



**SIRS**

TM

**Student-Teacher  
Relationship Scale™**

## **Professional Manual**

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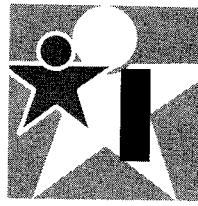
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## INTRODUCTION

### Purpose

The Student-Teacher Relationship Scale (STRS) was developed to measure a teacher's perception of his or her relationship with a particular student. Specifically, 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. The STRS is the only self-report measure that assesses a teachers' perception of his or her relationship with a particular student, from preschool through Grade 3.

The STRS is primarily used as a tool for assessing student-teacher relationships in the context of efforts to prevent or to intervene early in the course of development of adjustment problems in school. Specifically, the STRS is used with a program entitled *Students, Teachers, and Relationship Support* or STARS (Pianta & Hamre, 2001) as a tool for identifying student-teacher relationships that need intervention and support. The STRS can also be used to evaluate improvements in the quality of student-teacher relationships as a function of using the STARS intervention. In addition, the STRS can be used in educational assessment batteries to determine the extent to which relationship problems or strengths should be addressed in program planning, and it can be used as a tool for researching classroom processes.

### Description

The STRS is a 28-item self-report instrument that uses a 5-point Likert-type rating scale to assess a teacher's perception of his or her relationship with a student, a student's interactive behavior with the teacher, and a teacher's beliefs about the student's feelings toward the teacher. The teacher rates the extent to which a particular item applies to his or her relationship with a particular student. The STRS is scored by summing groups of items corresponding to three factor-based subscales that capture three dimensions of student-teacher relationships: Conflict, Closeness, and Dependency. By using raw scores from these three subscales, a Total scale score is obtained which assesses the overall quality of the relationship. A brief description of the STRS scale and subscales is provided in Table I.

The STRS is appropriate for students in preschool through Grade 3 (typical ages of these students range from ages 4 through 8 years). Development of the STRS began in 1991; since then the STRS has been normed on more than 1,500 students and 275 teachers and has been shown to be psychometrically reliable and valid.

### Background

Relationships between children and adults play a prominent role in the development of students' academic, social, and emotional competencies in the preschool, elementary, and middle-school years (Birch & Ladd, 1997; Pianta, 1999; Pianta & Walsh, 1996; Wentzel, 1996). A comprehensive review of these relationships and their effects on children is provided in *Enhancing Relationships Between Children*

**Table I**  
**Description of the Student-Teacher Relationship Scale (STRS) and Subscales**

Scale/ Subscales	No. of items	Description
Conflict	12	Measures the degree to which a teacher perceives his or her relationship with a particular student as negative and conflictual. High Conflict scores indicate that the teacher struggles with the student, perceives the student as angry or unpredictable, and consequently the teacher feels emotionally drained and believes he/she is ineffective.
Closeness	11	Measures the degree to which a teacher experiences affection, warmth, and open communication with a particular student. High Closeness scores indicate that the relationship is characterized by warmth, and the teacher believes he or she is effective because the student uses the teacher as a source of support. High Closeness scores also reflect a greater sense of knowing on behalf of the teacher that the student is well and the student can effectively use the teacher as a resource.
Dependency	5	Measures the degree to which a teacher perceives a particular student as overly dependent on him/her. High Dependency scores suggest that the student reacts strongly to separation from the teacher, requests help when not needed, and consequently the teacher is concerned about the student's overreliance.
Total	28	Measures a teacher's overall view of his or her relationship with a particular student. High Total scores suggest higher relationship quality. Specifically, higher Total scores reflect a relative lack of conflict, lower dependency, and higher closeness.

and Teachers (Pianta, 1999). Child-parent and child-teacher relationships support the development of peer relations (e.g., Ellicker, Egeland, & Sroufe, 1992; Howes, Matheson, & Hamilton, 1994), emotional development and self-regulation (Denham & Burton, 1996), and school competencies such as attention, motivation, problem solving, and self-esteem (Birch & Ladd, 1997; Pianta & Harbers, 1996). Relationships with adults also figure prominently in developmental pathways toward behavior problems, particularly disruptive behavior (Campbell, 1994; Greenberg, Speltz, & DeKlyen, 1993; Toth & Cicchetti, 1996).

Relationships with teachers influence many school-related outcomes (Birch & Ladd, 1997; Howes, Matheson, & Hamilton, 1994; Pianta, 1992; Wentzel, 1996), such as competencies with peers in the classroom (e.g., Howes, Matheson, & Hamilton, 1994) and trajectories toward academic success or failure (Birch & Ladd, 1997; Hamre & Pianta, 2001; Pianta, Steinberg, & Rollins, 1995). Like the parent-child relationship, the teacher-student relationship may vary in nature and quality. Some teacher-student relationships can be characterized as close and

affectionate, others as distant and formal, and still others as conflictual (Howes & Matheson, 1992; Pianta et al., 1995).

Howes and colleagues conducted a series of studies relating child-parent and child-teacher relationships to each other and to early childhood outcomes in a sample of preschool and young school-aged children (Hamilton & Howes, 1992; Howes, Hamilton, & Matheson, 1994; Howes, Matheson, & Hamilton, 1994). They established a low to moderate degree of continuity in the quality of relationships that children have with mothers and with teachers (Howes & Matheson, 1992). Both of these relationships play a role in a child's peer competencies, albeit relationships with teachers are stronger predictors of behavior with peers in the classroom than are the relationships with parents (Howes, Matheson, & Hamilton, 1994).

Studies have also used children's self-reports of their relationships with teachers with results similar to those using teacher perceptions. Wentzel (1996) reported that middle-school students readily described the value of relationships with teachers. Relationships characterized by open communication

and a sense of closeness appear particularly valuable to children at this age. In addition, Lynch and Cicchetti (1992) established that maltreated children, as a result of experiences with parents, tend to seek certain relational experiences with teachers. Although they report a desire to be close to teachers, maltreated children tend to behave toward teachers in less positive ways than non-maltreated children.

Birch and Ladd (1997) studied teacher-child relationships extensively in early elementary classrooms and suggested that children have a generalized interpersonal style (moving toward, moving against, and moving away) that characterizes their interactions with peers and with teachers. Presumably this style is a product of interactions with parents. This style is correlated with children's behavior with peers (moving toward predicts closeness, moving against predicts conflict, moving away predicts isolation), teachers' reports of externalizing behavior (for the moving against style), and some academic competencies. The results of Birch and Ladd (1997, 1998) confirm findings presented by the body of research of both Howes and Pianta suggesting the importance of social processes, particularly relationship processes, in many aspects of classroom performance. Teachers' relationship perceptions and experiences with students provide a window for classroom processes that relate to important indicators of child success or failure.

An assessment measure of student-teacher relationship quality is one way to determine a 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. The Student-Teacher Relationship Scale (STRS) is currently the only standardized 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. The STRS has undergone extensive development and

revision in many studies since 1991. It has been used throughout the U.S. in several large-scale national studies, in many smaller-scale studies, and by many school personnel in a wide range of applications.

## **History of the Student-Teacher Relationship Scale**

Pianta and Nimetz (1991) developed the pilot version of the STRS using a sample of 24 kindergarten teachers and 72 students from their classrooms. These teachers carefully reviewed the STRS items and helped evaluate item content and wording. This initial version of the STRS contained 16 Likert-type items and 3 open-ended questions designed for further item development. Two factors emerged from factor analyses of this initial version of the scale – a "positive relationship" factor reflecting warmth and open communication and a "dependent" factor reflecting overdependence and vulnerability in the student. Subscales based on these factors were moderately related to concurrent measures of classroom adjustment in kindergarten, teacher ratings of adjustment in first grade, and end-of-year retention decisions (Pianta & Nimetz).

Based on the initial pilot study (Pianta & Nimetz, 1991) and extensive review of items by a panel of 12 elementary school teachers and administrators, several items were dropped from consideration and many new items were written to assess negative aspects of the student-teacher relationship as well as other positive aspects. The resulting second version of the STRS contained 31 items and was used extensively in many large-scale national studies, including The National Institutes of Child Health and Human Development (NICHD) Study of Early Child Care (NICHD, in progress), The Cost, Quality, and Child Outcomes in Child Care Centers study (Cost, Quality, and Child Outcomes Study Team, 1995), as well as in regional and local studies with children from ages 3 through 9 years (e.g., Saft, 1994).

The first of these studies used the STRS with more than 400 kindergarten students and their 26 teachers (Pianta & Steinberg, 1992). Initial factor analyses reported that five dimensions accounted for the teachers' perceptions of their relationships with students: conflict/anger, warmth/closeness,

open communication, dependency, and troubled feelings. As expected, the second version of the STRS with the addition of new items allowed for the measurement of these new dimensions. Subscales based on these factors contributed a significant proportion of incremental variance (between 5% and 15%) above and beyond measures of adjustment in the kindergarten classroom. Also, when predicting first-grade behavior, STRS scores accounted for unique variance after controlling for teacher ratings of kindergarten behavior, suggesting that the STRS measures aspects of classroom relational behavior separate from typical measures of behavioral problems or competencies. Analysis of these dimensions indicated they were strongly related (correlations in the .40-.65 range) to students' classroom behaviors in kindergarten (e.g., conduct problems, attention to task, peer social skills).

Furthermore, teachers' decisions to retain children in kindergarten were related to STRS dimensions. Within high-risk groups of children with similar ability and readiness profiles, high scores on the warmth and open communication dimensions were related to promotion to first grade (Pianta & Steinberg, 1992). Children who were retained in kindergarten had relationships characterized by higher scores on the conflict, dependency, and troubled feelings dimensions than children who were promoted, differences that remained even after controlling for the children's classroom behavior (e.g., behavior with peers, noncompliance).

A subsequent analysis identified a group of students who were highly likely to be retained or referred for special education, as predicted on the basis of kindergarten screening test scores (Pianta et al., 1995). Within this "high risk" group, students who ultimately did get retained/referred were compared to those who were promoted or not referred, despite being high risk. The students who, despite predictions of retention/referral, were ultimately promoted or not referred had far more positive relationships with their teachers than their high-risk peers who were retained/referred. This successful high-risk group was notable for its

lack of conflict and high degree of open communication. In short, it appeared that the STRS measured the "buffering" effect of a positive relationship between the student and teacher (Pianta et al., 1995).

Recent research with the STRS has focused on replicating the factor structure and refining the numbers of items associated with each subscale. Research has shown that a 28-item, three-factor model is more parsimonious and practical with respect to (a) amount of variance accounted for, (b) reliability, (c) construct validity, and (d) ease of use and interpretation (Pianta et al., 1995; Saft & Pianta, in press).

The resulting three-factor solution is based on a conceptual model of student-teacher relationships (Pianta, 1999) in which conflict and closeness are two primary dimensions along which teachers' relationship experiences vary. In addition to these two dimensions, a third dimension of dependency reflects the extent to which teachers vary in their experiences of negotiating and supporting autonomy in their relationships with individual students. Conceptually, these three dimensions – conflict, closeness, and dependency – relate to dimensions found to organize parent-child relationships as well (see Pianta, 1999). Furthermore, these three factors were supported by research including more than 1,500 preschool through third-grade students and more than 200 teachers from classrooms across the U.S. including Arizona, California, Connecticut, Colorado, North Carolina, Wisconsin, and Virginia. Data from this research forms the basis for the normative information outlined in chapter 3. The STRS normative sample closely matches the 1990 U.S. Census in student race/ethnicity distributions and reflects a wide range of socioeconomic status (U.S. Bureau of the Census, 1991).

