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Problem solving scale (pss-tr): a study of validity and reliability of the turkish version

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Abstract

The purpose of study is to investigated the validity and reliability of the Turkish version of the Problem Solving Scale (PSS; Willoughby-Herb & Neisworth, 1983). The sample of the study consists of 280 preschool students. Confirmatory factor analysis showed that the three-dimensional model fitted well: RMSEA= .071, CFI= .99, IFI= .99, RFI= .99, SRMR= .044. The internal consistency reliability coefficients of the scale were .96. Also the corrected item-total correlations ranged from .61 to .78. These results demonstrate that this scale is a valid and reliable instrument.

Keywords: Problem solving, Validity, Reliability.

1.Introduction

During the pre-school period, which is one of the most important phases of human life, children go through a multi-dimensional and rapid process. Pre-school period covers the early childhood period between the ages of 0 to 6. This period is the one that the child learns the fastest and also the brain completes the two third of its development during this time. This period encompasses not only intellectual development but also character development (Garton & Gringart, 2005; Swanson & Beebe-Frankenberger, 2004). In this process children get fast and permanent acquisition in accordance with high order thinking. In this context, the pre-school education process which addresses the most important period of children's development has to have some attributions which can develop children's following abilities and capacities: self-awareness, social skills, awareness of his surrounding culture and other

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cultures, communication skills, perception and kinetic abilities, analytical thinking, problem solving abilities, creativeness (Genç ve Senemoğlu, 1999; Mussen, Conger & Kogan, 1963).

Problem is defined, as a situation, which exceeds the current capacities and resources of the individual (Güven, 2001). According to Bingham (1998), a problem has three crucial properties. Firstly, a person must have an aim in his mind, secondly there must be obstacle while he tries to attain his objectives, and for the last one is that, the person must feel distress. When the relevant literature is analysed it can be observed that, there are different kinds of steps for solving problem (Erdoğan, 2000; Shapiro, 1998). But for Gelbal (1991), problem solving consists of consecutive phases being aware of problem definition of problem finding different ways for the solution and by implementing existing of solution strategies like elimination of problem is emphasized (Serin, Serin & Saygılı, 2010).

The child cannot learn problem solving skills systematically by him easily. For this by creating some surroundings to children for solving problems by themselves, creating some opportunities and planning some activities which are used for sustaining effective problem solving skills can be helpful (Kişisel & Yıldırım, 1983; Passolunghi & Siegel, 2001; Pajares & Kranzler, 1995). In this study, PSS was adapted into Turkish and its psychometric properties were examined with a sample consisting of Turkish preschool students.

2. Research Method

2.1. Participants

The participants of the research were 280 preschool students who were studying in Sakarya region during the academic year 2012-2013. They were selected by means of convenience sampling method. 180 were female and 100 were male. The age range of the sample varied between 4 and 6 years.

2.2.Measures

Problem Solving Scale. This scale which was improved by Willoughby-Herb and Neisworth (1983) consists of 25 items and sub-scale (For example, the child recognizes the main figures which the relationship between the play and object, is wanted.). The scale which consists of 25 items, 5-point Likert type from Totally Disagree to Totally Agree, (Problem Solving Scale -PSS-TR). Confirmatory factor analysis (CFA) was carried out for structure validity. Reliability of scale was examined with internal consistency and item analysis was examined with corrected item total correlation.

2.3.Procedure and Data Analysis

In the process of adaptation PSS into Turkish, the scale was translated into Turkish by 6 academics who have proficiency in English and then Turkish forms were back translated into English, and the coherence between Turkish and English forms were examined. After these, necessary corrections were made in terms of meaning and grammar and measurement properties. Turkish form was created and then was analysed by 5 academics who work in the Field of Psychological Counselling and Guidance and Assessment and Evaluation in Education, and some changes were made by taking their suggestions. Reliability of PSS was examined. For the construct validity CFA was used. Corrected item total correlations, was calculated. For reliability and validity analyses, SPSS 17.0 and Lisrel 8.54 (Jöreskog & Sorbom, 1996) programmes were used.

3.Results

3.1. Item analysis and reliability

At the end of the analysis, scale's factor of Corrected Item Total Correlation was line up between .34 and .80 understood. These diagnoses are shown in Table 1.

