Available Online at http://iassr.org/journal
2014 (c) **EJRE** published by
International Association of Social Science Research - IASSR

ISSN: 2147-6284
European Journal of Research on Education, 2014, 2(2), 179-185
DOI: 10.15527/ejre.201426262

European Journal of Research on Education

The reliability-validity studies for the Student-Teacher Relationship Scale (STRS) *

Hülya Gülay Ogelman[a] †Serdal Seven [b]

[a]*Pamukkale University, Kinikli Campus, Denizli, 20020, Turkey*
[b]*Muş Alparslan University, Muş, Turkey*

Abstract

The purpose of this study is to conduct reliability-validity studies of the Student-Teacher Relationship Scale (STRS). The study is a survey for scale's adaptation to measures language equivalence, reliability and validity of the STRS in Turkish. The original scale was developed by Pianta to measure a teacher's perception of his or her relationship with a particular student. The STRS is the only self-report measure that assesses a teachers' perception of his or her relationship with a particular student, from preschool to Grade 3. The STRS measures student-teacher relationship patterns in terms of conflict, closeness, and dependency, as well as the overall quality of the relationship. The 28-item scale is a 5-point likert-type measuring instrument. The Turkish version of the scale was applied to the teachers of 280 preschool children and primary school students and the validity and reliability of the scale were tested. The STRS was translated into Turkish by five experts who were competent in both languages, English and Turkish. Translations made by the experts were compared and some changes were made in terms of cultural meaning and linguistic rules. Another expert who was competent in Turkish and English languages translated the scale back to English. The original and the Turkish translation of the scale were compared by the researchers and the final form of the Turkish version was completed. Statistics of internal consistency coefficients (Cronbach Alpha), factor analysis, and test re-test reliability were calculated for validity and reliability of the STRS as whole scale and its subscales.

Keywords: Student-teacher relationships, preschool, elementary children.

1. Introduction

Relations between children and adults have a great importance in academic success, social and emotional competence of children during preschool and primary school years (Pianta, 1999; Pianta, & Walsh, 1996). Child-teacher relationships support emotional development, self-regulation and school competencies (Denham & Burton, 1996; Pianta, & Harbers, 1996).

The Student-Teacher Relationship Scale (STRS) was developed to measure a teacher's perception of his and her relationship with a particular student. The STRS measures student-teacher relationship patterns in terms of conflict, closeness, and dependency, as well as the overall quality of the relationship. Development of the STRS was prompted by interests in a) teachers' own emotional and social experiences with children in their classrooms, b) applications of attachment theory in school settings, and c) the contribution of relationships with adults to students' academic and social competence (Pianta, 2001).

* This research presented at the III. European Conference on Social and Behavioral Sciences at the Sapienza University in Roma, Italy (February 6-8, 2014).

† *hgulay@pau.edu.tr*

Assessment measure of student-teacher relationship quality is one way to determine teacher's perception of his or her relationship with a particular student. This measure is in turn useful for determining how to improve the student's success in the classroom. STRS is currently the only standardised and validated instrument available for assessing a teacher's perception of his or her relationship with a specific student. As such, it offers an opportunity for school professionals to focus on this important context for development and school adjustment. It blends child-adult attachment theory with research on the importance of early school experiences in determining the trajectories of children's school progress (Pianta, 2001).

Any commonly used scale, which determines teacher-student relationship regarding children in the age group of 4-8 years in Turkey, has not been observed. There has been a scale developed for primary school, secondary school and high school students and teachers (İpek, &Terzi, 2010). It enables researchers to study on different subjects primarily investigation of relations of young children with their teachers, school adjustment, academic success, social adaptation, and peer relationships. Therefore, scales examining teacher-children relationship are required in Turkey. Such scales enable to increase and extend researches and develop programs for increasing education quality of both preschool education and primary schools.

Starting from this point of view, the purpose of the study is to conduct adaptation studies of the Student-Teacher Relationship Scale (STRS) into Turkish.

Method

In this study, scale adaptation studies were conducted to determine the reliability-validity levels of the Student-Teacher Relationship Scale (STRS).