## **Assessment Focus of the STRS**

The STRS is sensitive to student-teacher interactions, teachers' decisions about their students' school careers, and students' current and future school adjustment. Its normative base of 275 teachers and 1,535 preschool through third-grade

students from a variety of backgrounds makes it a psychometrically advanced assessment of student-teacher relationships. The STRS fills an important niche in the measurement of social processes related to school adjustment. Furthermore, the STRS is linked with an assessment and intervention program called *Students, Teachers, and Relationship*

*Support* or STARS (Pianta & Hamre, 2001) designed to enhance and remediate the quality of student-teacher relationships in preschool and elementary school classrooms. Optimally, the STRS is used to assess student-teacher relationships in order to inform consultation and intervention efforts aimed at enhancing these relationships.



# ADMINISTRATION AND SCORING

## STRS Response Form

The STRS is a 28-item self-report instrument used to assess a teacher's perception of his or her relationship with a particular student, specifically in terms of three dimensions – conflict, closeness, and dependency – as well as overall relationship quality. A 5-point Likert scale, ranging from 1 (*Definitely does not apply*) to 5 (*Definitely applies*), is used to measure ranges of conflict, closeness, and dependency. Teachers complete the STRS by responding to items on the STRS Response Form. The second page of the Response Form is a sheet for scoring and profiling STRS scale and subscale raw scores based on the normative percentiles.

## Appropriate Populations

The STRS is administered to a teacher in order to directly assess his or her relationship with a particular student in his or her class. It can be used with a teacher of any age, experience level, or race/ethnicity. The STRS can be completed for students in preschool through Grade 3 (typical ages for these students are ages 4 through 8 years). STRS items were written at a sixth-grade reading level, as determined by the Flesch-Kincaid reading formula using the Microsoft Word 97™ computer software (1996). The STRS is most often administered to individual teachers.

## Professional Qualifications

Although the STRS is easy to use, professionals administering, scoring, and interpreting the STRS should have formal training in standardized testing and have knowledge of the psychometric properties associated with statistical analysis, test development,

and interpretation. Training should be consistent with the *Standards for Educational and Psychological Testing* (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999). Specifically, individuals with (a) graduate level training in psychology, counseling, educational measurement, special education, or related fields from an accredited university and (b) coursework in testing and measurement can interpret STRS percentiles and profiles. Most STRS users will be school psychologists, clinical psychologists, developmental psychologists, special educators, and school administrators/lead teachers who meet the above criteria. However, if a lead teacher or an administrator administers the STRS and would like to interpret the scores, consultation with a professional familiar with the use of standard scores and percentiles is required.

## Administration

### Administration Time

The time needed to administer the STRS is about 5 to 10 minutes for individual administrations and 10 to 15 minutes for groups of teachers. If an individual teacher elects to complete the STRS on several students in his or her class in one sitting, the administration time will naturally take longer.

### Materials

The following materials are required for administration and scoring of the STRS:

- STRS Response Form
- Pencil or pen
- Flat surface such as a table or desk
- Calculator for scoring

The testing environment should be well illuminated and quiet, with no interruptions during administration.

### Individual and Group Administrations

The STRS can be administered to individuals or groups, as part of a consultation process, or as part of a larger prevention/intervention effort. Teachers complete the STRS for one student at a time, and in some applications, teachers may complete the STRS for each of the children in their classroom. The testing environment should allow for adequate time to complete the instrument. When administering the STRS to more than one teacher at a time, care should be taken to maintain confidentiality. Finally, the following points of consideration are provided to assist with STRS administration:

1. Ensure that the teacher has all materials needed to complete the STRS.
2. Build rapport with the teacher by creating an environment that is positive and risk free. This will increase the teacher's comfort and will encourage more accurate responses.
3. Monitor the teacher during administration to ensure that the directions are understood and the protocol is completed correctly.
4. Encourage the teacher to respond to all items honestly. If an answer must be changed, the teacher should put an "X" through the incorrect response and circle the correct choice.
5. Check the Response Form to make sure all items have been answered. The STRS results will be less reliable if items are left unanswered.
6. Always encourage and thank the teacher for participating in the testing session.

### Test Instructions

The purpose of the STRS should be discussed with the teacher. Explain that the STRS is used to assess the relationship he or she has with a particular student. Specifically, when providing the STRS Response Form to the teacher, it is helpful to say:

This is a measure of your relationship with (child's name). First, fill in your name, gender, your race/ethnicity, and today's date at the top of the sheet. Second, fill in the child's name, grade, gender, race/ethnicity, and age. Then read the instructions. Each of the 28 items describes some aspect of your relationship with this child. You should read each item carefully and decide the extent to which that statement applies to your relationship with (child's name). Next to each statement is a 5-point scale for recording the degree to which you believe this statement applies to your relationship with the child. After reading the item, record this information by circling the number that best applies to that statement as a description of your relationship with the child. Please answer every item and answer as honestly as you can. You can have as much time as you need to complete the form. Do you have any questions?

The following are directions to teachers completing the STRS:

Please reflect on the degree to which each of the following statements currently applies to your relationship with this child. Using the point scale below, CIRCLE the appropriate number for each item.

1 Definitely does not apply	2 Does not really apply	3 Neutral, not sure	4 Applies somewhat	5 Definitely applies
-----------------------------------	-------------------------------	---------------------------	--------------------------	----------------------------

If you need to change your answer, DO NOT ERASE! Make an X through the incorrect answer and then circle the correct answer.

If, while completing the STRS, the teacher has any questions about the relevance of an item, direct the teacher to apply the statement to his or her relationship with the student and answer as best as possible. When the teacher has finished taking the STRS, check it for completeness and, if needed, request that he or she respond to items left unanswered.

## Scoring Procedure

Follow these steps to score the STRS. Refer to Figure I as a guide.

1. Detach the top page of the STRS Response Form at the perforation to reveal the Scoring and Profile Sheet.
2. Transfer each circled number to the white box in the appropriate subscale column to the left. **Note that Items 4 and 19 have been reverse scored on the Scoring and Profile Sheet.**
3. Sum the item responses in each subscale column and enter the subscale raw score in the box at the bottom of the column.
4. Enter the subscale raw scores in the appropriate spaces on the left side of the Scoring and Profile Sheet. Use the formula provided to obtain the STRS Total raw score.

$$(72 - \text{Conflict raw score}) + \text{Closeness raw score} + (30 - \text{Dependency raw score}) = \text{Total raw score}$$

**Note.** When calculating the Total raw score, constants are used to account for the different meanings of high/low scores on each subscale. For the Conflict subscale, the number 72 is a constant representing the highest possible score of 60 and the lowest possible score of 12:  $60 + 12 = 72$ . For the Dependency subscale, the number 30 is a constant representing the highest possible score of 25 and the lowest possible score of 5:  $25 + 5 = 30$ .

5. Determine the appropriate Normative Comparison group and check the appropriate box. Use the Total Sample Normative Comparison group (Appendix A) for the initial analysis; however, raw score to percentile conversions by gender and ethnicity are also provided for further analysis if desired. Please see chapter 4 for further information regarding the Normative Comparison groups. Locate the percentile conversion table for

that normative group in the appropriate Appendix. (The Appendix table for each Normative Comparison group is indicated in parentheses on the STRS Scoring and Profile Sheet.) Locate each scale and subscale raw score in the table and transfer the corresponding raw scores and percentiles to the spaces provided below the Profile Chart.

6. Finally, plot each STRS scale and subscale percentile on the STRS Profile Chart by placing an "X" at the appropriate elevation for each scale and subscale. Shaded areas indicate critical levels.

## Missing Responses

In some instances, a teacher may not complete one or more of the STRS items. If an item is left blank, a score of 0 should NOT be given. Instead, the following formula for prorating a subscale raw score should be applied if the number of missing items per subscale does not exceed 1 (i.e., at least 11 Conflict items, 10 Closeness items, and 4 Dependency items). Use the following formula to prorate subscale raw scores:

$$\text{Prorated subscale raw score (round to nearest whole number)} = \frac{\text{Obtained raw score} \times \text{Number of items on the subscale}}{\text{Number of items completed}}$$

Example:

Mrs. Jones obtained a Conflict subscale raw score of 32. However, she only completed 11 of the 12 Conflict subscale items. Therefore the prorated formula was utilized to determine Mrs. Jones' measure of conflict with her student.

$$\text{Prorated Conflict subscale raw score} = \frac{32 \times 12}{11} = \frac{384}{11} = 34.91 = 35$$

Based on the above formula, Mrs. Jones' prorated raw score for the Conflict subscale is 35. In cases where more than one item per subscale is left blank, raw scores for that subscale should not be computed for interpretation. In such cases, both the subscale raw score and the Total scale raw score are considered invalid.



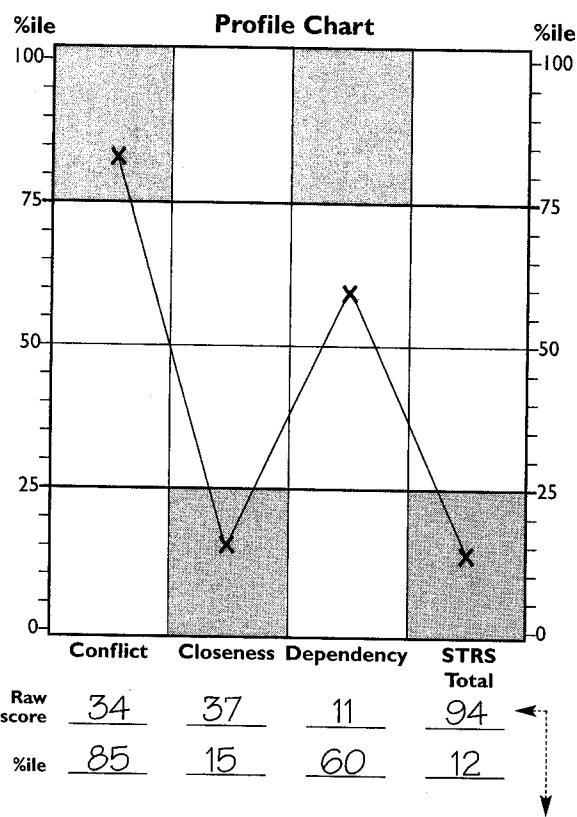
# Student-Teacher Relationship Scale™

## Scoring and Profile Sheet

Teacher's name Jane Smith Gender: M  F Ethnicity Caucasian Date 4/6/01

Child's name Tim G. Grade 1 Gender:  M F Ethnicity Caucasian Age 6

**Scoring:** For all items, transfer the circled item scores to the white box adjacent to the item. Sum the scores in each column and enter the sum in the box at the bottom of the column. In cases where there is no response, a score of 0 should not be given. Instructions for prorating subscale raw scores are provided in chapter 2 of the STRS Professional Manual. Use the STRS Total score formula at the bottom left to compute the STRS Total raw score. Transfer the Total and subscale raw scores to the spaces provided below the Profile Chart. Use the appropriate Appendix table in the STRS Professional Manual to obtain the corresponding percentile value for each raw score. **Profiling:** Plot the percentiles on the profile chart. Shaded areas indicate critical levels.



$$\text{STRS Total score formula}$$

$$(72 - \frac{34}{\text{Conflict raw score}}) + \frac{37}{\text{Closeness raw score}} + (30 - \frac{11}{\text{Dependency raw score}}) = \frac{94}{\text{Total raw score}}$$

### Normative Comparison Group

(Appendix tables for each normative group are indicated in parentheses).

