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CHILDREN'S LEARNING BEHAVIORS: PSYCHOMETRIC PROPERTIES OF THE PRESCHOOL LEARNING BEHAVIOR SCALE IN TURKEY

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ABSTRACT


The purpose of the current study was to adapt the Preschool Learning Behaviors Scale (PLBS), which was developed by McDermott, Leigh, and Perry (2002) to Turkish and examine reliability and validation. The PLBS is a 29-item scale that is designed to assess the learning-related behaviors of preschool children on three subscales: Competence/Motivation, Attention/Persistence, and Attitude Toward Learning. A total of 140 preschool children (59 girls, 81 boys) and their teachers were recruited in Istanbul for the current study. Children's age ranged from 39 to 77 months ($M= 62.56$, $SD= 8.52$). Firstly, the PLBS was adapted to Turkish language and culture. The validity of the scale was measured by Confirmatory Factor Analysis and the difference between the Upper %27 and Lower %27 groups was tested. The internal reliability of the scale was calculated by Cronbach's alpha and McDonald's Omega method. The results of the Confirmatory Factor Analyses showed that the scale has a three-factor structure as in the original version. The CFA model for the PLBS confirmed that there is a 3-factor model ($\chi^2= 699.443$ ($p < .001$), $CFI= 0.95$, $RMSEA= .07$ (.07 to .09 at 90% CI), and $WRMR = 1.20$). Cronbach alpha and McDonald's Omega for internal consistency showed the measure was reliable. The analyses showed that the PLBS is a valid, reliable tool for Turkish children.

STRUCTURED ABSTRACT

Introduction

Early childhood is a critical period in which the developmental and learning-related differences among individuals can be minimized. In this

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period of life children should be prepared in cognitive, social, emotional, and behavioral skills and acquire appropriate learning behaviors to support their early academic skills (Chao et al., 2018; McDermott, Rikoon, Waterman, & Fantuzzo, 2012). Preschool learning behaviors are emotional and psychological aspects that facilitate individuals' learning in an educational setting (McDermott, Rikoon, & Fantuzzo, 2014). Previous studies have shown that preschool children's learning behaviors exhibits a complex structure that is generally considered in three dimensions (Chao et al., 2018; McDermott, Rikoon, Waterman, & Fantuzzo, 2012; McDermott, Rikoon, & Fantuzzo, Perry, 2002; Schaefer & McDermott, 1999; Schaefer, 2004). These dimensions are explained as competence motivation, attention/persistence and attitudes towards learning (McDermott, Rikoon, & Fantuzzo, Perry, 2002). Learning behaviors can be taught in early childhood and can be observed during educational activities (McDermott, Rikoon, & Fantuzzo, 2014). As a matter of the fact that, there have been many studies in which children's learning behaviors are assessed via the observations made by teachers (McDermott, Green, Francis, & Stott, 2000; McDermott, Leigh, & Perry, 2002; Chao et al., 2018; McDermott, Rikoon, Waterman, & Fantuzzo, 2012; McDermott, Rikoon, & Fantuzzo, 2014; Wu, Hu, & Fan, 2016). But in the studies conducted in Turkish culture, it has been revealed that mostly problematic behaviors or general behaviors of children are examined (Daglar, Melhuish, & Barnes, 2011; Dere Ciftci, 2015; Ozbey & Alisinanoğlu, 2009) but particular learning behaviors has not been examined yet. Considering both school and the learning achievements are related to better life conditions examining the learning behaviors of preschool children in Turkey is important. In this respect, this study aims to examine the validity and reliability of the Preschool Learning Behavior Scale developed by McDermott, Leigh, & Perry, (2002) in Turkish culture.

Method

Participants

The participants of this study are constituted from preschool children who attend public early childhood centers and their teachers. There are a total of 140 children in the study, 59 are girls and 81 are boys. The age range of children is between 39 months and 77 months ($M= 62.56$, $SD= 8.52$). All of the teachers who participated in the study are female.

