. To test whether there was a significant difference between the groups, the *t*-test results of the upper 27% (*N*:108) and lower 27% (*N*:108) of the target population groups (middle-school, high-school students) of the study were checked. The *t*-test results suggested that there was a significant ($p<.001$) difference between the two groups (Table 1).

3.2.4. Correlation analysis of total items: To evaluate the correlation between the whole scale and its subdimensions, item total correlation analysis was done. Table 1 presents Pearson's product-moment correlation coefficients for the items. When the item total correlation efficiency analysis table is assessed, it can be seen that the correlation between the item and its factor varies between .43 and .69 ($p<.001$). When we assess each item's correlation with the whole scale point, the correlation values vary between .31 and .62 ($p<.001$). Overall, the results of the analyses of the validity and reliability of the scale suggest that the instrument has satisfactory psychometric values.

4. CONCLUSİON AND DİSCUSSİON

In this study, we aimed to develop an SES for middle- and high-school students. The study included 400 middle- and high-schools, and the scale was retested in 62 of these students. We performed a series of statistical procedures to determine the validity and reliability of the SES. We developed a scale with three factors and 60 items. Based on the results of EFA, 31 items explained 46.74% of the total variance. According to Büyüköztürk et al. (2010), total variance between 40% and 60% is sufficient for an evaluation instrument. To determine the validity of the scale, we used the school climate scale developed by Çalik and Kurt (2010). High scores in the school climate scale suggest a positive school climate. The analyses revealed a positive moderate correlation ($r=51$, $p<.001$) between the school climate scale and SES. According to the literature, a correlation of .30 is adequate for a scale to be considered valid Büyüköztürk (2007). However, it also notes that the correlation should not be too high (Büyüköztürk, 2007). The findings of the correlation analyses in the present study were adequate. Thus, the scale can be considered valid.

In the reliability studies, Cronbach's α coefficient of internal consistency was .88 for emotional engagement, .88 for cognitive engagement, .81 for behavioral engagement, and .91 for the whole scale. The correlation between the first and second measurement was .77 in the test-retest conducted in 3-week gaps with 62 students from the target population of the study (32 middle-school and 30 high-school students). The results of the t-test of the upper 27% and lower 27% groups showed that there was a significant ($p<.001$) difference between the two groups. Finally, item total correlation analysis was done. The results revealed that the correlation between the items and their factors varied between .43 and .69. As clearly shown in Table 1, the values in the item analysis were far above .30. The presence of an item total correlation of 0.20 and above suggests that the item made a significant contribution to the total score and that it has high distinctiveness (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz, & Demirel, 2008; Şencan, 2005).

Item analysis is used to determine the predictive power of the item on the total score. The results are considered suggestive of the structural validity of the scale (Hovardoğlu, 2007) and as proof for the scale's reliability (Şencan, 2005). In the present study, based on the findings, we can assume that the structural validity of the SES is adequate and that the distinctiveness of its items is high.

In conclusion, the results of the analysis indicate that the SES is a valid and reliable tool to assess student's engagement levels in Turkish schools. As the study consisted of a broad sample, included middle- and high-school students, and was conducted in various cities and schools, the SES is likely applicable to other middle and high-school students.

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GENİŞ ÖZET

Öğrenci bağlılık kavramı eğitim alanyazınında daha yeni bir kavram olarak görülmesine karşın, öğrenci motivasyonu, okulla bağ kurma, öğrenmede öz-düzenleme kavramları ile birlikte çoğu zaman ele alınmıştır. Eğitimcilerin ve eğitim araştırmacıları çok uzun bir zamandır öğrencilerin okula karşı tutumlarına, okulda başarıya götüren deneyimlerine ve okula katılımlarına ilgi göstermektedirler. Araştırmacılar bu tutumları açıklarken bağlılık kavramının kullanmış ve bağlılığı; psikolojik bir süreç, özellikle, öğrencilerin öğrenme yolunda sarf ettikleri dikkat, ilgi, yatırım ve çabalar olarak tanımlanırken, bağlılığı okulda aktif katılım olarak tanımlarken Birleşik Devletler liselerindeki olumsuz bireysel sosyal yan etkilere neden olan okul başarısızlıklarının ve okul terkini anlamadaki anahtar kavram olarak görmektedir. Benzer şekilde bağlanamamanın ve okul hoşnutsuzluğunun en önemli göstergeleri olan devamsızlık, okulda başarısızlık ve okulu sevmeme ile okul terkinin önemli yordayıcısı olarak görmektedir. Bunun yanında öğrenci bağlılığının risk altındaki öğrenciler için koruyucu bir faktör olduğu ve öğrenci bağlılığındaki artışın dezavantajlı ve başarılı gençlerin arasındaki başarı aralığını azalttığı görülmektedir.