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Total Sample (A1) | <input type="checkbox"/> Caucasians (C1)         |
| <input type="checkbox"/> Boys (B1)                    | <input type="checkbox"/> African Americans (C2)  |
| <input type="checkbox"/> Girls (B2)                   | <input type="checkbox"/> Hispanic Americans (C3) |

Conflict	Closeness	Dependency
3	1. 1	2 (3) 4 5
4	2. 1	2 3 (4) 5
3	3. 1	2 (3) 4 5
2	4. 5	4 3 (2) 1
3	5. 1	2 (3) 4 5
	6. 1	2 (3) 4 5
3	7. 1	2 3 (4) 5
4	8. 1	(2) 3 4 5
	9. 1	2 3 (4) 5
4	10. 1	(2) 3 4 5
	11. 1	2 3 (4) 5
4	12. 1	2 3 (4) 5
3	13. 1	2 (3) 4 5
	14. 1	2 (3) 4 5
3	15. 1	2 (3) 4 5
	16. 1	2 (3) 4 5
3	17. (1)	2 3 4 5
	18. 1	2 (3) 4 5
3	19. 5	4 (3) 2 1
	20. 1	(2) 3 4 5
2	21. 1	2 3 (4) 5
	22. 1	(2) 3 4 5
2	23. 1	(2) 3 4 5
	24. 1	2 (3) 4 5
3	25. 1	2 (3) 4 5
	26. 1	(2) 3 4 5
2	27. 1	2 (3) 4 5
	28. 1	2 3 (4) 5
34	37	11

**Subscale raw scores**

Conflict	Closeness	Dependency
34	37	11

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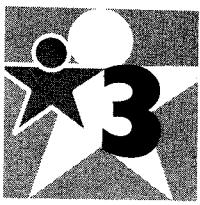
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Figure 1. Example of a scored STRS protocol.



# INTERPRETATION OF THE STRS

## STRS Scale and Subscales

The STRS measures four different aspects of a teacher's perception of his or her relationship with a particular student. These are reflected in the Conflict, Closeness, and Dependency subscales and the Total scale.

### Conflict

The Conflict subscale measures the degree to which a teacher perceives his or her relationship with a particular student as negative and conflictual. A teacher endorsing high Conflict scores tends to struggle with the student, perceives the student as angry or unpredictable, and consequently feels emotionally drained and believes himself or herself to be ineffective with that student. Conflict subscale raw scores range from 12 to 60. The 12 items comprising the Conflict subscale are presented in Table 2 (note that Item 19 is reverse scored).

### Closeness

The Closeness subscale measures the degree to which a teacher experiences affection, warmth, and open communication with a particular student. A teacher endorsing higher Closeness scores senses that the student is well, the student views the teacher as supportive, and the student effectively uses the teacher as a resource. Closeness subscale raw scores range from 11 to 55. The 11 items comprising the Closeness subscale are presented in Table 3 (note that Item 4 is reverse scored).

### Dependency

The Dependency subscale measures the degree to which a teacher perceives a particular student as overly dependent. A teacher endorsing higher Dependency indicates problems with the child's

Table 2  
The STRS Conflict Subscale Items

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

<sup>a</sup>Reverse-scored item.

overreliance on him or her. In addition, higher Dependency scores indicate that the student tends to react strongly to separation from this teacher and often requests help when not needed. Dependency subscale raw scores range from 5 to 25. The five items comprising the Dependency subscale are presented in Table 4.

### Total Scale

The Total scale measures the degree to which a teacher perceives his or her relationship with a particular student overall as positive and effective. Higher Total scale scores tend to reflect lower

**Table 3**  
**The STRS Closeness Subscale Items**

Items
1. I share an affectionate, warm relationship with this child.
3. If upset, this child will seek comfort from me.
4. This child is uncomfortable with physical affection or touch from me. <sup>a</sup>
5. This child values his/her relationship with me.
7. When I praise this child, he/she beams with pride.
9. This child spontaneously shares information about himself/herself.
12. This child tries to please me.
15. It is easy to be in tune with what this child is feeling.
21. I've noticed this child copying my behavior or ways of doing things.
27. This child openly shares his/her feelings and experiences with me.
28. My interactions with this child make me feel effective and confident.

<sup>a</sup>Reverse-scored item.

**Table 4**  
**The STRS Dependency Subscale Items**

Items
6. This child appears hurt or embarrassed when I correct him/her.
8. This child reacts strongly to separation from me.
10. This child is overly dependent on me.
14. This child asks for my help when he/she really does not need help.
17. This child expresses hurt or jealousy when I spend time with other children.

levels of conflict and dependency, higher levels of closeness, and a generally more positive relationship. Total scale raw scores range from 28 to 140 and are computed using the Conflict, Closeness, and Dependency raw scores.

### Interpretive Guidelines

Interpretive cutoff scores that represent possible areas of concern are presented as shaded areas in the Profile Chart on the STRS Scoring and Profile Sheet of the Response Form. This will assist the

examiner in understanding the percentile associated with each STRS scale and subscale raw score. Percentiles are used to interpret a teacher's perception of the quality and type of relationship he or she has with a specific student. Percentiles indicate the percentage of students in the normative group who scored below the rated student and are derived from the actual raw score distribution of the normative sample. Higher percentiles reflect higher raw scores on the corresponding STRS scale and subscales.

The STRS is sensitive to gender and racial/ethnic differences in student-teacher relationships across lower elementary school grade levels. Percentiles are therefore stratified separately based on students' gender and ethnicity (i.e., Caucasian, African American, and Hispanic American). For example, Saft and Pianta (in press) showed that both African American and Hispanic American teachers report more positive relationships with African American and Hispanic American children, respectively, than do Caucasian teachers. Thus, care should be taken when interpreting STRS scores, and one should consider the possible influence of cultural factors.

All STRS scale and subscale percentiles should be considered when interpreting the STRS. Percentiles at or above 75 for the Conflict and Dependency subscales indicate high levels of concern on the teacher's part. Although Dependency can be interpreted as suggesting a negative dimension, for younger students (below 2nd grade) higher Dependency scores may not be a cause for alarm. Percentiles at or above 75 for the Closeness subscale and the Total scale reflect a significantly high level of positive qualities. Closeness or Total scale percentiles at or below 25 indicate significantly low levels of a positive relationship attribute.

In examining the pattern of STRS percentiles, it is important to consider the dimensions of Closeness and Conflict as somewhat independent. A teacher may describe a relationship as relatively high in conflict and also relatively high on closeness. Although this is not the usual case, it may occur. Care should be taken to use the pattern of scores to understand the teacher's positive and negative perceptions of his or her relationship with a specific student, recognizing that it is of particular concern

when Conflict percentiles are high (at or above 75th percentile) and Closeness percentiles are low (at or below 25th percentile).

### Steps for Interpreting the STRS

The following steps should be followed in order to develop a meaningful interpretation of a teacher's percentile for the STRS scale and subscale raw scores:

1. Review the completed protocol for random, inconsistent, and missing responses. This review allows the examiner to assess the validity of responses. If the validity is questionable even after prorating subscale raw scores, the results should be viewed with caution.
2. Review the STRS scale and subscale percentiles to assess areas of student-teacher relationship difficulties. By examining the specific configuration of scale and subscale percentile elevations, potential problem areas can be identified.
3. Examine the items within each subscale. Analyzing items independently may provide greater understanding of specific behaviors of concern. Whether or not scale and subscale raw scores are elevated or even attainable due to too many missing items, high endorsements on specific items will help to develop a profile of the student-teacher relationship and typical mode of response.
4. Combine STRS results with the results of complementary assessments of the student to attain a complete view of both the student's and teacher's functioning. Other sources of student data include the following:
  - Social, family, and developmental history
  - Educational/intellectual assessment
  - Socioemotional assessment
  - Behavioral assessment

Thus, the STRS can be linked with intervention strategies such as the STARS program (Pianta & Hamre, 2001) which utilizes STRS scale and subscale percentiles to help assess a student's behavioral, social, emotional, and achievement concerns.

## Case Examples

The following case examples illustrate the various ways the STRS can be used. Specifically, these case examples represent STRS responses from teachers before they were enrolled in the STARS program (see Pianta & Hamre, 2001). For a more elaborate description of the issues involved in these cases, including assessment and intervention, see Pianta (1999).

### Case Example I

#### *Initial Presentation/Referral*

Ms. Green came to the school psychologist for the third time in as many days complaining about the behavior of David, age 8 years. Ms. Green said, "He is constantly disrupting the classroom and is out of control. He should be in a special class." David had been seeing the school psychologist individually for several weeks, but Ms. Green was frustrated by the lack of change she saw in the classroom. All of her usual disciplinary procedures had failed, and her patience was wearing thin. Ms. Green was typically a very patient, friendly, and warm teacher. Thus, it was clear to the psychologist in talking with Ms. Green that her tolerance had reached its limit with this child. The situation was clearly impacting both the quality of her teaching and the experiences of all of the children in the classroom.

#### *STRS Assessment Procedure*

In this case, the dyad in need of intervention is clear from the beginning of the consultation process. Both David and Ms. Green are frustrated and worn out, and little change is likely to occur without intervention. In this case, the school psychologist decided to implement the STARS intervention to enhance Ms. Green's and David's relationship. In order to place Ms. Green's thoughts and feelings about David in context, the psychologist began by having Ms. Green fill out STRS questionnaires on David and a random selection of two other students. This process did not take Ms. Green very long and allowed the psychologist a broader perspective on the identified relationship. In this case, it helped Ms. Green to think about differences in her relationship with David versus other children

in her class. All three STRS protocols were completed and were considered valid. Compared to the total normative comparison group (Appendix Table A1), the results of the STRS indicated that Ms. Green's relationship with David was characterized by extremely high levels of Conflict (82nd percentile), extremely low levels of Closeness (15th percentile), and moderate levels of Dependency (60th percentile). Taken together, these three subscale scores resulted in an extremely low Total scale score (15th percentile), indicating that the quality of the relationship overall was poor or negative. David's STRS scale and subscale percentiles were quite different when compared to those for the two other students in her classroom.

Even in cases such as this when there is little doubt about the type or severity of problem, it is important to have the teacher fill out the STRS at the beginning and at the end of the STARS intervention. This way, the school psychologist can obtain an objective measure of the specific areas of concern (i.e., conflict, closeness, and/or dependency) as well as the overall relationship quality – before and after the STARS intervention. Having an objective measure of progress can also provide the teacher and the psychologist valuable feedback on the strengths (or weaknesses) of their work together.

## Case Example 2

### *Initial Presentation/Referral*

It was early April, and the school psychologist noticed that Mr. Johnson, a typically enthusiastic and energetic second-grade teacher, had been getting to work right before the bell rang and leaving shortly after dismissal. He had had a tough class this year because many of his students were at risk of failure and his class as a whole represented a mix of different racial/ethnic groups, primarily Caucasian, African American, and Hispanic students. The psychologist approached Mr. Johnson and asked how he was doing. His response indicated that he was feeling extremely "burned out." The psychologist suggested that Mr. Johnson come in for a short consultation meeting the next day. The psychologist was interested in planning a STARS intervention with Mr. Johnson and needed more information.