Data Collection and Instrument Adaptation Procedures

Permissions from the Ministry of Education Research Authority and the school administration were received. After that researchers contacted with the teachers. Parent was also asked to consent his/her child to participate the study. Teachers also signed consent form for their voluntary participation. After this process teachers completed the Preschool Learning Behavior Scale (PLBS) for each children in the study. The adaptation process of the PLBS into Turkish, we followed three steps. First, each item in the original version of the PLBS was translated into Turkish by two investigators with English language fluency. Secondly, these two translations were compared. For the third step, the final Turkish version of the scale was back-translated to English by the language expert who is blind to original version. This English version of the scale was compared with the original English version, and little

variations were found. These variations were fixed and the final version of the scale was prepared.

Preschool Learning Behaviors Scale: The Preschool Learning Behavior Scale (PLBS- McDermott, Green, Francis, & Stott, 2000; McDermott, Leigh, & Perry, 2002) has 24 items which evaluates children's learning behaviors. It's a 3-point Likert-type Teacher-report scale and the points indicate the followings: 2= Most often applies, 1= Sometimes applies, or 0= Doesn't apply. The points of the PLBS reflects the child's typical learning behavior over the past two months. The PLBS has three subscales: Competence Motivation (sample item: "*Easily gives up activities*", reverse scored), Attention/Persistence (sample item "*Easily distracted or seeks distraction*", reverse scored), and Attitude Toward Learning (sample item "*Doesn't work well when in bad moods*", reverse item). Internal consistency (Cronbach's alpha) for the original subscales were $\alpha = .85$ for Competence Motivation, $\alpha = .83$ for Attention/Persistence, and for $\alpha = .75$.

Results

We ran 3-factor confirmatory factor measurement model (CFA) using *Mplus* (Muthen & Muthen, 2012) to examine the comparability of 3-factor original model by McDermott, Leigh, and Perry (2002). The following model fit criteria for the measurement model was used; Comparative Fit Index (CFI) higher than .90, Root Mean Square Residual (RMSEA) lower than .10, and standardized root mean square residual (SRMR) lower than .05 (Browne & Cudeck, 1992; MacCallum, Browne, & Sugawa, 1996). We also utilized Weighted Root Mean Square Residual (WRMR) method for measurement model (DiStefano, Liu, Jiang & Shi, 2018). The CFA model for the 3-factor PLBS met the proposed criteria ($\chi^2 = 699.443$ ($p < .001$), CFI= 0.95, RMSEA= .07 (.07 to .09 at 90% CI), and WRMR = 1.20. These fit indices showed that the 3-factor model fit the data well. There was no item excluded from the factors. There were significant correlations among three subscales. Competence/motivation was significantly correlated with Attention/Persistence ($r(140) = .82$) and Attitude Toward Learning ($r(140) = .75$). Attention/Persistence was correlated with Attitude Toward Learning ($r(140) = .79$). Considering the higher levels of correlations among subscales and recommendations provided by McDermott, Green, Francis, and Stott (2000), we created a composite score pertaining to learning behaviors of preschool children. Researchers either could use fine-grain subscales or composite score for the PLBS. We examined both Cronbach alpha and McDonald's Omega for internal consistency, given McDonald's Omega may provide a better picture for 3-point Likert-type scales (Dunn et al., 2014). The current study showed acceptable internal consistency values for each subscale. We also examined whether top and bottom 27th percentile of groups differed on their scores for each subscale. There was a significant difference between top ($M = 22.00$, $SD = .00$) and bottom ($M = 7.72$, $SD = 2.75$) for Competence/Motivation ($t(58) = -24.75$, $p < .001$). There was also a significant difference between top ($M = 15.89$, $SD = .31$) and bottom ($M = 5.10$, $SD = 2.40$) for Attention/Persistence ($t(66) = -23.55$, $p < .001$). And there was a significant difference between top ($M = 17.96$, $SD = .83$) and bottom ($M = 9.33$, $SD = 2.16$) for Attitude Toward Learning ($t(68) = -20.12$, $p < .001$). There was no significant difference between boys and girls in any subscales; Competence/Motivation ($t(138) = 0.55$ $p = .58$),

Attention/Persistence ($t(138) = -0.84$ $p = .40$), and Attitude Toward Learning ($t(138) = -0.08$ $p = .93$).

