

# Student-Teacher Relationship in the Secondary Schools: A Factorial Study\*

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This article contributes to the widening of the international literature concerning the teacher-student relationship under different perspectives: cross-cultural, statistical, and applicative. This work strengthens the psychometric basis of the Student-Teacher Relationship Scale by confirming the three-dimensional structure of the original instrument. Therefore, on the basis of the factor analysis, the instrument proves to apply also to the Vietnamese context. The Student-Teacher Relationship Scale, given its validity, can be a serviceable tool for studying such a construct, both as a monitoring scale of a given relationship and as a way to help teachers achieve a better level of awareness of their educational skills.

*Keywords:* student teacher relationships, factor analysis, Closeness, Conflict, Dependency

## Introduction

Teaching is an interactive and interpersonal process that seems to influence classroom experience and emotional development. A growing body of literature suggests that the quality of teacher-student relationships is a determining factor in students' competence in social-emotional, behavioral functioning, and academic skills (Baker, 2006; Birch & Ladd, 1998; Burchinal et al., 2008; Hughes & Kwok, 2007; C. Murray, K. M. Murray, & Waas, 2008). The impact of teacher-student relationships has been well documented from a wide array of researches in the last years (Drugli & Hjemdal, 2013; Hamre, Hatfield, Pianta, & Jamil, 2014). The increasing recognition of the contribution of teacher-student relationships to students' development, school adjustment, and academic success increases the demand for precise and accurate measurement of the quality of these relationships (Tsigilis, Gregoriadis, & Grammatikopoulos, 2018).

There are a few instruments that assess the quality of teacher-student relationships in education available in the literature, for example, the Teacher-Child Rating Scale (Hightower et al., 1986), the Young Children's Appraisals of Teacher Support (Mantzicopoulos & Neuharth-Pritchett, 2003), the Student-Teacher Relationship Observation Measurement (Glüer & Hannover, 2012), the Classroom Assessment Scoring System (Pianta, La Paro, & Hamre, 2008), and the Child Appraisal of Relationship with Teacher Scale (Vervoort, Doumen, &

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Verschueren, 2015). One of the most widely accepted and used instruments to evaluate teachers' perceptions of their relationships with individual students is the Student-Teacher Relationship Scale (STRS, Pianta, 2001), which is the measure applied in the current research. STRS is a 28-item questionnaire that combines theory on child-adult attachment and child development. Based on attachment theory, the STRS measures teachers' perceptions of their relationships with individual students and their perceptions about students' behavior and feelings towards them (Pianta, Hamre, & Stuhlman, 2003). It contains three subscales, which assess three relational dimensions: Closeness, Conflict, and Dependency.

The STRS has been applied in various countries and different cultural backgrounds, for example, in Germany, Greece, Turkey, and the United States of America (USA).

However, the literature reveals some inconsistent findings regarding the item solution and the factor structure of the scale. For example, there are some researches that confirm the 28-item solution and the three-factor structure (Glüer & Gregoriadis, 2017; Pianta, 2001). On the other hand, several researches in the USA and other countries did not find evidence supporting the original item solution and factor structure of the STRS, especially when applying confirmatory factor analysis (CFA) (Drugli & Hjemdal, 2013; Fraire, Longobardi, Prino, Sclavo, & Settanni, 2013; Milatz, Glüer, Harwardt-Heinecke, Kappler, & Ahnert, 2014). Taken together, the findings from all these researches on the STRS imply that the factorial validity of the STRS may vary, and highlight the need for further exploration of the validity of STRS in different cultural contexts and non-USA samples. Some of the researches that discuss the reasons for this variation attribute it especially to cultural differences in the construct of dependency (Milatz et al., 2014; Solheim, Berg-Nielsen, & Wichstrøm, 2012; Mi-young & Neuharth-Pritchett, 2011). For example, Solheim et al. (2012) mentioned that "the meaning and interpretation of a dependent relationship may be subject to cultural differences" (p. 260). This finding was attributed to differences in the cultural backgrounds (individualistic vs. collectivistic framework) and the way relationships are perceived and interpreted.