1.1. Participants

The population of the study comprised of 4-8 year-old children (and teachers), attending the kindergartens and primary schools governed by the Ministry of National Education, located in the city centre of Muş. 145 (51.8%) of children were boys and 135 (48.2%) were girls. Distribution of age groups was as follows: 21 children from the age group of 4 (7.5%), 83 children from the age group of 5 (29.6%), 147 children from the age group of 6 (52.5%), and 29 children from the age group of 7 (10.4%). The sample group was consisted of children attending at 6 independent kindergartens and grade 1 of 6 primary schools in the city centre of Muş. Moreover, 24 teachers (6 male teachers and 18 female teachers/19 preschool teachers and 5 classroom teachers) filled out the form. Teachers participating in the study were asked to fill out the form for how many children and children were selected by lot as per the number they specified.

2.2.Instruments

A personal information form and the Student-Teacher Relationship Scale (STRS) were used to gather the data.

The Personal Information Form involved questions regarding demographic information about the children and their parents. The Personal Information Form was formed by researchers.

The Student-Teacher Relationship Scale (STRS)

The STRS is a 28-item self-report instrument designed to assess a teacher's perception of her or his relationship with a particular student. Item scores range from 1 to 5 (1 = definitely does not apply; 2 = not really; 3 = neutral, not sure; 4 = applies somewhat; and 5 = definitely applies). This measure was designed to be used for children aged between 4 and 8 and contains three subscales:

Conflict (12 items) measures the teacher's feelings of negativity and conflict with the student (e.g., "This child and I always seem to be struggling with each other");

Closeness (11 items) evaluates the teacher's feelings of affection and open communication with the student (e.g., "I share an affectionate and warm relationship with this child");

Dependency (5 items) evaluates the teacher's perception of the student as overly dependent (e.g., "This child asks for my help when he/she really does not need help"). The total score ranges from 28 to 140, and higher scores indicate a better student–teacher relationship. Items 4 and 19 are reverse scored. The score is calculated using the following formula: Total Score = (72 − Conflict) + Closeness + (30 − Dependency) (Pianta, 2001).

2.3. Procedure

As stated previously, before collecting data, the permission was requested from the Provincial Directorate of National Education in Muş in order to get in touch with the schools. Kindergarten teachers and primary school teachers were informed about the study. They completed the Personal Information Form and the Student-Teacher Relationship Scale (STRS).

Translating the Scale into Turkish

The Student-Teacher Relationship Scale (STRS) was translated into Turkish by five academicians that are specialized on the subject and have a good command of both English and Turkish. Translations were complied and compared. Amendments required in terms of cultural meaning and grammars were completed accordingly. The Turkish form, established by another expert that has a good command of both English and Turkish, was retranslated into English. The original and translated forms were compared by researchers. No difference was determined between both forms, and the final state of the scale's Turkish form was established.

Reliability of Scale

The techniques of internal consistency coefficient and test-retest were used in the scale's reliability.

Validity of Scale

While Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were used for validity of the scale, the technique of expert opinion was used in the face validity.

1.3. Data Analysis

The data were analysed by using SPSS 17.0 and AMOS 18. The validity of the scale was conducted with the statistical methods of Exploratory Factor Analysis (EFA), Correlation, and Confirmatory Factor Analysis (CFA). On the other hand, its reliability was found by Cronbach's Alpha internal consistency coefficient and test re-test reliability.

2.Results

In the face validity of the scale, views of 5 academicians studying on the subjects of teacher-student relation, school adjustment, and classroom management in the departments of preschool education and classroom teaching were taken. In their views, all experts stated that the scale was convenient for the signified subject and the age group.

The convenience of the data for the Exploratory Factor Analysis could be examined through Kaiser- Meyer-Olkin (KMO) coefficient and Bartlett's test of Sphericity. When KMO is above .60 and Bartlett's test is significant, this shows that the data are convenient for the factor analysis (Büyüköztürk, 2004). In validity studies of the scale, it was primarily determined that the data obtained as a result of the application of the assessment instrument were appropriate for the sample group at a level of 0.001, KMO value was .83 and the significance value of the Bartlett's Test was 0.000. Accordingly, it could be asserted that the data were convenient for the factor analysis.