Discussion and Implications

In this study, reliability and validity of the Preschool Learning Behavior Scale developed by McDermott, Leigh, & Perry (2002) were evaluated in Turkish sample. According to the results we determined that the Preschool Learning Behavior Scale retained the original three factors in the Turkish sample. A total of 29 items were confirmed in the dimensions of competence motivation, attention/persistence and attitude toward learning and no items were extracted from the scale. Thus, we inferred that the scale is a valid and reliable scale in Turkish sample. Similar results have been encountered in previous studies from different cultures (McDermott, Leigh, & Perry, 2002; McDermott, Rikoon, Waterman, & Fantuzzo, 2012; Wu, Hu, & Fan, 2016). However, researchers also found that the scale exhibits a two-factor structure of learning behaviors in an another culture (Chao et al., 2018). These differences in the results obtained in these researches reveal the importance of validity and reliability studies of scales. Differences among cultures can also differentiate learning-related behaviors, which can differentiate the psychometric structures of the scales used in researches (Kagıtcıbası, 2007). For this reason, cross-cultural studies of learning behaviors in different cultures are needed, and the generalization of the results needs to be increased.

Keywords: Preschool, Learning behaviors, Turkish children, Confirmatory factor analyses

ÇOCUKLARDA ÖĞRENME DAVRANIŞLARI: OKUL ÖNCESİ ÖĞRENME DAVRANIŞLARI ÖLÇEĞİ'NİN TÜRKİYE'DEKİ PSİKOMETRİK ÖZELLİKLERİ

ÖZET

Bu araştırmada McDermott, Leigh ve Perry (2002) tarafından geliştirilen Okul Öncesi Öğrenme Davranışları Ölçeği (Preschool Learning Behavior Scale-PLBS)'nin Türk kültürüne adaptasyonu ile geçerlik ve güvenilirlik çalışmasının yapılması amaçlanmıştır. Okul Öncesi Öğrenme Davranışları Ölçeği (ÇÖDÖ) 29 maddeden oluşan ve okul öncesi dönem çocuklarının öğrenmeyle ilişkili davranışlarını üç alt boyutta değerlendirmektedir. Bu alt boyutlar: Yetkinlik/Motivasyon, Dikkat Devamlılığı ve Öğrenmeye Karşı Tutum olarak belirlenmiştir. Araştırmada İstanbul'dan 59 kız, 81 erkek olmak üzere toplam 140 çocuk ve onların öğretmenleri yer almıştır. Çocukların yaş aralığı 39 ay ile 77 ay ($M= 62.56$, $SS= 8.52$) arasında değişmektedir. İlk olarak ÇÖDÖ Türk dili ve kültürüne adapte edilmiştir. Ölçeğin geçerliği Doğrulayıcı Faktör Analizi ile ölçülmüş ve üst %27 ve alt %27'lik gruplar arasındaki farklar test edilmiştir. Ölçeğin iç güvenilirliği Cronbach's alpha ve McDonald's Omega yöntemi ile hesaplanmıştır. Doğrulayıcı Faktör Analizi sonuçlarına göre ölçek orijinal versiyonundaki gibi üç faktörlü bir yapı göstermiştir. DFA modeli ÇÖDÖ için üç faktörlü modeli doğrulamıştır ($\chi^2= 699.443$ ($p < .001$), $CFI= 0.95$, $RMSEA= .07$ (.07 to .09 at 90% CI),

ve WRMR = 1.20. İç tutarlılık için Cronbach alpha ve McDonald's Omega ölçeğin güvenilir olduğunu göstermiştir. Araştırmada elde edilen sonuçlara göre ÇÖDÖ Türk çocuklarının öğrenme davranışları için geçerli ve güvenilir bir ölçektir.