The conceptual shift of dependency can be explained in terms of the contrasting continuum between individualistic and collectivistic cultures (Binh, 2013; Triandis, 1990). Independent cultures (individualistic) could be stressing the conflictual nature in dependent relations and therefore focus on strategies to cope with over-dependency, making this process conflictual; in contrast, interdependent cultures (collectivistic) might give emphasis on the helpless aspect of dependency and invest on proximity to improve the relation (Milatz et al., 2014). People from collectivistic cultural backgrounds do not necessarily interpret dependency as a negative characteristic of the quality of teacher-student relationship or as a disturbing aspect of a student's behaviour. The reported previous researches reveal that there is a need to further examine the factorial validity of the STRS and especially the dependency subscale in different cultural contexts (Tsigilis et al., 2018). Hence, the primary purpose of this research was to test the dimensional structure of Closeness, Conflict, and Dependency of the adapted STRS in a cultural context—different from that where it has been developed.

## Method

### Participants

After removing cases with a significant amount of missing data, the sample for this research involved 1,110 Vietnamese secondary school students from urban and suburban areas of three provinces in Vietnam (Hanoi, Sonla, and Thanhhoa). With regard to students' gender, 49% were females and 51% were males. For each classroom, only one teacher rated the students. More specifically, 202 secondary school teachers provided

STRS forms for the secondary school students.

### **Instruments**

The adapted STRS suggested again a 28-item version that assesses three dimensions, Closeness (11 items), Conflict (12 items), and Dependency (five items) (see Table 2). The items are rated by a five-point Likert scale from 1 (definitely does not apply) to 5 (definitely applies). Pianta (2001) reported satisfactory internal consistency for the three subscales. Cronbach's alpha was 0.86, 0.92, and 0.64 for Closeness, Conflict, and Dependency, respectively (Pianta, 2001).

### **Procedure**

The scale was translated into Vietnamese following the criteria established by Gudmundsson (2009) concerning the translation and adaptation of assessment instruments to foreign languages and cultures (Gudmundsson, 2009). Two bilingual people were initially involved in the process of translation from English to Vietnamese. Subsequently, the original questionnaire and the Vietnamese translation were compared by a second pair with the task of identifying any discrepancies between the original language and Vietnamese.

The research's design was reviewed and approved by the Ministry of Education and Training (MOET) that provides the permissions to implement studies in school settings. The authors informed the teachers about the research's purpose and procedures and asked for their consent. The parents were also informed with a letter and they were asked to sign a consent form if their child would be randomly selected to be rated by the teacher.

### **Statistical Analysis**

Statistical Package for the Social Sciences (SPSS) was used to analyze the data. Data from the sample were analyzed by applying exploratory factor analysis (EFA) to identify possible misbehaving items in the Vietnamese sample. The EFA results allowed us to assess which factors should be retained from the Vietnamese version of the STRS. Then, confirmatory factor analysis (CFA) was conducted using Amos to test the adherence of the retained items' factor structure to Pianta's (2001) original factor structure, even after having considered the reciprocal correlations of the resulting subscales.

## **Results**

### **Exploratory Factor Analyses**

Exploratory factor analysis was employed to assess the multidimensional structure of the construct measured by STRS. The EFA was performed by using principal component method in SPSS. In the first step, all 28 indicators were retained for the analysis. The number of factors to be retained was determined using a screeplot examination (Nesselroade & Cattell, 2013).

A principal component analysis (PCA) was conducted on the 28 items with orthogonal rotation (varimax). The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis,  $KMO = 0.88$ , which is well above the acceptable limit of 0.50. Bartlett's test of sphericity  $X^2(378) = 14707.56$ ,  $p < 0.001$  indicated that correlations between items were sufficiently large for PCA. An initial analysis was run to obtain eigenvalues for each component in the data. Three components had eigenvalues over Kaiser's criterion of 1 and in combination explained 45.16% of the variance (see Figure 1).