Table 1.The results of the exploratory factor analysis for Turkish version of the Student-Teacher Relationship Scale (STRS)

Factor/Item	Common Factor Variance	Item Load Value		
		Factor 1	Factor 2	Factor 3
Conflict				
I24	,62	,741		
I20	,55	,734		
I22	,51	,675		
I23	,52	,663		
I18	,53	,652		
I11	,42	,603		
I 26	,40	,586		
I 25	,43	,579		
I 16	,35	,545		
I 19	,31	,527		
I 2	,31	,487		
I 13	,37	,395		
Closeness				
I 28	,29		,416	
I 27	,60		,766	
I 9	,57		,747	
I 5	,51		,656	
I 12	,44		,624	
I 3	,48		,575	
I 7	,36		,548	
I 1	,50		,539	
I 10	,34		,442	
I 15	,27		,441	
I 4	,05		,220	
Dependency				
I 17	,64			,779
I 14	,48			,688
I 6	,36			,592
I 21	,27			,503
I 8	,25			,462

The results of the exploratory factor analysis in Table 1 showed the existence of a significant and three-factor structure. Factors explain 42.35% of the total variance. While the factor one titled “Conflict” explained 18.60% of the variance, the factor two titled “Closeness” explained 13.70% of the variance and the factor three titled “Dependency” explained 10.04% of the variance. Load values explained by the factor in items varied between .22–.77. On the other hand, the factor load values varied between .39-.74 for the factor one .22-.76 for the factor two, and .46-.77 for the factor three.

The extent of the convenience of the three-factor structure of the scale with the obtained data was examined by the Confirmatory Factor Analysis. A hypothesis or theory previously determined concerning the relation between variables in the Confirmatory Factor Analysis is in the factorial structure that is stiffly fictionalised or explored (Cole, 1987; Sümer, 2000; Tabachnick, &Fidell, 2001). In order to evaluate the validity of the factorial structure (model) of the scale in CFA, chi-square statistics and a number of fit indexes were used. Among these indexes, the most frequent ones were Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Root Mean Square Residuals (RMR or RMS), and Root Mean Square Error of Approximation (RMSEA). Figure 1 illustrates the CFA result concerning the structure of the three-factor scale.