Anahtar kelimeler: Okul öncesi, Öğrenme davranışları, Türk çocukları, Doğrulayıcı faktör analizi

Introduction

Early childhood is a critical period in which the developmental and learning-related differences among individuals can be minimized. School readiness is especially very important for children who start school under more disadvantaged conditions compare to their peers. Therefore, preschool children should be prepared in cognitive, social, emotional, and behavioral skills and acquire appropriate learning behaviors to support their early academic skills (Chao et al., 2018; McDermott, Rikoon, Waterman, & Fantuzzo, 2012).

Preschool learning behaviors are emotional and psychological aspects that facilitate individuals' learning in an educational setting (McDermott, Rikoon, & Fantuzzo, 2014). These behaviors are associated with both cognitive and social skills (Chao et al., 2018). In addition to this, learning-related behaviors in early years such as focusing attention, attentional persistence and concentration on a task for a certain period of time are important behaviors that are associated with individual academic achievement and positive school experiences (Duncan et al., 2007). Children's positive experiences with their peers in the school environment may makes them positively behave in educational practices and may be liked more by their friends (Slaughter, Dennis, & Pritchard, 2002). Thus, learning-related behaviors are also be considered as skills that have social aspects. Because behaviors that preschool children exhibit during learning activities are also social behaviors due to the interactions that children have established with their peers and teachers at school (Coolahan, Fantuzzo, Mendez, & McDermott, 2000; McDermott, Rikoon, Waterman, & Fantuzzo, 2012). Considering the early social skills which are the predictors of individuals' well-being in both present and future life (Jones, Greenberg, & Crowley, 2015; von Suchodoletz, Trommsdorff, Heikamp, Wieber, & Gollwitzer, 2009), early learning behaviors are also become an important topic that researchers should examine.

Previous studies have shown that preschool children's learning behaviors exhibits a complex structure that is generally considered in three dimensions (Chao et al., 2018; McDermott, Rikoon, Waterman, & Fantuzzo, 2012; McDermott, Rikoon, & Fantuzzo, Perry, 2002; Schaefer & McDermott, 1999; Schaefer, 2004). These dimensions are explained as competence motivation, attention/persistence and attitudes towards learning. Competence motivation can be defined as the willingness of the child to participate in learning-related activities. Children who feel competent and motivated towards learning activities exhibit a more entrepreneurial attitude during learning activities (McDermott, Rikoon, & Fantuzzo, 2014). Attention / persistence is more often described as focusing on and engaging in learning activities (McDermott, Leigh, & Perry, 2002). This behavior requires attentional persistence and this skill is important since it's associated with individual's academic success both in short and long term (Duncan et al., 2007; Raver, 2003). Attitudes toward learning refers to the general approach of individuals towards learning. Having an overall positive attitude during the learning activities is the basis for more positive school experiences and academic learnings (Hahn, Schaefer, Merino, & Worrell 2009).

Learning behaviors can be taught in early childhood and can be observed during educational activities (McDermott, Rikoon, & Fantuzzo, 2014). As a matter of the fact that, there have been many studies in which children's learning behaviors are assessed via the observations made by teachers

(McDermott, Green, Francis, & Stott, 2000; McDermott, Leigh, & Perry, 2002; Chao et al., 2018; McDermott, Rikoon, Waterman, & Fantuzzo, 2012; McDermott, Rikoon, & Fantuzzo, 2014; Wu, Hu, & Fan, 2016). In these studies, the three-dimensional structure of children's learning behaviors has been examined in different countries and across different ethnic groups. According to the results revealed in these studies, with some small differences children's learning behaviors showed similar structures in different cultures. But aside from the U.S., learning behaviors have been shown in different dimensional structures and there are differences in naming these dimensions in the studies conducted in Peru, Trinidad and Tobago and China, (Chao et al., 2018; Hahn, Schaefer, Merino, & Worrell 2009; Wu, Hu, & Fan, 2016). In the studies conducted in Turkish culture, it has been revealed that mostly problematic behaviors or general behaviors of children are examined (Daglar, Melhuish, & Barnes, 2011; Dere Ciftci, 2015; Ozbey & Alisinanoğlu, 2009) but particular learning behaviors has not been examined yet. Considering both school and the learning achievements are related to better life conditions examining the learning behaviors of preschool children in Turkey is important. In this respect, this study aims to examine the validity and reliability of the Preschool Learning Behavior Scale developed by McDermott, Leigh, & Perry, (2002) in Turkish culture.