### **STRS Assessment Procedures**

Teacher burnout is a common yet under-identified and under-treated problem in schools. In scenarios such as this, consultations aimed at improving student-teacher relationships may not seem the most direct or applicable of interventions. However, the challenge for the psychologist working with teachers is to find ways to reestablish the teachers' psychological connection to their work (i.e., their motivation or emotional investment). Although this could take many specific forms, it is the assumption here that teachers teach, fundamentally, because they are motivated in part by their relationships with students. They wish to feel connected to and influence the lives of children. Thus, when relationships suffer, a teacher's psychological connection to his or her work can be jeopardized.

The school psychologist determined that Mr. Johnson had lost this sense of connection and purpose as he had struggled throughout the school year with an academically and behaviorally challenging group of students. Therefore, from this perspective, if the psychologist can help reduce the tension and exhaustion created in a few of Mr. Johnson's most difficult relationships with students, it is likely that Mr. Johnson and all of his students will benefit.

During an observation in Mr. Johnson's class, the psychologist identified several students who appeared to be causing the most problems and who seemed to be at particular risk of failure as a result of Mr. Johnson's burnout. The psychologist asked Mr. Johnson to complete the STRS as well as the Teacher-Child Rating Scale (Hightower et al., 1986) on these students. Most of the STRS protocols had elevated percentile scores. A few of the students even had profiles in which all aspects of the relationship were of concern – very high Conflict and Dependency scores, coupled with low Closeness and Total scores. These same students also showed greater behavioral problems in the classroom, as measured by the Teacher-Child Rating Scale.

Therefore, the psychologist chose to begin the STARS intervention by having Mr. Johnson complete the STRS on Henry. Henry was an African American student with extremely high Conflict scores (77th percentile), moderate Closeness

scores (60th percentile), and moderate Dependency scores (50th percentile), compared to the normative group of African Americans (Appendix Table C2). These three subscale scores also resulted in a low Total scale score (31st percentile). Although there were many other students across racial/ethnic groups with more extreme STRS scale and subscale scores who were in need of intervention in Mr. Johnson's classroom, the psychologist decided to start with Henry because he was an excellent candidate for a successful intervention. This gave Mr. Johnson a better opportunity at feeling successful. Moreover, in this scenario, the information provided by the STRS helped the psychologist understand Mr. Johnson's experience in the classroom and plan how to best use the STARS intervention.

### **Case Example 3**

#### ***Initial Presentation/Referral***

Jessica was a 6-year-old, first-grade student with many academic and emotional troubles. Her mother was struggling to support four young children and was rarely home. Jessica had a variety of caregivers, none of whom she seemed especially connected to. She was quiet and usually by herself in the classroom and on the playground. She struggled in the first months of first grade and was clearly well behind most of her peers, yet almost never sought help from Mrs. Walsh, her teacher. Mrs. Walsh approached the school psychologist asking for advice.

The psychologist began by having Mrs. Walsh complete the STRS on Jessica, as well as the Child Behavior Scale (Ladd & Proffit, 1996) to obtain information on Jessica's behavior and competencies in the classroom. Compared to the normative group

of girls (Appendix Table B2), Jessica's STRS profile indicated that she was moderate in Conflict (50th percentile), extremely low in Closeness (10th percentile), and moderate in Dependency (45th percentile). Her subscale scores resulted in a low Total scale score (30th percentile). In addition, Jessica was found to be very asocial based on scores from the Child Behavior Scale. This supported Mrs. Walsh's very low Closeness scores for Jessica obtained from the STRS.

Overall, Mrs. Walsh's profile for Jessica indicated that Mrs. Walsh showed ambivalence about Jessica's behavior toward her and a noticeable lack of positive engagement and communication between them. To remediate and enhance the relationship quality between Mrs. Walsh and Jessica, the psychologist decided to engage Mrs. Walsh in the STARS program. The psychologist, following the guidelines presented in the STARS Consultant's Manual, interviewed Mrs. Walsh to learn more about her feelings about her relationship with Jessica and observed the relationship in Mrs. Walsh's classroom. The psychologist learned that Mrs. Walsh was under a lot of stress and really desired a better connection with Jessica. The STARS psychologist worked with Mrs. Walsh and Jessica three times per week. These non-directive, relationship-building sessions greatly improved communication between Mrs. Walsh and Jessica, and they both looked forward to these sessions with enthusiasm. After 3 weeks, the psychologist readministered the STRS, at which time the Closeness score was at the 45th percentile and the Total scale score was at the 49th percentile. In this scenario, the STRS was used effectively both to identify problem areas and to measure improvement after the STARS intervention.



## NORMATIVE AND DESCRIPTIVE DATA

### Normative Sample

Since 1991, the STRS has been completed by teachers in several states, including Arizona, California, Connecticut, Colorado, Illinois, North Carolina, Wisconsin, and Virginia. STRS data were collected from 275 teacher respondents, all of whom were women teaching in classes from preschool through Grade 3. Most of the teachers (70%,  $n = 193$ ) in the normative sample were Caucasian, 15% ( $n = 41$ ) were African American, 10% ( $n = 28$ ) were Hispanic American, and 5% ( $n = 13$ ) represented other ethnic backgrounds. In the majority of cases, a single teacher rated several students ( $M = 8$ ). However, 37 teachers rated only one child. The largest number of students rated by a single teacher was 16. STRS scores were not correlated with the number of students rated.

The student sample consisted of 1,535 children between the ages of 4 years, 1 month and 8 years, 8 months. The students' mean age was 5 years. Information was available on student gender for 1,496 (97%) of the students in the normative sample. Of these, approximately 53% ( $n = 788$ ) were boys, and 47% ( $n = 708$ ) were girls. Information was also available on student race/ethnicity for students in the normative sample. Sixty-three percent ( $n = 967$ ) of the student sample was Caucasian, 18% ( $n = 276$ ) were African American, 10% ( $n = 154$ ) were Hispanic American, and 1.7% ( $n = 26$ ) were Asian American. Seven percent ( $n = 112$ ) of the student sample either represented other racial/ethnic groups, or their race/ethnicity was not reported.

Information on socioeconomic status was gathered from all students in the normative sample

using mothers' education level and annual family income. Mothers' education level was available for 1,269 students. Students reported that about 8% ( $n = 102$ ) of mothers had some high school; 23% ( $n = 297$ ) were high school graduates; 37% ( $n = 466$ ) had some college; 16% ( $n = 204$ ) had a four-year college degree; and about 16% ( $n = 200$ ) attended graduate school or received a graduate degree. Annual family income was available from 960 students and ranged from \$6,000 to over \$150,000; the mean annual family income was \$23,000. Overall, the normative sample represented a range of socioeconomic status.

### Descriptive Statistics

This section presents descriptive information for the total normative sample as well as by student gender and race/ethnicity.

#### Total Normative Sample

Descriptive statistics for the entire sample ( $N = 1,535$ ) are reported in Table 5. This information indicates that teachers' reports concerning their relationship with a student show considerable variability across students. Skewness values indicate that the distributions of teachers' reports reflect a tendency to view the student-teacher relationship positively.

#### Student Gender

Table 6 presents means, standard deviations, and skewness statistics for boys and girls. As was the case for the total normative sample, the distributions of STRS scores for both boys and girls are mildly skewed to suggest teachers' tendencies to view relationships somewhat positively.

**Table 5**  
**Descriptive Statistics for STRS Scale and Subscales for the Total Normative Sample**

Scale/subscale	M	SD	Minimum-Maximum	Skewness	Kurtosis
Conflict	24.40	8.93	15-57	1.06	0.38
Closeness	42.01	6.22	19-55	-0.71	0.15
Dependency	10.74	3.54	5-24	0.73	0.45
Total	114.23	15.47	55-140	-0.90	0.342

Note. N = 1,535.

When the STRS scale and subscale scores for boys and girls were compared (using Bonferroni correction for multiple testing), teachers reported (a) higher Conflict scores with boys, (b) higher Closeness scores with girls, and (c) higher Total scale scores with girls, indicating more positive relationship quality with girls. However, based on Cohen's (1988) measure of effect size  $d$ , the actual difference between boys and girls in mean scores for the Conflict subscale was less than 2 points ( $d = .17$ ), less than 3 points ( $d = .36$ ) for the Closeness subscale, and less than 4 points ( $d = .33$ ) for Total Scale mean scores. Boys and girls did not statistically differ on teacher reports of Dependency. In general, these results suggest few substantial or meaningful gender-related differences on the STRS, although the patterns of differences are significant. Birch and Ladd (1998) report a similar pattern of gender differences for kindergarten and first-grade students.

### Student Race/Ethnicity

Table 7 presents means, standard deviations, and skewness statistics for Caucasian, African American, and Hispanic American students – the three racial/ethnic groups with substantial numbers of students in the normative sample. Previous research on pilot versions of the STRS (Pianta & Nimetz, 1991; Saft & Pianta, *in press*) as well as work with students' perceptions of relationships with teachers (Lynch & Cicchetti, 1992) suggested that teachers' and students' views of child-teacher

relationships may vary as a function of the child's ethnicity. Therefore, separate normative data are provided for the three major ethnic groups in the normative sample. STRS users can therefore use both the total normative sample as well as comparisons of the student's score to those of students within the student's own ethnic group to better understand the student-teacher relationship. As was the case for the normative sample, the distributions of STRS scores for all three ethnic groups are mildly skewed to suggest teachers' tendencies to view relationships somewhat positively.

When the STRS scale and subscale scores for each racial/ethnic group were compared (using Bonferroni correction for multiple testing), teachers reported (a) higher Conflict scores with African American students, (b) lower Closeness scores with African American students, and (c) lower Total scale scores with African American students indicating less positive relationships with African American students. However, Table 7 indicates that the actual differences among the racial/ethnic groups in mean scores for the STRS scale and subscale were small ( $\omega^2 \leq .02$ ). In general, these results suggest few substantial or meaningful racial/ethnic group-related differences on the STRS, although the patterns of differences are statistically significant. A detailed discussion of STRS scale and subscale score differences between African American students and other racial/ethnic groups can be found in Saft and Pianta (*in press*).

**Table 6**  
**STRS Scale and Subscale Score Results by Student Gender**

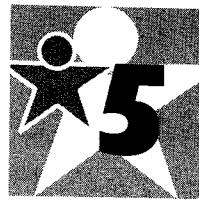
Scale/subscale	Boys <sup>a</sup>				Girls <sup>b</sup>			
	M	SD	Skewness	Kurtosis	M	SD	Skewness	Kurtosis
Conflict	22.79	9.24	1.07	0.461	21.32	8.36	1.12	0.823
Closeness	43.63	6.26	-0.67	0.320	45.82	6.01	-0.82	0.758
Dependency	10.58	3.51	0.90	0.861	10.83	3.58	0.63	0.286
Total	112.23	11.03	0.41	0.301	115.76	10.52	0.48	0.358

<sup>a</sup>n = 788. <sup>b</sup>n = 708. <sup>c</sup>Cohen's d effect size.  
\* $p < .0125$  (two-tailed). \*\* $p < .001$  (two-tailed).