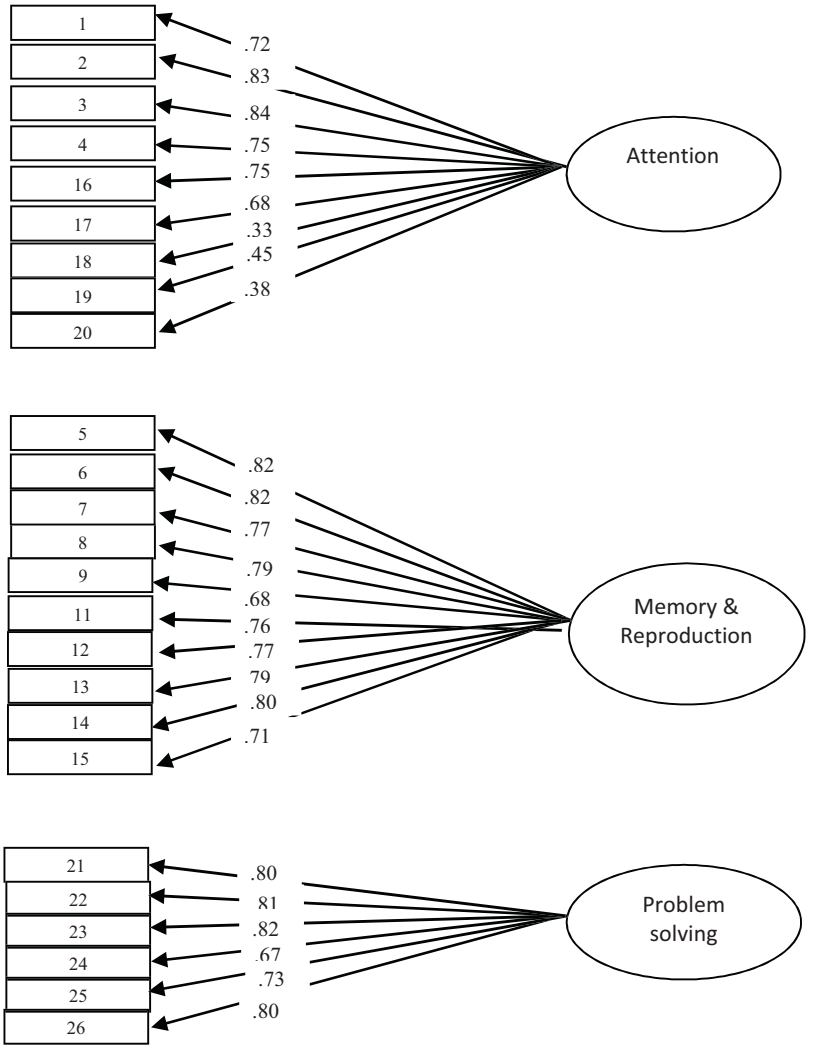
Table 1: *Item analysis results*

Item N.	*rjx*	Item N.	*rjx*	Item N.	*rjx*	Item N.	*rjx*
1	.68	9	.65	17	.80	25	.73
2	.77	10	.69	18	.80		
3	.79	11	.72	19	.75		
4	.73	12	.75	20	.76		
5	.78	13	.76	21	.76		
6	.77	14	.67	22	.77		
7	.73	15	.65	23	.61		
8	.74	16	.76	24	.67		

The internal consistency reliability coefficient of the scale was .96.

3.2. Confirmatory factor analysis

In this study, CFA was made to analyse the structural validity. In the study, it was found that rate of the chi square value was (6959,515) 1.88 regarding the three-factor model. Confirmatory factor analysis



showed that the three-dimensional model fitted well: x^2=406.05, sd=203, p=.000, RMSEA=.071, RFI=.97, NFI=.98, NNFI=.98, CFI=.99, IFI=.99, RFI=.97, SRMR=.044. The CFA results and factor loads in respect of the problem solving scale are presented Figure 1.

4. Discussion

In this research, PSS was adapted into Turkish and psychometric properties were examined with a sample consisting of Turkish students studying in preschool. In this study, the Turkish adaptation of PSS's was improved Willoughby-Herb and Neisworth, (1983) and searching reliability and validity of Turkish form was aimed. Groups which are leading reliability and validity of study, in terms of numbers, are enough in every respect of statistically analysis's. (Tabachnick and Fidell, 2001). PSS's form validity was searched with CFA. It shows that, PSS's Turkish form's reliability factor is high, and the original form which is near to reliability is in sufficient level. For the assessment and evaluation instruments

which are used in the studies, reliability level is considered as .70, measurements which were gained from PSS's Turkish form can be said, are reliable. When considered that it distinguishes the individuals really well in terms of measured features (Özdamar, 2004), in commenting the total substance correlation parameter, it is seen that the parameters of total substance correlation for substances .30 or higher are on a high level.

As far as the findings of PSS's studies on the validity and reliability of the form of Turkish language are concerned, it could be considered that the scale is ready to be used. However, as the validity and reliability studies are conducted on preschool students, it seems essential that the scale be conducted on different groups in terms of validity and reliability. The results of the examples studied on preschool students present that the scale has considerable level of validity and reliability.

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