Method

Participants

The participants of this study are constituted from preschool children who attend public early childhood centers and their teachers. There are a total of 140 children in the study, 59 are girls and 81 are boys. The age range of children is between 39 months and 77 months ($M= 62.56$, $SD= 8.52$). All of the teachers who participated in the study are female. Their age range is between 25 to 42 years and their professional experience are between 1 year to 21 years. Teachers who participated in the study work in public early childhood centers which are located in the central Istanbul. All of the teacher participants involved in the study implement the Early Childhood Education Program that published by the Ministry of National Education (MoNE, 2013) since all the centers are affiliated to the MoNE. Thus, educational settings and activities of teachers are similar to each other.

Data Collection and Instrument Adaptation Procedures

First step, permission from the Ministry of Education Research Authority and the school administration. Following that, teachers were contacted by researchers. Second step, each child's parent was asked to consent his/her child to participate the study. Teachers also signed consent form for their voluntary participation. Third step, parents who consented to participate were given demographic information form by teachers. Parents returned their completed forms to the teacher, and they gave them to the researchers. Teachers completed the Preschool Learning Behavior Scale (PLBS) and returned them to the researchers.

Adaptation Procedures: As a starting point of the adaptation process of the PLBS into Turkish, each English item in the original version of the PLBS was translated into Turkish by the primary investigator and secondary investigator with English language fluency. Following that, the translations were compared against each investigators' versions for language and meaning accuracy. The final Turkish version of the scale was back-translated to English by the language expert who is blind to original version. This English version of the scale was compared with the original English version, and little variations were found. After getting these variations were fixed, the final version of the scale was ready for use.

Preschool Learning Behaviors Scale: The Preschool Learning Behavior Scale (PLBS-McDermott, Green, Francis, & Stott, 2000; McDermott, Leigh, & Perry, 2002) has 24 items which evaluates children's learning behaviors. It's a 3-point Likert-type Teachers reports scale and the points indicate the followings: 2= Most often applies, 1= Sometimes applies, or 0= Doesn't apply.

The points of the PLBS reflects the child's typical learning behavior over the past two months. The PLBS has three subscales: Competence Motivation (sample item: "Easily gives up activities", reverse scored), Attention/Persistence (sample item "Easily distracted or seeks distraction", reverse scored), and Attitude Toward Learning (sample item "Doesn't work well when in bad moods", reverse item). Internal consistency (Cronbach's alpha) for the original subscales were $\alpha = .85$ for Competence Motivation, $\alpha = .83$ for Attention/Persistence, and for $\alpha = .75$. Table 1 shows the item reliability statistics for this study.

Results

Confirmatory Factor Analysis

We ran 3-factor confirmatory factor measurement model (CFA) using *Mplus* (Muthen & Muthen, 2012) to examine the comparability of 3-factor original model by McDermott, Leigh, and Perry (2002). The following model fit criteria for the measurement model was used; Comparative Fit Index (CFI) higher than .90, Root Mean Square Residual (RMSEA) lower than .10, and standardized root mean square residual (SRMR) lower than .05 (Browne & Cudeck, 1992; MacCallum, Browne, & Sugawa, 1996). Considering the scale was reported on three options (Most often applies, sometimes applies, or doesn't apply), we utilized Weighted Root Mean Square Residual (WRMR) method for measurement model (DiStefano, Liu, Jiang & Shi, 2018). The CFA model for the 3-factor PLBS met the proposed criteria ($\chi^2 = 699.443$ ($p < .001$), CFI= 0.95, RMSEA= .07 (.07 to .09 at 90% CI), and WRMR = 1.20. These fit indices showed that the 3-factor model fit the data well. All loadings for items across three factors were reported on Table 2. There was no item excluded from the factors. See Figure 1 for depiction of the factors.