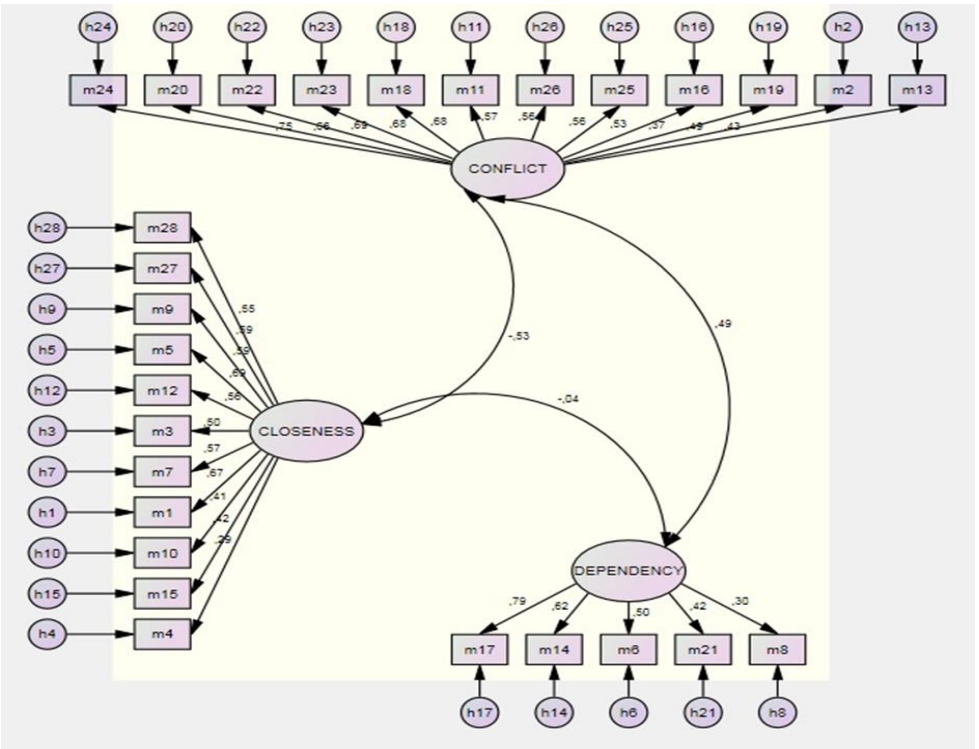

Figure 1. Confirmatory factor analysis model concerning the three-factor structure of the Turkish version of the Student-Teacher Relationship Scale (STRS)

Examining Figure 1; the fit statistics calculated with CFA that was conducted to confirm the three-factor structure of the Student-Teacher Relationship Scale were as follows: χ^2= 835.538 (N=280, sd=347, p=.00), (χ^2/sd)=2.40, GFI= .79, AGFI=.76, SRMR= .09, and RMSEA= ,08. The fact that the GFI value was above .85, AGFI value above .80, RMS value below .10 and the "χ^2/sd" below 5 in the literature (Anderson, & Gerbing, 1984; Cole, 1987) was accepted as a criterion for the convenience of the model with the actual data (Jöreskog, & Sorbom. 1993; Sümer, 2000). Fit statistics signify that the factor structure examined showed a good convenience with the real data. These findings showed that the three-factor structure of the Student-Teacher Relationship Scale was a valid structure.

Table 2. Correlation values of the Student-Teacher Relationship Scale (STRS) and its subscales

	Closeness	Dependence	Total score
Conflict	-,414**	,411**	,731**
Closeness		,040*	,251**
Dependence			,713**

N= 280 *p<.05, **p<.01

Table 3. Internal consistency coefficients of the Student-Teacher Relationship Scale (STRS) and its subscales

	(Cronbach Alpha)	Number of items
The Student-Teacher Relationship Scale	.73	28
Conflict	.86	12
Closeness	.80	11
Dependence	.65	5

As is seen in Table 3, the cronbach's alpha coefficient that was calculated to evaluate the internal consistency of scores obtained from the Student-Teacher Relationship Scale was .73. The calculations for subscales were as follows; Conflict .86, Closeness .80, and Dependency.65. These findings showed that the scores obtained from the Student-Teacher Relationship Scale had a high reliability. Examining the internal consistency coefficients of the original scale, they were found as .89 for the whole scale, .92 for the conflict, .86 for closeness, and .64 for dependency (Pianta, 2001).

Estimates of test-retest reliability and stability of STRS Turkish form were obtained from a subsample of the normative sample. The scale was refilled out for 40 children who were selected randomly among the study group with an interval of 3 weeks. Test-retest correlations were as follows (all significant at $p < .05$); Closeness .80, Conflict, .85, Dependency, .81; total, 84).

The criteria validity could not be examined as there is no relevant other scale examining the teacher-student relationship for the age group of 4-8 in Turkey.

The scale prepared in line with these analyses was accepted to be valid and reliable.

4.Discussion

There is a gradual increase in the number of studies on the classroom relationship levels of teachers and students both in the world and in Turkey. However, there is a need for valid and reliable scales in Turkey in order to determine the classroom and school behaviours based on evaluation of the level of teacher-student relationship.

Regarding the validity of the Student-Teacher Relationship Scale, the analysis results showed that its convenience to the sample group was 0.001 and while KMO value was .83, significance value of Bartlett's Test was 0.000. Accordingly, the data were observed to be convenient for the factor analysis. According to the exploratory factor analysis, factors in the scale explained 79.97% of the total variance. This rate indicates a strong structure. A three-factor structure was revealed in the Turkish version of the scale just like in the original scale (Pianta, 2001). The fact that the item-total correlations of the scale items varied between ,22 and ,77 showed that the items were aimed at measuring the same behaviours. The results of the Confirmatory Factor Analysis showed that the three-factor structure had a good convenience with the actual data. On the other hand, the reliability of the scale was found to be sufficient compared to the entire scale (.73) and sub-factors (Conflict .86, Closeness .80, and Dependency.65). According to these data, it was determined that the Student-Teacher Relationship Scale was a valid and reliable scale, which was convenient for the Turkish Culture. Thus, the scale was proven to be used in Turkey.