Öğrenci bağlılığı ve akademik başarı arasındaki güçlü ilişki öğrencilerin düşünceleri, davranışları ve duyguları arasındaki karmaşık ilişkiyi anlama ihtiyacını ortaya çıkartmışken, öğrenci bağlılığı çok boyutlu bir model olarak ele almıştır (sınıfın ve okulun bir parçası olmayı içeren davranışsal, okul kimliği, okula aidiyet ve okul değerlerini öğrenmeyi içeren duygusal boyut). Boyutlar yalnızca, çok boyutlu olan bağlılık yapısını bir bütün olarak anlamaya yardımcı olurken, bağlılığı çok boyutlu olarak ele almak bağlılığın alt boyutları ile diğer alanyazın araştırmaları arasında ilişki kurulması için araştırmacılara kolaylık sağlar.

Öğrenci bağlılığının değerlendirilmesi ile ilgili çalışmalar incelendiğinde genellikle bağlılığın farklı boyutlarını ele alan ölçekler geliştirildiği gibi, öğrenci bağlılığını iki faktörlü olarak ele alan görüşler olmasına karşı en çok kabul edilen yapı üç boyutlu yani bilişsel, duygusal ve davranışsal boyutları ele alan yapı ve ölçme araçlarıdır. Alanyazında çeşitli ölçme araçları olmasına karşın, bahsedilen boyutları içeren bir ölçme aracına rastlanılmamıştır. Bu sebepten dolayı araştırmanın amacı öğrenci bağlılığının üç alt boyutu olan bilişsel, davranışsal ve duygusal boyutları kapsayan, ortaokul ve lise öğrencilerine yönelik bir ölçme aracı geliştirmektir.

Bu amaçtan hareketle ölçek geliştirme çalışması için Türkiye'nin çeşitli illerindeki bulunan farklı liselerin 9., 10., 11.sınıfları (220 öğrenci) ile ortaokulların 7. ve 8. sınıflarında (180 öğrenci) öğrenim gören 239'u kız (%60), 161'i erkek (%40) 400 öğrenci ile gerçekleştirilmiştir. Ölçme aracını hazırlamak üzere alan yazını incelenmiş ve yapılan inceleme sonucunda duygusal, davranışsal ve bilişsel bağlılık alt boyutlarını kapsayan bir 60 maddelik taslak form hazırlanmıştır. Elde edilen taslak formunun anlaşılırlığının test etmek için araştırma grubuna benzer bir gruba ölçme aracı uygulanmış ve gelen tepkiler doğrultusunda yeni düzeltmeler yapılmıştır. Maddelerden 16'si olumsuz, 44'ü ise olumlu

ifadeden oluşmaktadır. Taslak formda yer alan her bir madde, "Kesinlikle katılıyorum", "Biraz Katılıyorum", "Emin değilim", "Pek Katılmıyorum" ve "Kesinlikle Katılmıyorum" şeklinde adlandırılan ve 5'li Likert tipi dereceleme ölçeği yardımıyla derecelendirilmiştir. Olumlu ifadelerde cevaplar "Kesinlikle Katılıyorum"dan başlayarak 5'den 1'e doğru; olumsuz ifadelerde ise tersi kodlama ile puanlanmıştır. Ölçekten alınan yüksek puanlar bağlılığı ifade etmektedir.

Yapı geçerliğini test etmek için yapılan açımlayıcı faktör analizi uygulanmış, verilere faktör analizi uygulanabilmesi için örneklem uygunluğu ve Barlett Sphericity testleri yapılmıştır. Bu çalışmada tüm grupta KMO örneklem uygunluk katsayısı .919 (>.60), Barlett Sphericity testi χ^2=5004,522 (p< .001) olarak elde edilmiştir. Analiz çalışması için .50 faktör yük değeri benimsenmiştir. Yapılan analiz sonucunda 31 maddelik 3 faktörlü bir yapı ortaya çıkmıştır. Sonuç olarak toplam varyansın %46,74'ünü açıklayan 3 faktörlü bir yapıdan oluşan 31 maddelik bir ölçek elde edilmiştir. Ölçekteki 7 madde ters olarak kodlanmaktadır.