There were significant correlations among three subscales. Competence/motivation was significantly correlated with Attention/Persistence ($r(140) = .82$) and Attitude Toward Learning ($r(140) = .75$). Attention/Persistence was correlated with Attitude Toward Learning ($r(140) = .79$). Considering the higher levels of correlations among subscales and recommendations provided by McDermott, Green, Francis, and Stott (2000), we created a composite score pertaining to learning behaviors of preschool children. From this point of view, researchers either could use fine-grain subscales or composite score for the PLBS.

Internal Reliability

Internal consistency focuses on correlations between different items on the same measure, and it is assumed that items on the test measure the same construct to produce similar scores across participants. Coefficient alpha or McDonald's Omega measures the internal consistency of a measure (Dunn, Baguley, & Brunnsden, 2014; Thorndike & Thorndike-Christ, 2009). We examined both Cronbach alpha and McDonald's Omega for internal consistency, given McDonald's Omega may provide a better picture for 3-point Likert-type scales (Dunn et al., 2014). The current study showed acceptable internal consistency values for each subscale. See Table 1 for details.

Table 1. Item Reliability Statistics for Preschool Learning Behaviors Scale

Subscale	Mean	SD	If item dropped		
			item-rest correlation	Cronbach's α	McDonald's ω
Competence Motivation				0.894	0.900
ITEM2	1.317	0.762	0.674	0.882	0.888

Table 1. Item Reliability Statistics for Preschool Learning Behaviors Scale

Subscale	Mean	SD	If item dropped		
			item-rest correlation	Cronbach's α	McDonald's ω
Competence Motivation				0.894	0.900
ITEM3	1.424	0.780	0.811	0.873	0.880
ITEM6	1.417	0.741	0.622	0.885	0.892
ITEM12	1.525	0.716	0.527	0.890	0.897
ITEM17	1.410	0.806	0.531	0.891	0.897
ITEM19	1.568	0.702	0.683	0.881	0.888
ITEM21	1.489	0.726	0.808	0.874	0.880
ITEM25	1.576	0.625	0.743	0.879	0.885
ITEM27	1.381	0.756	0.401	0.898	0.903
ITEM28	1.561	0.627	0.595	0.887	0.893
ITEM29	1.388	0.747	0.494	0.893	0.899
Attention/Persistence				0.887	0.892
ITEM1	1.563	0.600	0.637	0.876	0.881
ITEM4	1.694	0.583	0.509	0.886	0.892
ITEM5	1.472	0.775	0.588	0.881	0.885
ITEM10	1.167	0.739	0.451	0.893	0.896
ITEM14	1.160	0.842	0.741	0.865	0.871
ITEM15	1.507	0.739	0.808	0.858	0.862
ITEM18	1.354	0.806	0.794	0.859	0.864
ITEM26	1.271	0.786	0.763	0.862	0.868
Attitude Toward Learning				0.715	0.736
ITEM7	1.392	0.722	0.425	0.684	0.707
ITEM8	1.441	0.775	0.507	0.667	0.697

Table 1. Item Reliability Statistics for Preschool Learning Behaviors Scale

Subscale	Mean	SD	If item dropped		
			item-rest correlation	Cronbach's α	McDonald's ω
Competence Motivation				0.894	0.900
ITEM9R	0.769	0.793	0.024	0.757	0.759
ITEM11	1.580	0.633	0.486	0.675	0.701
ITEM13	1.734	0.543	0.364	0.695	0.719
ITEM16	1.587	0.675	0.450	0.680	0.706
ITEM20R	0.965	0.523	0.443	0.686	0.714
ITEM22	1.559	0.657	0.430	0.684	0.712
ITEM23	1.720	0.610	0.385	0.691	0.717
ITEM24	1.189	0.750	0.347	0.698	0.719