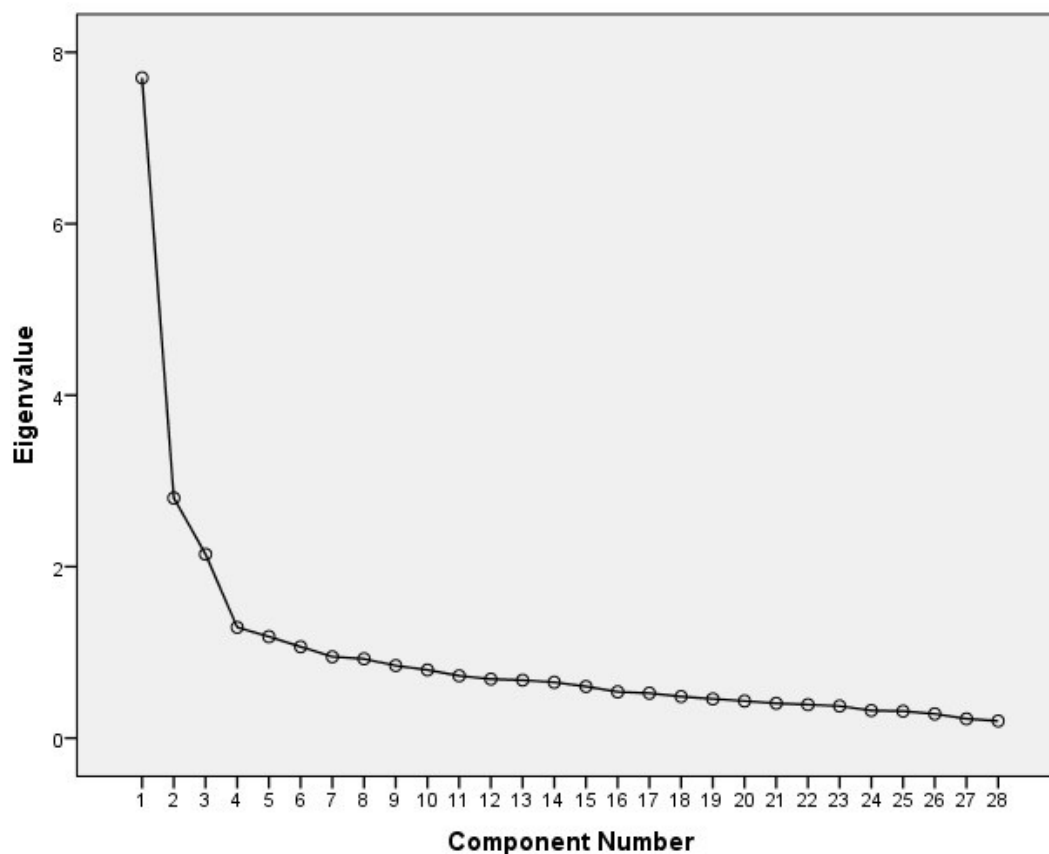


Figure 1. The screeplot of exploratory factor analysis on STRS items.

The best solution was represented by the three-factor structure. The factor loadings are reported in Table 1. From Table 1, it is evident that the three extracted factors represent the three proposed types of relationships between teachers and students. However, it should be noted that many items had a cross-loading on another factor. The factor loadings  $< 0.40$  are suppressed. Again, the three extracted factors were labeled: (1) Conflict; (2) Closeness; and (3) Dependency.