**Table 7**  
**STRS Scale and Subscale Score Results by Student Ethnicity**

Scale/subscale	Caucasian <sup>a</sup>				African American <sup>b</sup>				Hispanic American <sup>c</sup>			
	M	SD	Skewness	Kurtosis	M	SD	Skewness	Kurtosis	M	SD	Skewness	Kurtosis
Conflict	21.7	9.6	-0.85	0.083	25.0	11.3	-0.45	-0.429	20.1	8.6	-0.64	1.95
Closeness	45.1	7.2	1.15	0.823	42.8	7.1	0.76	-0.066	44.7	7.2	1.43	0.373
Dependency	10.5	3.6	0.85	0.080	11.4	3.4	0.54	0.143	10.3	3.1	0.86	1.04
Total	114.9	15.1	0.53	0.574	108.5	16.4	0.21	-0.087	116.6	13.2	0.03	0.460

<sup>a</sup>n = 967. <sup>b</sup>n = 276. <sup>c</sup>n = 154.  
\* $p < .0125$  (two-tailed). \*\* $p < .001$  (two-tailed).



## RELIABILITY OF THE STRS

Reliability refers to the extent to which a test score is influenced by any of several sources of error (AERA, APA, & NCME, 1999). Information is presented below on the test-retest and internal consistency reliability of the STRS.

### Test-Retest Reliability

Estimates of test-retest reliability and stability of the STRS were obtained from a subsample of the normative sample. Using a subsample of 24 kindergarten teachers, each reporting on three students in their class ( $N = 72$ ), the STRS was completed twice during a 4-week interval. Test-retest correlations were as follows (all significant at  $p < .05$ ): Closeness, .88; Conflict, .92; Dependency, .76; Total, .89. These estimates indicated adequate test-retest reliability over a 4-week period.

### Internal Consistency

Estimates of internal consistency and item-level statistics including item-total correlations were obtained using Cronbach's (1951) alpha method.

Standard errors of measurement were also computed providing an index of the range within which an individual's true score is expected to fall. Table 8 presents alpha coefficients and standard errors of measurement for the STRS scale and subscales for the total normative sample, by student gender, and by student race/ethnicity.

For the total normative sample, internal consistency reliability estimates for the Total scale as well as for the Conflict and Closeness subscales were high. However, reliability for the Dependency subscale was not as high (.64). Reliability estimates for each STRS scale and subscale for boys and girls were consistent with the entire normative sample. However, Total scale reliability for boys (.74) and girls (.74) was not as high compared to the entire normative sample (.89). Finally, most STRS scale and subscale reliability estimates were slightly lower for each race/ethnic group reported as compared to the estimates found using the total normative sample. In addition, Dependency subscale reliability was lower for African American (.55) and Hispanic American (.56) students as compared to Caucasian students (.67).

**Table 8**  
**Alpha Coefficients and Standard Errors of Measurement (SEM) for STRS Scale and Subscales for the Total Normative Sample, Student Gender, and Student Race/Ethnicity**

Scale/subscale	Total Normative Sample <sup>a</sup>		Boys <sup>b</sup>		Girls <sup>c</sup>		Caucasians <sup>d</sup>		African American <sup>e</sup>		Hispanic American <sup>f</sup>	
	$\alpha$	SEM	$\alpha$	SEM	$\alpha$	SEM	$\alpha$	SEM	$\alpha$	SEM	$\alpha$	SEM
Conflict	.92	2.53	.88	3.20	.86	3.13	.86	3.59	.89	3.75	.88	2.98
Closeness	.86	2.33	.78	2.94	.82	2.55	.80	3.22	.78	3.33	.76	3.53
Dependency	.64	2.12	.64	2.11	.65	2.12	.67	2.07	.55	2.28	.56	2.06
Total	.89	5.07	.74	5.62	.74	5.36	.74	7.70	.76	8.03	.75	6.60

<sup>a</sup> $N = 1,535$ . <sup>b</sup> $n = 788$ . <sup>c</sup> $n = 708$ . <sup>d</sup> $n = 967$ . <sup>e</sup> $n = 276$ . <sup>f</sup> $n = 154$ .

Moreover, it should be reiterated that relatively lower internal consistency reliability was found for the Dependency subscale in the entire normative sample as well as across gender and ethnic subgroups. This is partly due to the fact that only 5 items comprise the Dependency subscale. Because the reliability of the Dependency subscale is relatively low across ethnic groups, it is recommended that Dependency subscale scores be interpreted with caution, and that users do not interpret Dependency subscale scores in isolation from the other STRS scale and subscale scores.

## Item-Level Statistics

Table 9 presents item-level statistics including means, standard deviations, and item-total correlations for each of the 28 items based on the 1,535 students in the normative sample.

Generally, all items showed reasonable variability, although some items (e.g., Items 1, 3, 5, 7, 9) tended to be negatively skewed (item means approach the upper end of the scale limit), while some items (e.g., Items 2, 4, 16, 24) tended to be positively skewed (item means approach the lower

**Table 9  
Item Means, Standard Deviations, and Item-Total Correlations for the Total Normative Sample**

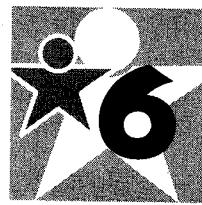
Item	M	SD	Item-total correlations
1. I share an affectionate, warm relationship with this child.	4.34	0.87	.60
2. This child and I always seem to be struggling with each other.	1.83	1.17	.70
3. If upset, this child will seek comfort from me.	4.20	0.96	.43
4. This child is uncomfortable with physical affection or touch from me.	1.72	1.08	.39
5. This child values his/her relationship with me.	4.24	0.87	.52
6. This child appears hurt or embarrassed when I correct him/her.	2.91	1.31	.13
7. When I praise this child, he/she beams with pride.	4.58	0.75	.31
8. This child reacts strongly to separation from me.	1.97	1.02	.34
9. This child spontaneously shares information about himself/herself.	4.19	1.08	.55
10. This child is overly dependent on me.	1.79	0.96	.39
11. This child easily becomes angry with me.	1.83	1.09	.59
12. This child tries to please me.	3.86	1.05	.34
13. This child feels that I treat him/her unfairly.	1.74	0.99	.50
14. This child asks for my help when he/she really does not need help.	2.20	1.23	.27
15. It is easy to be in tune with what this child is feeling.	3.85	1.11	.41
16. This child sees me as a source of punishment and criticism.	1.65	0.92	.49
17. This child expresses hurt or jealousy when I spend time with other children.	1.86	1.07	.36
18. This child remains angry or is resistant after being disciplined.	2.09	1.28	.54
19. When this child is misbehaving, he/she responds well to my look or tone of voice.	4.04	1.13	.35
20. Dealing with this child drains my energy.	1.88	1.25	.71
21. I've noticed this child copying my behavior or ways of doing things.	2.81	1.29	.23
22. When this child is in a bad mood, I know we're in for a long and difficult day.	2.03	1.28	.63
23. This child's feelings toward me can be unpredictable or can change suddenly.	1.87	1.17	.60
24. Despite my best efforts, I'm uncomfortable with how this child and I get along.	1.64	1.08	.47
25. This child whines or cries when he/she wants something from me.	1.90	1.23	.34
26. This child is sneaky or manipulative with me.	1.89	1.22	.47
27. This child openly shares his/her feelings and experiences with me.	4.03	1.10	.59
28. My interactions with this child make me feel effective and confident.	4.18	1.00	.52

Note. N = 1,535.

end of the scale limit). The items reflecting a positive relationship tended to demonstrate the negative skew, while items reflecting a negative relationship tended to demonstrate the positive skew.

Item-total correlations for the STRS items ranged from .13 to .71; many of the item-total correlations were in the .40 to .55 range. Items with

the lowest item-total correlations are Items 6 and 21, while those with the highest are Items 2 and 20 (both loading on the Conflict subscale). In general, the pattern of item-total correlations suggests, with few exceptions, that each of the 28 items comprising the three dimensions of the STRS share variance with the Total scale score.



## VALIDITY OF THE STRS

Validity refers to the extent to which a test score measures that which it is intended to measure (AERA, APA, & NCME, 1999). Validity is typically supported by the relationship the test demonstrates with other measures of similar constructs. Furthermore, validation is an ongoing process in that empirical evidence is gathered over time to strengthen test score use.

Since 1991, the STRS has been used in a large number of studies to measure the quality of the student-teacher relationship and the impact student-teacher relationships have on various outcome and academic variables. Results from these validity studies are summarized in this chapter.

### Construct Validity

#### Factor Structure of the STRS

Exploratory factor analysis was used to assess the multidimensional structure of the construct measured by the STRS. Table 10 presents the rotated factor matrix of the complete 28-item STRS.

Principal components analysis was used to extract the factors and VARIMAX rotation was used to obtain factor loadings. Although other means of factor extraction and rotation (e.g., orthogonal rotation) were also tested to determine the best model, results from these analyses converged using the principal components/VARIMAX-derived solution. A three-factor solution was obtained that accounted for 48.8% of the total variance among the 28 items. Using loading cutoff values of  $.40$  or greater, the three factors were appropriately labeled as Conflict, Closeness, and Dependency. Furthermore, the three-factor solution has been replicated with elementary school age samples from Virginia (Pianta

et al., 1995), Illinois (Birch & Ladd, 1997), and in a multi-state study of children in child care (Cost, Quality, and Child Outcomes Study Team, 1995).

The Conflict factor had an eigenvalue of 8.63 and accounted for 29.8% of the total variance. Items such as "This child and I always seem to be struggling with each other," "Dealing with this child drains my energy," and "When this child is in a bad mood, I know we're in for a long and difficult day" loaded the highest on this factor.

The Closeness factor had an eigenvalue of 3.73 and accounted for 12.9% of the total variance. Items such as "This child openly shares his/her feelings and experiences with me," "This child spontaneously shares information about himself/herself," and "It is easy to be in tune with what this child is feeling" loaded the highest on this factor.

The Dependency factor had an eigenvalue of 1.79 and accounted for 6.2% of the variance. Items such as "This child is overly dependent on me," "This child reacts strongly to separation from me," and "This child expresses hurt or jealousy when I spend time with other children" loaded the highest on this factor.

Finally, while simple structure was sought, only Item 28 ("My interactions with this child make me feel effective and confident") was found to load on two factors (i.e., both conflict and closeness).

#### Relationship Between STRS Scale and Subscales

Pearson product-moment correlations among the subscales and between each subscale and the Total scale score were computed and are summarized in Table 11.