Güvenirlik çalışmalarında ise "Cronbach Alfa İç Tutarlık" katsayılarına bakılmış ve "davranışsal bağlılık" boyutu için .88, "bilişsel bağlılık" boyutu için .88 , "davranışsal bağlılık" boyutu için .81 ve ölçeğin tamamındaki alfa değeri ise .91 bulunmuştur. Çalışma grubundan alınan 62 öğrenciyle üç hafta arayla yapılan test-tekrar-test yöntemiyle ilk ölçüm ile son ölçüm arasında .77'lik bir korelasyon hesaplanmıştır. Kullanılan bir diğer güvenirlik yöntemi olarak "%27'lik Alt-Üst Grup Karşılaştırmasında" alt grupla üst grup arasında anlamlı (p< .001) bir farklılık bulunmuştur. Son olarak güvenirlik çalışması olarak "Madde Toplam Korelasyon" analizi yapılmıştır. Analizde maddelerin bulundukları faktörlerle arasındaki ilişki .43 ile .69 arasında değiştiği bulunmuştur. Bu durumda, Öğrenci Bağlılık Ölçeğinin yapı geçerliğinin uygun olmasının yanı sıra maddelerinin ayırt edicilik düzeyinin de yüksek olduğu söylenebilir.

Yapılan analizler neticesinde Öğrenci Bağlılık Ölçeğinin ortaokul ve lise ergenlerinin "Öğrenci Bağlılık Düzeylerini" ölçmede kullanılabilecek geçerli ve güvenilir bir araç olduğu görülmüştür. Bütün bunların yanı sıra, bu çalışmada Öğrenci Bağlılık Ölçeğine ilişkin elde edilen geçerlilik ve güvenilirlik bulguları, araştırmanın yürütüldüğü örneklemler çerçevesinde düşünüldüğünde ortaokul ve lise öğrencileri gibi geniş bir örneklemi kapsaması, birden çok ilde ve okul türünde yürütülmüş olması, hem ortaokul öğrencileri hem de lise öğrencileri ile kullanılabilecek bir ölçme aracı özelliği taşıdığını göstermektedir.

	Emotional engagement	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
4	Teachers in my school are honest with their students.	5	4	3	2	1
5	I like the teachers in my school.	5	4	3	2	1
6	Principals in my school are fair with regard to discipline.	5	4	3	2	1
7	My teachers care about me.	5	4	3	2	1
8	My teachers are good at their job.	5	4	3	2	1
10	My teachers understand me.	5	4	3	2	1
13	My teachers help me whenever I need.	5	4	3	2	1
14	I feel I am a member of my school.	5	4	3	2	1
15	I recommend other students to come to my school.	5	4	3	2	1
53	I believe I'm receiving a good education in my school.	5	4	3	2	1
	Cognitive engagement					
20	I spend a lot of time on my studies and homework.	5	4	3	2	1
28	I give all my attention to the lesson in the class.	5	4	3	2	1
29	I do my homework (work about the school) on time.	5	4	3	2	1
36	I work as hard as I can at my lessons.	5	4	3	2	1
40	I do my best in class.	5	4	3	2	1
41	I don't give up trying even when the lessons are hard.	5	4	3	2	1
42	I believe I do my best to learn in class.	5	4	3	2	1
43	I try my best when working on my lessons.	5	4	3	2	1
48	I usually plan before doing my homework.	5	4	3	2	1
58	I work on my lessons even when there are no upcoming exams.	5	4	3	2	1
59	I share the knowledge I learned at school with other people.	5	4	3	2	1
60	I check mistakes in my homework.	5	4	3	2	1
	Behavioral engagement					
27	I often get into trouble in school.*	5	4	3	2	1
31	I often get into fights in school.*	5	4	3	2	1
32	I am usually sent to the disciplinary board because of my behavior.*	5	4	3	2	1
33	I play truant from school every chance I get.*	5	4	3	2	1
34	I am usually late for school. *	5	4	3	2	1
37	I have considered dropping out of school.*	5	4	3	2	1
38	I pretend to be working during the class.*	5	4	3	2	1
54	I'm going to graduate from my school.	5	4	3	2	1
55	I want to attend university.	5	4	3	2	1

*reverse item