R = Reversed Scoring

In addition, we examined whether top and bottom 27th percentile of groups differed on their scores for each subscale. We found that there was a significant difference between top ($M = 22.00$, $SD = .00$) and bottom ($M = 7.72$, $SD = 2.75$) for Competence/Motivation ($t(58) = -24.75$, $p < .001$). There was a significant difference between top ($M = 15.89$, $SD = .31$) and bottom ($M = 5.10$, $SD = 2.40$) for Attention/Persistence ($t(66) = -23.55$, $p < .001$). There was also a significant difference between top ($M = 17.96$, $SD = .83$) and bottom ($M = 9.33$, $SD = 2.16$) for Attitude Toward Learning ($t(68) = -20.12$, $p < .001$).

There was no significant difference between boys and girls in any subscales; Competence/Motivation ($t(138) = 0.55$, $p = .58$), Attention/Persistence ($t(138) = -0.84$, $p = .40$), and Attitude Toward Learning ($t(138) = -0.08$, $p = .93$).

Table 2.
Loadings from Confirmatory Factor Analyses for Preschool Learning Behaviors Scale

Subscale	Loading (Standard Error)
Competence Motivation	
ITEM2	.86(.01)
ITEM3	.94(.02)
ITEM6	.82(.04)
ITEM12	.60(.07)
ITEM17	.58(.07)
ITEM19	.82(.04)
ITEM21	.90(.03)
ITEM25	.88(.03)
ITEM27	.72(.06)
ITEM28	.63(.06)
ITEM29	.56(.07)
Attention/ Persistence	
ITEM1	.76(.05)
ITEM4	.66(.06)
ITEM5	.75(.05)
ITEM10	.52(.07)
ITEM14	.85(.04)
ITEM15	.96(.09)
ITEM18	.96(.02)
ITEM26	.92(.02)
Attitude Toward Learning	
ITEM7	.77(.05)
ITEM8	.51(.07)
ITEM9R	.37(.08)
ITEM11	.71(.06)
ITEM13	.45(.09)
ITEM16	.51(.08)
ITEM20R	.76(.04)
ITEM22	.45(.08)
ITEM23	.56(.08)
ITEM24	.48(.08)