**Table 10**  
**Rotated Factor Matrix for the STRS**

Item	Subscale		
	Conflict	Closeness	Dependency
1. I share an affectionate, warm relationship with this child.		.65	
2. This child and I always seem to be struggling with each other.	.80		
3. If upset, this child will seek comfort from me.		.64	
4. This child is uncomfortable with physical affection or touch from me.		-.52	
5. This child values his/her relationship with me.		.61	
6. This child appears hurt or embarrassed when I correct him/her.			.43
7. When I praise this child, he/she beams with pride.		.58	
8. This child reacts strongly to separation from me.			.66
9. This child spontaneously shares information about himself/herself.		.76	
10. This child is overly dependent on me.			.75
11. This child easily becomes angry with me.	.77		
12. This child tries to please me.		.45	
13. This child feels that I treat him/her unfairly.	.65		
14. This child asks for my help when he/she really does not need help.			.50
15. It is easy to be in tune with what this child is feeling.		.70	
16. This child sees me as a source of punishment and criticism.	.63		
17. This child expresses hurt or jealousy when I spend time with other children.			.59
18. This child remains angry or is resistant after being disciplined.	.72		
19. When this child is misbehaving, he/she responds well to my look or tone of voice.	-.51		
20. Dealing with this child drains my energy.	.82		
21. I've noticed this child copying my behavior or ways of doing things.		.40	
22. When this child is in a bad mood, I know we're in for a long and difficult day.	.80		
23. This child's feelings toward me can be unpredictable or can change suddenly.	.76		
24. Despite my best efforts, I'm uncomfortable with how this child and I get along.	.59		
25. This child whines or cries when he/she wants something from me.	.54		
26. This child is sneaky or manipulative with me.	.73		
27. This child openly shares his/her feelings and experiences with me.		.79	
28. My interactions with this child make me feel effective and confident.	-.46	.57	
		Eigenvalue	8.63
		Variance (%)	29.8
		Cumulative Variance (%)	29.8
			3.73
			1.79
			12.9
			6.2
			42.6
			48.8

Note. N = 1,535. Only factor loadings  $\geq .40$  are listed.

**Table 11**  
**Correlations Between STRS Subscales**  
**and Total Scale**

	Closeness	Dependency	Total
Conflict	-.451**	.278**	-.913**
Closeness		.125*	.725**
Dependency			-.347**

Note. N = 1,535.

\* $p < .01$ . \*\* $p < .001$  (one-tailed).

All correlations were statistically significant and indicated a moderate-to-strong degree of association in expected directions among the scale and subscales. The lower correlations between Dependency and the other STRS Total scale and subscales may be due to the low number of items comprising the Dependency subscale.

### Age Group Comparisons

The normative sample of 1,535 students was divided into two groups based on age, and scores from younger students (age  $< 5$  years) and older students (age  $\geq 5$  years) were compared. Table 12 presents STRS scale and subscale means, standard deviations, and results from a series of one-way analyses of variance comparing younger and older students on STRS Total scale and subscales (using Bonferroni correction for multiple testing).

Teachers reported more conflict and dependency in relationships with older students, more closeness in relationships with younger students, and more

positive relationships overall with younger students. Although most of these age-related differences were statistically significant, none of the actual differences in mean subscale scores exceeded 2 scale points, and the actual Total scale score difference was less than 4 scale points ( $d = .25$ ). In general, these results suggest few substantial or meaningful age-related differences on the STRS. Furthermore, the patterns of differences are in directions consistent with developmental expectations for increased independence with age.

### Concurrent and Predictive Validity: Relations With Behavioral and Academic Outcomes

Validity studies indicate that the STRS correlates in predictable ways with concurrent and future measures of academic skills, including performance on standardized tests (Hamre & Pianta, 2001), behavior problems and competencies in elementary classrooms (e.g., Pianta, 1994; Pianta et al., 1995), and peer relations (Birch & Ladd, 1998). In general, the STRS scale and subscales show strong evidence for concurrent and predictive validity.

Table 13 presents correlations between STRS scale and subscale scores from kindergarten teachers and their concurrent ratings on the Teacher-Child Rating Scale (Hightower et al., 1986), a measure of behavior problems and competencies in the classroom (see Pianta et al., 1995). These results indicate a moderate degree of association, in

**Table 12**  
**STRS Scale and Subscale Score Comparisons Between Younger and Older Students**

Scale/subscale	Younger students ( $<$ age 5 years) <sup>a</sup>		Older students ( $\geq$ age 5 years) <sup>b</sup>		$t$	$d^c$
	M	SD	M	SD		
Conflict	21.65	9.34	22.87	10.55	-2.36	.12
Closeness	45.71	6.53	43.56	7.61	-5.86*	.30
Dependency	10.52	3.64	10.99	3.46	-2.58*	.13
Total	115.57	14.38	111.72	16.24	4.78*	.25

<sup>a</sup>n = 783. <sup>b</sup>n = 752. <sup>c</sup>Cohen's  $d$  effect size.

\* $p < .0125$  (two-tailed).

**Table 13**  
**Correlations of STRS Scale and Subscale Scores With Classroom Adjustment for Kindergarten Teachers and Students**

Scale/ subscale	Kindergarten classroom adjustment <sup>a</sup>	
	Behavior problems	Competence
Conflict	.65	-.60
Closeness	-.53	.52
Dependency	.29	-.28
Total	-.72	.67

Note. N = 413. All correlations significant at  $p < .01$ .

<sup>a</sup>Classroom adjustment measured by the Teacher-Child Rating Scale (TCRS; Hightower et al., 1986).

expected directions, between STRS scores and concurrent measures of teacher-reported classroom behavior problems and competencies.

Table 14 presents the correlations between kindergarten teachers' STRS scores and first-grade teachers' ratings of the same student using the Teacher-Child Rating Scale (see Pianta et al., 1995).

**Table 14**  
**Correlations of Kindergarten STRS Scale and Subscales Scores With First Grade Classroom Adjustment**

Scale/ subscale	First grade classroom adjustment <sup>a</sup>	
	Behavior problems	Competence
Conflict	.54	-.44
Closeness	-.31	.28
Dependency	.30	-.25
Total	-.56	.47

Note. N = 413. All correlations significant at  $p < .01$ .

<sup>a</sup>Classroom adjustment measured by the Teacher-Child Rating Scale (TCRS; Hightower et al., 1986).

Conflict and Dependency scores assigned to children by their kindergarten teachers correlated positively with first-grade teacher reports of behavior problems and negatively with students' competencies. Conversely, Closeness and Total

scores correlated negatively with teacher reports of behavior problems and positively with student competencies.

In another study, Birch and Ladd (1998) reported moderate concurrent relationships between the STRS and teacher-reported behavior with peers, in both kindergarten and first-grade samples. The teacher report of peer behavior was determined using the Child Behavior Scale (Ladd & Proflet, 1996). STRS Conflict scores correlated strongly with antisocial behavior (.70 for kindergarten and .60 for Grade 1) and with asocial (withdrawn) behavior in kindergarten students ( $r = .23$ ). Conflict scores also correlated negatively with teachers' reports of prosocial behavior (−.56 for kindergarten and −.38 for Grade 1). In addition, Closeness scores correlated negatively with antisocial behavior (−.44 for kindergarten and −.48 for Grade 1) and with asocial behavior (−.24 for kindergarten and −.17 for Grade 1). Closeness scores were positively associated with prosocial behavior with peers (.65 for kindergarten and .35 for Grade 1). Dependency on the teacher was related to frequency of antisocial behavior in Grade 1 ( $r = .31$ ), with asocial behavior (.43 for kindergarten and .22 for Grade 1), and negatively with prosocial behavior in Grade 1 ( $r = -.22$ ).

Hamre and Pianta (2001) predicted a significant relationship between kindergarten STRS scores and selected academic outcomes. Student-teacher conflict in kindergarten was significantly related to a composite of math/language arts report card grades across Grades 1 through 4 ( $r = -.27$ ), Grades 5 through 6 ( $r = -.24$ ), and Grades 7 through 8 ( $r = -.19$ ). Thus, students showing greater conflict with their teachers in kindergarten had lower report card grades compositing math and language arts through eighth grade. Higher Conflict scores in kindergarten were also related to lower composite Total scores on the Iowa Test of Basic Skills (ITBS; Hieronymous & Hoover, 1978) averaged across Grades 2 through 3 ( $r = -.23$ ) and in Grade 5 ( $r = -.28$ ).

Hamre and Pianta (2001) also reported significant relationships between kindergarten STRS scores and both teachers' ratings of work habits and students' disciplinary infractions, again through

eighth grade. Closeness was related to positive work habit ratings on students' report cards for Grades 1 through 4 ( $r = .26$ ). Higher Conflict scores in kindergarten were related to lower positive work habit ratings for Grades 1 through 4 ( $r = -.45$ ) and Grades 7 through 8 ( $r = -.22$ ), while Dependency was negatively related to positive work habits in Grades 1 through 4 ( $r = -.26$ ). Students with high Conflict ratings in kindergarten had more disciplinary infractions in Grades 5 through 6 ( $r = .35$ ) and Grades 7 through 8 ( $r = .26$ ). Hierarchical regression analyses indicated that these correlations were statistically significant even when controlling for verbal IQ, gender, and kindergarten teacher ratings of academic competence and problem behavior (Hamre & Pianta, 2001).

Pianta and colleagues (Pianta et al., 1995) examined the extent to which the quality of student-teacher relationships differed for students at risk for being referred for special education or retained across kindergarten through Grade 2. Using kindergarten screening data, that is, scores from (a) two subtests of the Stanford-Binet-IV (Thorndike, Hagen, & Sattler, 1986), (b) the fine motor skills subtest from the McCarthy scales (McCarthy, 1972), and (c) the Fluharty Preschool language screening scale (Fluharty, 1978), Pianta et al. predicted the likelihood that children would be referred/retained in kindergarten through Grade 2. They then examined the extent to which STRS scores differed for students predicted and not predicted to be retained or referred, and those who either were or were not actually retained or referred.

**Table 15**  
**STRS Scale and Subscale Score Comparisons for Students Predicted to be Retained or Referred: Positive Versus Negative Outcomes**

Scale/subscale	Negative outcome group <sup>a</sup>		Positive outcome group <sup>b</sup>		<i>F</i>	<i>d</i> <sup>c</sup>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Conflict	35.35	13.66	31.04	11.45	3.17*	.34
Closeness	40.02	7.59	44.48	6.59	10.65**	.63
Dependency	8.43	2.99	8.87	3.14	0.57	.14
Total	107.81	17.31	115.93	14.70	6.89*	.51

<sup>a</sup> $n = 54$ . <sup>b</sup> $n = 54$ . <sup>c</sup>Cohen's *d* effect size.

\* $p < .0125$  (one-tailed). \*\* $p < .001$  (one-tailed).

**Table 16**  
**STRS Scale and Subscale Score Comparisons for Students Predicted to Succeed in School: Positive Versus Negative Outcomes**

Scale/subscale	Negative outcome group <sup>a</sup>		Positive outcome group <sup>b</sup>		<i>F</i>	<i>d</i> <sup>c</sup>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Conflict	31.00	11.11	26.79	10.33	3.07*	.39
Closeness	43.67	7.47	45.16	6.61	0.94	.21
Dependency	8.05	2.91	7.41	2.89	0.91	.22
Total	115.05	14.66	121.37	13.80	3.90*	.44

<sup>a</sup> $n = 21$ . <sup>b</sup> $n = 305$ . <sup>c</sup>Cohen's *d* effect size.

\* $p < .0125$  (one-tailed).

The results for those students predicted to be referred or retained are summarized in Table 15 (Bonferroni correction was used for multiple testing).

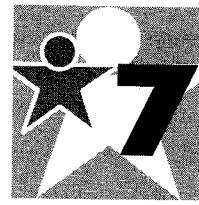
Among students predicted to have a negative outcome on the basis of the screening battery, those who actually were not referred or retained (i.e., the positive outcome group) had significantly lower Conflict scores and had higher Closeness and Total scores as completed by their kindergarten teacher. Thus, those students predicted to fail but who actually succeeded had less negative and more positive relationships with their kindergarten teachers.