Table 1

*Factor Loadings for Exploratory Factor Analysis With Varimax Rotation*

Item	Factors		
	1	2	3
2. This child and I always seem to be struggling with each other. (Cf)	0.403		
11. This child easily becomes angry with me. (Cf)	0.590		
13. This child feels that I treat him/her unfairly. (Cf)	0.472		
16. This child sees me as a source of punishment and criticism. (Cf)	0.677		
18. This child remains angry or is resistant after being disciplined. (Cf)	0.759		
19. When this child is misbehaving, he/she responds to my look or tone of voice. (Cf)	0.799		
20. Dealing with this child drains my energy. (Cf)	0.671		
22. When this child is in a bad mood, I know we're in for a long and difficult day. (Cf)	0.724		
23. This child's feelings toward me can be unpredictable or can change suddenly. (Cf)	0.838		
24. Despite my best efforts, I'm uncomfortable with how this child and I get along. (Cf)	0.782		
25. This child whines or cries when he/she wants something from me. (Cf)	0.740		
26. This child is sneaky or manipulative with me. (Cf)	0.633		

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1. I share an affectionate, warm relationship with this child. (C)	0.652
3. If upset, this child will seek comfort from me. (C)	0.670
4. This child is uncomfortable with physical affection or touch from me. (C)	0.682
5. This child values his/her relationship with me. (C)	0.560
7. When I praise this child, he/she beams with pride. (C)	0.530
9. This child spontaneously shares information about himself/herself. (C)	0.434
12. This child tries to please me. (C)	0.518
15. It is easy to be in tune with what this child is feeling. (C)	0.507
21. I've noticed this child copying my behavior or ways of doing things. (C)	0.486
27. This child openly shares his/her feelings and experiences with me. (C)	0.503
28. My interactions with this child make me feel effective and confident. (C)	0.640
6. This child appears hurt or embarrassed when I correct him/her. (D)	0.652
8. This child reacts strongly to separation from me. (D)	0.627
10. This child is overly dependent on me. (D)	0.623
14. This child asks for my help when he/she really does not need help. (D)	0.641
17. This child expresses hurt or jealousy when I spend time with other children. (D)	0.517

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*Notes.* Factor 1 is Conflict (Cf). Factor 2 is Closeness (C). Factor 3 is Dependency (D). Factor loadings < 0.40 are suppressed. Items' numbering is the same as Pianta (2001).

### **Confirmatory Factor Analysis**

Based on the EFAs results, we conducted a confirmatory factor analysis by using Amos software. An advantage of CFA is that measurement error is taken into account and hence, conclusions about relationships between constructs are more accurate (Brown, 2015). The tested factor structure is depicted in Figure 2.