As a consequence, the findings obtained as a result of validity and reliability analyses revealed that the Student-Teacher Relationship Scale was valid and reliable. The scores to be obtained from this scale are thought to be useful for some studies that will describe the relations between the teacher-student relationship and different variables at preschool ages of 4, 5, and 6, and in 1st, 2nd and 3rd grades of primary school. On the other hand, this study is expected to result in bringing new valid and reliable scales to be used in Turkey concerning the social competence.

This study has some limitations. According to limitations and results, the following points could be considered in future studies:

Teacher-child relationship has a great importance during the preschool period and the first years of primary school. The relationships of young children with their preschool teachers, whom they may take as a model just like their parents and get attached, could be effective in both the kindergarten and primary school. The teacher-child relationship in primary school may also affect the school adaptation and academic success of the child. Thus, it is required to increase and diversify the studies aimed at teacher-child relationship especially in countries like Turkey, where relevant studies are insufficient.

Assessment instruments, on which different techniques regarding teacher-student relationship are used, may be developed or adaptation studies may be conducted. Studies involving teacher-student relationship and different variables should be conducted. Studies on teacher-student relationship should be increased and extended. Inservice trainings aimed at both preschool and primary school teachers for development of teacher-student relationship, classroom management, and formation of positive classroom atmosphere should be provided. Programs aimed at developing the teacher-student relationship should be developed and applied. Studies longitudinally examining the teacher-student relationship should be conducted. The teacher-child relationships should be approached on more crowded sample groups and in different cities and school types. It is required to conduct assessments based on the relevant views of teachers, as well as observations and the views of children and parents. It is also required to increase the applied lessons of undergraduate students receiving education in the departments of preschool education and classroom teaching and enable them to gain more experiences about the teacher-child relationship. Parents should be informed about the importance of teachers in the lives of children and supported to prevent to display behaviors at home that might cause children to have misperceptions about teachers.

References

Anderson, J. C. & Gerbing, D. W. (1984). The effect of sampling error on convergence, improper solutions, and goodness-offit indices for maximum likelihood confirmatory factor analysis. *Psychometrika*, 49, 155-173.

Büyüköztürk, Ş. (2004). *Data analysis handbook for social science.* Ankara: Pegem A Publishing (in Turkish).

Cole, D. A. (1987). Utility of confirmatory factor analysis in test validation research. *Journal of Consulting and Clinical Psychology*, 55, 1019-1031.

Denham, S., & Burton, R. (1996). A social-emotional intervention for at-risk four-year-olds. *Journal of School Psychology*, 34, 225-246.

İpek, C., & Terzi, A. R. (2010). Investigating teacher-student relationships in the primary and secondary schools based on teachers' views: The case of Van city. *Educational Administration: Theory and Practice*, 16(3), 433-456 (in Turkish).

Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language*. Hillsdale, NJ: Lawrence Erlbaum Associates Publishers.

Pianta, R. C. (1999). *Enhancing relationships between children and teachers.* Washington, DC. American Psychological Association.

Pianta R. C. (2001). *The Student–Teacher Relationship Scale.* Charlottesville: University of Virginia.

Pianta, R. C. & Harbers, K. (1996). Observing mother and child behavior in a problem solving situation at school entry: Relations with academic achievement. *Journal of School Psychology*, 34, 307-322.

Pianta, R. C., & Walsh, D. J. (1996). *High risk children in schools: Creating sustaining relationships.* New York: Routledge.

Sümer, N. (2000). Structural equation modeling: Basic concepts and sample applications. *Turkish Psychological Articles* 3(6), 49-74 (in Turkish).

Tabachnick, B. G., & Fidell, L.S. (2001). *Using multivariate statistics* (Fourth edition). Boston: Allyn and Bacon.