Conversely, Table 16 summarizes results for those students predicted to succeed, on the basis of the kindergarten screening, who were actually retained or referred. Among those students predicted to have positive outcomes, those who actually were referred or retained had significantly higher Conflict and lower Total scores on the kindergarten STRS. When Dependency scores were high, teachers described their relationships with these students as emotionally ambivalent, and thus the teacher was often uncertain how best to help

the child. As students get older, high Dependency scores become an indicator of concern.

## **Discriminant Validity**

The STRS has been widely used as an indicator of the quality of the student-teacher relationship. Most of the published studies involving the STRS also requested that teachers complete one of many commonly used behavior problem or social competence questionnaires on the same students (e.g., see Birch & Ladd, 1997, 1998; Howes, Hamilton, & Matheson, 1994; Howes, Matheson, & Hamilton, 1994; Pianta & Hamre, 2001). Evidence indicates that the STRS is not redundant with other teacher-completed measures of problem behavior or social competence in the classroom. Correlations between STRS scale and subscale scores and the scores from behavior problem or social competence measures do not exceed .58 in published studies, and the median  $r$  is below .30. Thus, the STRS accounts for a unique proportion of explained variance in social and academic outcomes that is not attributable to commonly used teacher-report measures of problem behavior or social competence (e.g., Hamre & Pianta, 2001).



## CLINICAL AND RESEARCH APPLICATIONS

The STRS is a psychometrically reliable and valid instrument that assesses a teacher's perception of his or her relationship with a particular student. The STRS is predictive of a range of academic and social outcomes in school. It is best used when integrated with the intervention *Students, Teachers, and Relationship Support* (STARS; Pianta & Hamre, 2001) for improving relationships between students and teachers. STARS is a comprehensive assessment and intervention/consultation targeted to strengthen and build relationships between teachers and students in the classroom.

As a measure of classroom processes, the STRS is related to educational success. The STRS provides an efficient and user-friendly way to measure student-teacher relationships in terms of Conflict, Closeness, and Dependency, and provides an overall index of the quality of the relationship (the Total scale). STRS scores are related to (a) the types of student-teacher interactions in the classroom, (b) teachers' decisions about the child's school career, and (c) the child's future school adjustment – in both academic and behavioral domains. Most importantly, results from the STRS confirm that student-teacher relationships are an important context for development and learning in the school setting. The primary use of the STRS is as a tool for assessing student-teacher relationships in the context of efforts (such as the STARS program) to prevent or intervene early in the course of the development of adjustment problems in school (Pianta & Hamre, 2001).

The implications for school policy, teacher training, and educational practice are substantial. Optimizing the relational "fit" between teachers and students could contribute to enhanced relationships

and school success. Training teachers to observe relationship processes and to enhance their relationships with students could also facilitate the extent to which student-teacher relationships provide added support to high-risk children. In addition to this, the STRS can be used to identify teachers who may need supportive help with their interactive style, or to prevent teacher burnout. Finally, given the importance of positive student-teacher relationships for school success, the STRS can be used in conjunction with policies that stabilize and enhance student-teacher relationships, such as (a) allowing a student to remain with the same teacher for more than 1 year, (b) cutting down on the large number of transitions that young students make between different adults and specialists in the school, and (c) lowering actual student-to-teacher ratios. These policy and practice implications are described in the *STARS Consultant's Manual* (Pianta & Hamre, 2001). Furthermore, specific uses for whole-classroom assessment and for assessment of individual student-teacher relationships in case-centered approaches are described in the next sections.

### Classroom-Level Screening

As previously noted, the STRS can be used to screen whole classrooms and to identify teachers who may need supportive help or consultation with individual students, with their interactive style, or to prevent teacher burnout (see Pianta & Hamre, 2001). Using this approach, a school principal, lead teacher, or school psychologist (or other consultant) will request that the teacher complete a STRS form for each student in his or her class, perhaps completing forms over the course of several days if needed. Once the STRS is scored for each student

in the class, the teacher and consultant will review the pattern of scale and subscale percentile scores across all students in the classroom. This way, the consultant can identify the number of students showing, for example, Conflict scores over the 75th percentile as an indicator of the need for classroom-level support for this teacher. Furthermore, for those implementing the STARS intervention with classrooms, the *STARS Consultant's Manual* provides specific directions for using the STRS as an assessment when improving relationships at the classroom level.

The distribution of relationship profiles within a classroom provides information on the generalized tendencies of some teachers to form certain types of relationships with their students. Knowledge about the types of relationships in the classroom provides information for the consultant to address the teacher's style of relating to students and the individual relationship needs students present. For example, in one classroom (see Pianta, 1994) the teacher reported Conflict scores above the 75th percentile for 30% of the students in her class. In other words, this teacher experienced very high levels of negativity and helplessness and low levels of closeness and warmth in about one third of the relationships she had with students in her classroom. This teacher is an example of someone who withers because of the clash between the needs of her students and her own needs; she was at risk for "burning out" and was in need of assistance. Consequently, this teacher was enrolled in a consultation program using STARS (Pianta & Hamre, 2001) that increased her confidence and decreased her experiences of conflict with students. The STARS intervention directed the teacher, through consultation, in a series of relationship-building sessions with her students, reoriented her behavior management techniques, and helped her feel more effective in dealing with her own and her students' emotions.

## **Teacher- or Student-Centered Assessment and Consultation**

The STRS can be used most often in the context of teachers' referrals of students for special education eligibility or requests for consultation

and support. Nearly all schools have special education eligibility procedures that require prereferral (or preassessment) intervention. In these cases, the teacher must consider or request a special education eligibility assessment, and must attempt certain prereferral solutions for their concerns. The STRS can be used in this context to assess the extent to which the student and teacher are working effectively with one another and to provide an indicator of the level of severity of the teacher's concerns. Working with the eligibility team, the teacher can then engage in consultation that enhances the quality of his or her relationship with a student and allows the teacher to work more effectively with the student's strengths and weaknesses. Even when teachers report considerable levels of behavior problems or academic failure with a student, if they also report relatively higher levels of Closeness and decreased levels of Conflict, then they can work effectively to eliminate the need for special education assessment and improve the student's classroom adjustment (see Pianta & Hamre, 2001).

Similarly, schools can make opportunities available to teachers to seek consultation and support in a more informal manner – outside of the special education eligibility process, either through child-focused problem-solving teams or through other forms of consultation. Again, as in the scenario described above, the consultant may use the STRS as an indicator of the quality of the student-teacher relationship and offer a number of supportive techniques to the teacher to enhance the quality of the relationship. Many of these techniques are summarized in the *STARS Consultant's Manual* (Pianta & Hamre, 2001). For example, once engaged in a consultation with a teacher, the consultant can use a combination of observation or teacher interview techniques to provide in-depth information reflecting the richness of the relationship experiences of the teacher and information for subsequent planning and behavior change.

Finally, in the context of program evaluation, the STRS can be used to describe the relationship quality between students and teachers as impacted by a specific consultation program. Specifically, STRS scale

and subscale scores can be used as pre- and post-outcome measures to examine changes in relational quality before and after program implementation. In summary, the STRS can be used to characterize the patterns of relationships within a classroom for early screening and detection at the classroom level, as well as its more common usage to assess individual student-teacher relationships for the purposes of intake and evaluation in consultation situations.

## Research Applications

The STRS is a well-developed tool with substantial applicability for understanding and exploring the impact of student-teacher relationships on students' development. As the only measure of student-teacher relationship quality, the STRS provides researchers with information about the social processes that exist in the classroom. Specifically, the STRS might be used to address a variety of

research issues, including the impact of teachers' age, gender, and ethnicity on student-teacher relationships as well as how those effects impact classroom and/or academic development. The STRS may also be used in research to explore the impact and quality of student-teacher relationships with (a) older students (i.e., through Grades 5, as well as middle school and higher), (b) students considering dropping out of school, and (c) teachers at risk for burnout. Moreover, the STRS measures a unique source of variance in the classroom – the relationship between the student and teacher – that is different from most commonly used teacher reports of classroom behavioral problems or competencies. In summary, the STRS should help facilitate research on the ways school professionals can build supportive relationships between teachers and students, and in turn provide a greater foundation for student success in the classroom.

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# **APPENDIX A**

## **RAW SCORE TO PERCENTILE CONVERSION TABLES FOR THE TOTAL NORMATIVE SAMPLE**

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**Table A1**  
**Raw Score to Percentile Conversions for**  
**the Total Normative Sample**

%ile	Conflict	Closeness	Dependency	Total	%ile
>99	53-60	55	22-25	138-140	>99
99	49-52		20-21	135-137	99
98	47-48		19		98
97	45-46		18	134	97
96	44				96
95	43	54	17	133	95
94	42				94
93	40-41			132	93
92	39				92
91				131	91
90	38	53	16		90
89	37			130	89
88			15		88
87	36				87
86	35			129	86
85	34	52	14		85
84					84
83	33				83
82	32			128	82
81					81
80	31	51	13	127	80
79	30				79
78					78
77	29			126	77
76					76
75	28	50			75
74				125	74
73	27				73
72	26				72
71					71
70	25	49	12	124	70
69					69
68					68
67					67
66				123	66
65	24				65
64					64
63				122	63
62	23				62
61					61
60	22	48	11	121	60
59					59
58					58
57	21			120	57
56					56

(continued)

**Table A1 (continued)**  
**Raw Score to Percentile Conversions for**  
**the Total Normative Sample**

%ile	Conflict	Closeness	Dependency	Total	%ile
55	20	47			55
54				119	54
53					53
52					52
51				118	51
50	19	46	10		50
49				117	49
48					48
47				116	47
46					46
45	18	45		115	45
44					44
43					43
42				114	42
41					41
40	17	44		113	40
39					39
38				112	38
37					37
36				111	36
35	16	43	9		35
34				110	34
33					33
32				109	32
31					31
30	15	42		108	30
29					29
28		41		107	28
27				106	27
26				105	26
25	14	40	8	104	25
24					24
23				103	23
22				102	22
21					21
20		39		101	20
19				100	19
18		38		99	18
17					17
16				97-98	16
15	13	37	7	96	15
14					14
13		36		95	13
12				93-94	12
11		35		92	11

(continued)

**Table A1 (continued)**  
**Raw Score to Percentile Conversions for**  
**the Total Normative Sample**

%ile	Conflict	Closeness	Dependency	Total	%ile
10		34	6	91	10
9				90	9
8		33		88-89	8
7				86-87	7
6		32		84-85	6
5	12	31		83	5
4		30		80-82	4
3		28-29		77-79	3
2		26-27		73-76	2
1		24-25	5	70-72	1
<1		11-23		28-69	<1

Note. N = 1,535.