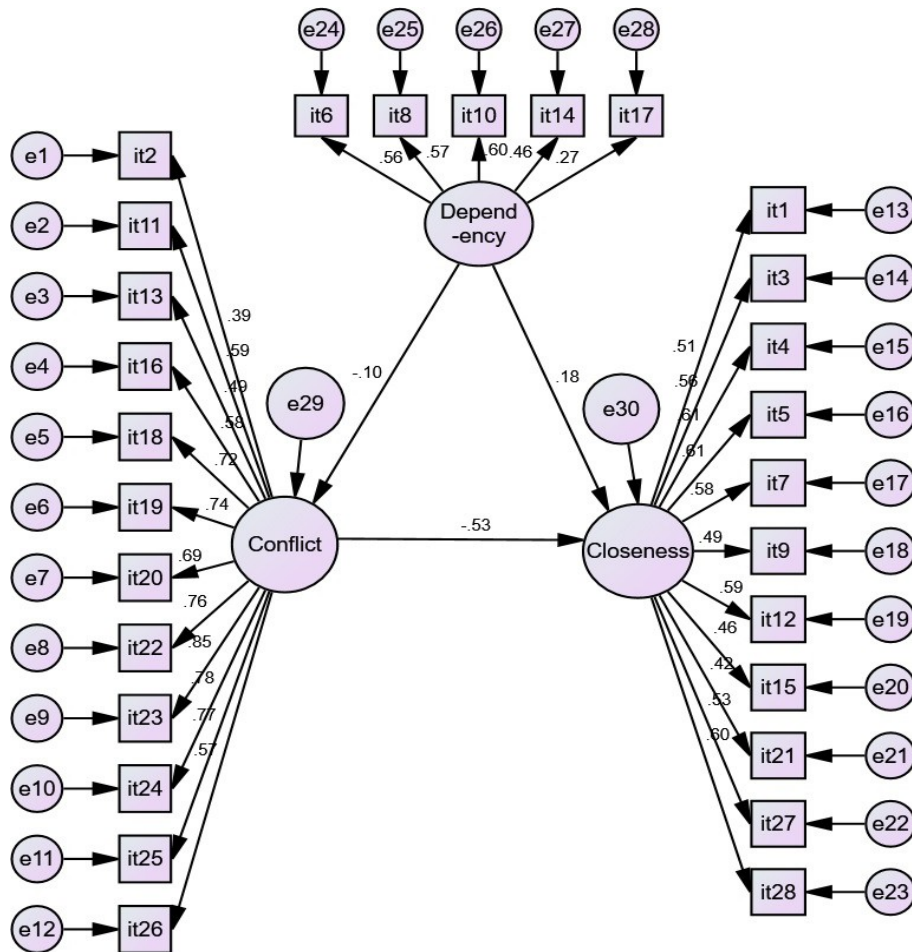


Figure 2. The structure of confirmatory factor analysis on STRS items.

The model that had a closer fit to the empirical data was one with three latent factors (see Table 2), namely, Conflict, Closeness, and Dependency. As for comparative fit indices, in terms of goodness-of-fit ( $X^2(347) = 4078.42, p < 0.001$ ). The root mean square error of approximation (RMSEA) value is a mediocre fit (0.091) (Byrne, 2013).

Standardized-root-mean-residual (SRMR) = 0.084. In opposition, both comparative fit index (CFI) (0.742) and Tucker-Lewis index (TLI) (0.719) value fall short of being at an acceptable cut-off.

Table 2

*Goodness-of-Fit Estimates for Confirmatory Factor Analysis*

Model	df	$X^2$	$X^2/df$	TLI	CFI	RMSEA	SRMR
Three factors	347	4078.42	11.75	0.719	0.742	0.091	0.084

Notes. TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = Standardized-root-mean-residual.

All indices of this model suggest that additional adjustment of the instrument will be needed if it is to be adapted for this particular theoretical model including all three dimensions for the Vietnamese version.

### Discussion

The common elements among the studies seem to suggest that shared cultural traits will become the object of future research. Stepping back from the original version, we decided to focus on the factor analysis. EFA as well as CFA adopting approach seems to support the psychometric properties in the Vietnamese educational setting. In the EFA case, where items are free to load to any factor, the proposed factor structure was revealed. Similarly, in the case of CFA, the proposed factorial structure of STRS was also confirmed. The 28-item Vietnamese version of the scale confirms the three-factor structure suggested by Pianta (2001) and underlines the essential dimensions of Conflict, Closeness, and Dependency.

This research project is a little lacking with respect to the predictive and concurrent validity. More specifically, it would be important to also investigate the child's present and future scholastic abilities, behavioral problems, emotional and social capabilities, and peer relationships; similarly, it would be important to take into account variables regarding the teachers, such as their prior professional experience, personality traits, relational capacities, self-efficacy perception, and perceived stress level.

### Conclusion

This research project contributes to the widening of the international literature concerning the teacher-student relationship under different perspectives: cross-cultural, statistical, and applicative. This work strengthens the psychometric basis of the STRS by confirming the three-dimensional structure of the original instrument. Therefore, on the basis of the factor analysis, the instrument proves to apply also to the Vietnamese context. The STRS, given its validity, can be a serviceable tool for studying such a construct, both as a monitoring scale of a given relationship and as a way to help teachers achieve a better level of awareness of their educational skills. Furthermore, the adapted STRS can provide teachers with useful indications for better regulating their educational practice in Vietnam.

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