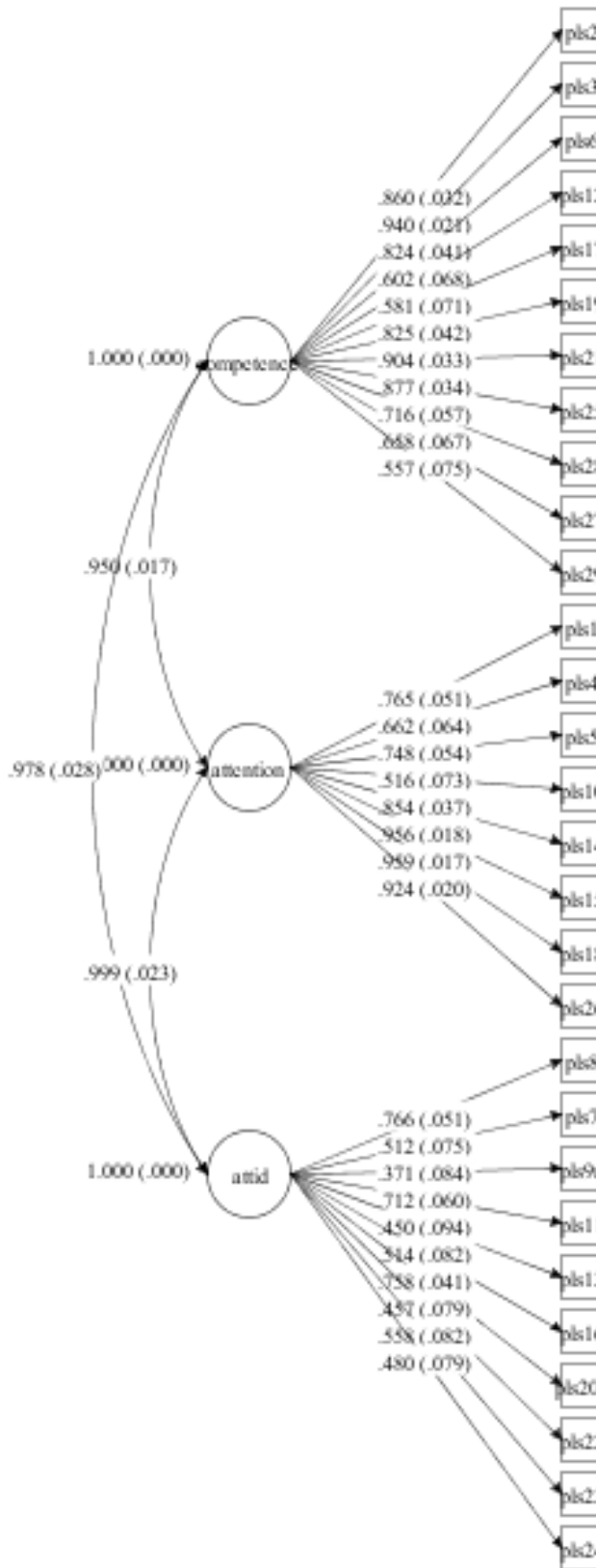


Figure 1. Factor Structure for Preschool Learning Behaviors Scale

Discussion

In this study, reliability and validity of the Preschool Learning Behavior Scale (PLBS) developed by McDermott, Leigh, & Perry (2002) were evaluated in Turkish sample. The results were compared with the results of validity and reliability studies in other cultures. Although the PLBS is generally valid and reliable in many cultures, learning behaviors which are influenced by children's social interactions, might have different characteristics depending on the culture that they live in (McClelland & et al., 2007). Indeed, the scales developed in a particular culture may not show the same structure in another culture (Acar & Uçuş Güldalı, 2017; Ahmetoglu, Acar & Aral, 2016; Kağıtçıbaşı, 2007). The original language and social characteristics of the culture where the scale is developed have to be considered. Because language and social norms can shape individuals' behaviors and expectations from individuals within each culture might be shaped by social norms and rules (Bronfenbrenner & Morris 2006; McClelland & et al., 2007).

As a result of the analyses, we determined that the PLBS retained the original three factors in the Turkish sample. A total of 29 items were confirmed in the dimensions of competence motivation, attention / persistence and attitude toward learning and no items were extracted from the scale. Thus, we inferred that the scale is a valid and reliable scale in Turkish sample. Similar results have been encountered in previous studies from different cultures. In a large sample of different ethnic groups in the United States, the three-factor structure of learning behaviors has been confirmed (McDermott, Leigh, & Perry, 2002). In addition, this structure has also been validated in the Head Start sample (McDermott, Rikoon, Waterman, & Fantuzzo, 2012). Researchers also found mostly the same findings in the study conducted in China. In the study conducted by Wu, Hu, & Fan (2016), it was determined that the original three-factor structure of the PLBS was confirmed. However, unlike these results, in the study conducted in the Trinidad and Tobago sample, researchers found that the scale exhibits a two-factor structure of competence motivation and strategy / flexibility (Chao et al., 2018). According to the results obtained in the study, attitude toward learning and attention / persistence dimensions are included in the dimension of competence motivation in general. The differences in the results obtained in these researches reveal the importance of validity and reliability studies of scales. Because differences among cultures can also differentiate learning-related behaviors, which can differentiate the psychometric structures of the scales used in researches (Kağıtçıbaşı, 2007). For this reason, more cross-cultural studies of learning behaviors in different cultures are needed, and the generalization of the results needs to be increased.

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