# **APPENDIX B**

## **RAW SCORE TO PERCENTILE CONVERSION TABLES BY STUDENT GENDER**

**Table B1**  
**Raw Score to Percentile Conversions for Boys**

%ile	Conflict	Closeness	Dependency	Total	%ile
>99	55-60		22-25	136-140	>99
99	50-54	55	20-21	135	99
98	48-49			134	98
97	47		19	133	97
96	45-46				96
95	44	54	18	132	95
94	43			131	94
93	42		17		93
92	41	53	16		92
91	40				91
90	39	52	15	130	90
89	38			129	89
88					88
87	37				87
86					86
85	36	51	14	128	85
84	34-35				84
83				127	83
82	33				82
81					81
80	32	50	13	126	80
79	30-31				79
78					78
77	29				77
76					76
75	28	49	12	125	75
74					74
73				124	73
72	27				72
71					71
70	26	48			70
69				123	69
68	25				68
67				122	67
66					66
65	24		11		65
64				121	64
63					63
62	23				62
61					61
60	22	47		120	60
59					59
58					58
57				119	57
56					56

(continued)

**Table B1 (continued)**  
**Raw Score to Percentile Conversions for Boys**

%ile	Conflict	Closeness	Dependency	Total	%ile
55	21	46			55
54				118	54
53					53
52				117	52
51					51
50	20	45	10	116	50
49					49
48				115	48
47	19				47
46					46
45	18	44		114	45
44					44
43				113	43
42					42
41					41
40	17	43	9	112	40
39					39
38				111	38
37					37
36				110	36
35	16	42		109	35
34					34
33					33
32				108	32
31				107	31
30	15	41			30
29				106	29
28				105	28
27		40		104	27
26				103	26
25	14	39	8	102	25
24					24
23				101	23
22		38			22
21				100	21
20		37			20
19		36		99	19
18				97-98	18
17				96	17
16				95	16
15	13	35	7		15
14				93-94	14
13				92	13
12		34		91	12
11				90	11

(continued)

**Table B1 (continued)**  
**Raw Score to Percentile Conversions for Boys**

%ile	Conflict	Closeness	Dependency	Total	%ile
10		33	6	89	10
9				87-88	9
8		31-32		85-86	8
7				84	7
6				83	6
5	12	30		81-82	5
4		28-29		79-80	4
3		26-27		77-78	3
2		24-25		73-76	2
1		23	5	66-72	1
<1		11-22		28-65	<1

Note.  $n = 788$ .

**Table B2**  
**Raw Score to Percentile Conversions for Girls**

%ile	Conflict	Closeness	Dependency	Total	%ile
>99	49-60		22-25	139-140	>99
99	47-48	55	20-21	136-138	99
98	46			135	98
97	44-45		19		97
96	43		18		96
95	42	54	17	134	95
94	40-41				94
93	39			133	93
92	37-38				92
91				132	91
90	35-36	53	16		90
89	34				89
88	33			131	88
87	32			130	87
86					86
85	31		15		85
84					84
83	30			129	83
82					82
81	29				81
80	28	52	14	128	80
79					79
78					78
77	27				77
76					76
75	26	51	13	127	75
74					74
73	25				73
72				126	72
71					71
70	24		12	125	70
69					69
68					68
67					67
66	23				66
65	22	50			65
64				124	64
63					63
62					62
61					61
60	21	49	11	123	60
59					59
58				122	58
57	20				57
56					56

(continued)

**Table B2 (continued)**  
**Raw Score to Percentile Conversions for Girls**

%ile	Conflict	Closeness	Dependency	Total	%ile
55	19	48		121	55
54					54
53					53
52					52
51				120	51
50	18	47			50
49				119	49
48					48
47				118	47
46					46
45	17	46	10		45
44				117	44
43					43
42					42
41				116	41
40	16	45		115	40
39					39
38					38
37				114	37
36				113	36
35		44	9	112	35
34					34
33					33
32				111	32
31					31
30	15	43		110	30
29					29
28					28
27				109	27
26					26
25	14	42	8	108	25
24					24
23				107	23
22				106	22
21				105	21
20		41		104	20
19					19
18		40		103	18
17				102	17
16				101	16
15	13	39	7	99-100	15
14					14
13		38		98	13
12				97	12
11		37		96	11

(continued)

**Table B2 (continued)**  
**Raw Score to Percentile Conversions for Girls**

%ile	Conflict	Closeness	Dependency	Total	%ile
10		36	6	94-95	10
9				93	9
8		35		92	8
7		34		91	7
6		33		89-90	6
5	12	32		86-88	5
4		31		84-85	4
3		29-30		83	3
2		27-28		76-82	2
1		26	5	75	1
<1		11-25		28-74	<1

Note.  $n = 708$ .

# **APPENDIX C**

## **RAW SCORE TO PERCENTILE CONVERSION TABLES BY STUDENT'S RACE/ETHNICITY**

**Table C1**  
**Raw Score to Percentile Conversions for Caucasian Students**

%ile	Conflict	Closeness	Dependency	Total	%ile
>99	51-60		23-25	138-140	>99
99	49-50	55	20-22	136-137	99
98	47-48		19		98
97	45-46		18	135	97
96	43-44				96
95	41-42	54	17	134	95
94	40			133	94
93					93
92	38-39				92
91	37			132	91
90	36	53	16	131	90
89					89
88	35			130	88
87			15		87
86	34				86
85	33	52	14	129	85
84					84
83	32				83
82	30-31				82
81					81
80	29	51	13	128	80
79					79
78				127	78
77					77
76	28				76
75	27	50		126	75
74					74
73	26				73
72					72
71	25				71
70	24		12	125	70
69					69
68					68
67					67
66					66
65	23	49		124	65
64	22				64
63				123	63
62					62
61					61
60	21	48	11	122	60
59					59
58					58
57					57
56					56

(continued)

**Table C1 (continued)**  
**Raw Score to Percentile Conversions for Caucasian Students**

%ile	Conflict	Closeness	Dependency	Total	%ile
55	20	47	10	121	55
54					54
53					53
52				120	52
51					51
50	19			119	50
49					49
48					48
47					47
46				118	46
45	18	46		117	45
44					44
43					43
42				116	42
41				115	41
40	17	45	9	114	40
39					39
38		44		113	38
37					37
36					36
35	16	43		112	35
34					34
33				111	33
32				110	32
31					31
30	15	42		109	30
29					29
28					28
27				108	27
26					26
25	14	41	8	107	25
24				106	24
23		40		105	23
22				104	22
21				103	21
20	13	39		102	20
19					19
18		38		101	18
17				100	17
16				99	16
15		37	7	97-98	15
14		36			14
13				96	13
12		35		95	12
11				94	11

(continued)

**Table C1 (continued)**  
**Raw Score to Percentile Conversions for Caucasian Students**

%ile	Conflict	Closeness	Dependency	Total	%ile
10		34	6	92-93	10
9					9
8				90-91	8
7		33		88-89	7
6				85-87	6
5	12	32		84	5
4		30-31		83	4
3		28-29		80-82	3
2		24-27		76-79	2
1		11-23	5	74-75	1
<1				28-73	<1

Note.  $n = 967$ .

**Table C2**  
**Raw Score to Percentile Conversions**  
**for African American Students**

%ile	Conflict	Closeness	Dependency	Total	%ile
>99	56-60		22-25	135-140	>99
99	55	55	21	134	99
98	53-54			133	98
97	51-52	54	20		97
96	49-50		19	132	96
95	47-48	53	18		95
94	46			131	94
93	45			130	93
92	44				92
91					91
90	43	52	17	129	90
89	42			128	89
88			16	127	88
87					87
86	41				86
85	40	51	15	126	85
84	39	50			84
83					83
82	38			125	82
81					81
80	36-37	49	14	124	80
79				123	79
78	35				78
77	34			122	77
76	33				76
75	32	48	13	121	75
74					74
73					73
72	31			120	72
71					71
70	30	47		119	70
69	29				69
68				118	68
67					67
66	28				66
65	27	46		117	65
64				116	64
63					63
62	26				62
61					61
60	25	45	12	115	60
59					59
58					58
57				114	57
56				113	56

(continued)

**Table C2 (continued)**  
**Raw Score to Percentile Conversions**  
**for African American Students**

%ile	Conflict	Closeness	Dependency	Total	%ile
55	24	44		112	55
54					54
53					53
52	23			111	52
51					51
50	22	43	11	110	50
49					49
48					48
47				109	47
46					46
45	21	42		108	45
44					44
43	20				43
42					42
41					41
40	19	41		107	40
39					39
38				106	38
37					37
36				105	36
35	18	40	10	104	35
34	17				34
33					33
32				103	32
31				102	31
30	16	39			30
29				101	29
28					28
27				100	27
26					26
25	15	38	9	98-99	25
24					24
23					23
22				96-97	22
21					21
20	14	37		95	20
19				93-94	19
18		36			18
17				92	17
16				91	16
15	13	35	8	89-90	15
14		34			14
13		33		87-88	13
12					12
11				86	11

(continued)

**Table C2 (continued)**  
**Raw Score to Percentile Conversions**  
**for African American Students**

%ile	Conflict	Closeness	Dependency	Total	%ile
10		32	7	84-85	10
9				83	9
8				82	8
7		31		80-81	7
6				79	6
5	12	30	6	77-78	5
4		29		75-76	4
3		27-28		73-74	3
2		25-26		69-72	2
1		23-24	5	63-68	1
<1		11-22		28-62	<1

Note. n = 276.

**Table C3**  
**Raw Score to Percentile Conversions**  
**for Hispanic American Students**

%ile	Conflict	Closeness	Dependency	Total	%ile
>99	52-60		22-25	135-140	>99
99	49-51	55	21		99
98	46-48		19-20		98
97	43-45		17-18	134	97
96	40-42				96
95	38-39	54	16	133	95
94	37				94
93	36			132	93
92	35				92
91					91
90	34	53	15	131	90
89	32-33			130	89
88	31				88
87	30				87
86					86
85	29	52	14	129	85
84					84
83	28				83
82					82
81					81
80	27	51	13		80
79				128	79
78					78
77	26			127	77
76					76
75	25	50	12	126	75
74					74
73	24				73
72					72
71					71
70	23			125	70
69	22				69
68					68
67	21			124	67
66					66
65	20	49	11	123	65
64					64
63					63
62					62
61					61
60	19	48		122	60
59					59
58					58
57					57
56					56

(continued)

**Table C3 (continued)**  
**Raw Score to Percentile Conversions**  
**for Hispanic American Students**

%ile	Conflict	Closeness	Dependency	Total	%ile
55	18	47		121	55
54					54
53					53
52					52
51					51
50	17	46	10	120	50
49					49
48					48
47				119	47
46					46
45	16	45			45
44				118	44
43					43
42					42
41					41
40		44	9	117	40
39					39
38					38
37				116	37
36					36
35	15	43		115	35
34				114	34
33				113	33
32					32
31					31
30	14	42		112	30
29				110-111	29
28					28
27					27
26					26
25		41	8	109	25
24				107-108	24
23					23
22				106	22
21		40			21
20	13	39		105	20
19				104	19
18					18
17		38		103	17
16					16
15		37	7	102	15
14				101	14
13		36		100	13
12		35		99	12
11					11

(continued)

**Table C3 (continued)**  
**Raw Score to Percentile Conversions**  
**for Hispanic American Students**

%ile	Conflict	Closeness	Dependency	Total	%ile
10		34	6	98	10
9				96-97	9
8		33		94-95	8
7		32		90-93	7
6				89-90	6
5	12	31		87-88	5
4		29-30		85-86	4
3		27-28		83-84	3
2		25-26		80-82	2
1		24	5	75-79	1
<1		11-23		28-74	<1

Note.  $n = 154$ .