Development and Validation of Measure on Student-Teacher Relationship in the Indian Context

Shreshtha Yadav[1]*, Neena Kohli[2]*, Anil Kumar Yadav[1]*, Naveen[3]*, Trayambak Tiwari[1]* and Tarun Mishra[1]*

[1] *Department of Psychology, Banaras Hindu University, Varanasi, India,* [2] *Department of Psychology, University of Allahabad, Allahabad, India,* [3] *Psychology Section, M.M.V. Banaras Hindu University, Varanasi, India*

The notion that the student-teacher relationship is quintessential for the holistic development and success of students has been well established through various research. A considerable number of studies have been conducted in western countries, and various scales have been developed to measure student-teacher relationship. These scales have been extended to various cultural contexts. However, few studies have been found to focus on the suitability and applicability of these scales and theories of student-teacher relationship in the Indian context. In the western context, most of the studies on the student-teacher relationship were based on the attachment theory. In the context of Indian culture, student-teacher relationship functions beyond the boundaries of attachment theory. It is well acknowledged that Indian culture differs vastly from other cultures. Given the uniqueness of Indian culture, the present study advocated that nature of student-teacher relationship in the Indian context is significantly different from western countries. There was a need to develop a scale for measuring student-teacher relationship in the Indian context. This study intended to construct a scale on student-teacher relationship in the Indian context. Standard procedure was followed in the process of scale construction. Results of the first study illustrated a four factor (dedication, trust, respect, and obedience) model of student-teacher relationship, and a second study confirmed this model and ensured reliability and validity of the scale.

Keywords: factor analysis, scale construction, India, education, culture, student-teacher relationship

INTRODUCTION

A vast amount of literature accounts for the role of student-teacher relationship in students' overall success. Many studies in educational settings have proved that student-teacher relationship plays a major role in academic achievement of student and their social and emotional development (Longobardi et al., 2021). Positive relationship between student and teacher is a significant predictor of students' success in academics (Ray et al., 2008; Longobardi et al., 2018). On the contrary, disturbed student-teacher relationship caused academic failure and obstructed social and emotional development of the students. Academic institutes who provided an affirmative class environment and worked on building healthy student-teacher relationships achieved more academic success than those institutes who gave less importance and effort to the student-teacher relationship (Birch and Ladd, 1997; Burchinal et al., 2002).

Positive student-teacher relationship provided a foundation for other functions of educational institutes to be carried out efficiently and motivated students to do well in their studies (Marzano, 2003). Hamre and Pianta (2001) also supported the idea that positive student-teacher relationship was a key factor for overall development of the students. Hallinan (2008) proposed that learning in educational settings was a multi-dimensional construct which includes social, cognitive, and psychological aspects. He further suggested that all dimensions of learning played a significant role in academic excellence. Other than these dimensions, the emotional dimension also has an important role in student-teacher interaction. Emotions are an essential element in teaching and learning process (Meyer and Turner, 2002). Therefore, the role of emotions cannot be ignored while discussing student-teacher relationship.

Theoretical Underpinning

Student-teacher relationship has been found to be crucial in the holistic development of students (Longobardi et al., 2016). It is imperative to understand the nature and meaning of the student-teacher relationship. There are some theoretical perspectives which needs to be discussed in order to understand the student-teacher relationship.

System perspective is one of the major perspective through which student-teacher relationship can be explained. The basic scheme of system theory relies on the idea that all aspects of the construct are connected to each other (Kiesler, 1996). Consequently, any variation in one aspect of the construct results in changes to other aspects of the construct. Moreover, this change may affect the first aspect retrospectively, and this process happens each time a variation is introduced (Wubbels and Levy, 1993). In the context of student-teacher relationship, the behavior of the teacher modifies the behavior of students and the subsequent behavior of the teachers gets affected by the behavior of students. Therefore, student-teacher relationship is not only determined by their own behavior but also by interaction (product) of their actual behaviors.

Another theory which helps to explain student-teacher relationship is known as "Attachment Theory." According to this theory, the teacher works as an alternative caregiver (Howes and Ritchie, 1999). The student-teacher relationship is an extension of a parent-child relationship (Davis, 2003). Pianta (2001) found that emotionally secure student-teacher relationship resulted in better attention and learning among students.

The system perspective and attachment theory both indicate the bidirectional and transactional nature of the student-teacher relationship. It becomes necessary to critically examine the behavior of both students and teachers and how the behavior of one modifies the behavior of the other.

Culture and Student Teacher Relationship

The growing influence of cognitive psychology resulted in a paradigm shift and brought more focus on cognitive processes (such as attention, memory, perception, thinking, intelligence, etc.). Initial focus was to understand the cognitive aspect of human behavior, but with the emergence of the concept of social cognition, few noticeable changes happened. An influential theme that surfaced was the role of culture in cognition.

Grant and Dweck (2001) have advocated that culture has some imprint on language, learning, motivation, and student performance. Every student has some pre-existing beliefs, ideas, attitudes, and social perceptions which are culture specific. Through the process of socialization, one learns how to behave in a particular situation and develops perception toward various social settings. Learning is shaped in accordance to culturally suitable behavior and attitudes (Markus et al., 1997; Tomasello, 2001; Li, 2003). Students having different cultural backgrounds will have different perceptions about education and teachers. Every culture has a unique perspective about the meaning of education, structure of educational institutes, curriculum, characteristics of student and teacher, and relationship between student and teacher. Cultural models of education emphasized that socio-cultural background gets reflected in school contexts (Fryberg and Markus, 2007). Major components in the cultural model of education involve meaning and purpose of education, characteristics of a good student and teacher, the nature of student-teacher relationship, relationship between students and classroom context, and teaching methodology. In the United States most of the educational institutions still work on the idea that learning demands self-sufficiency and free thinking (Tharp, 1994; Bruner, 1996). The role of teacher remains compressed to focus primarily on course components and guide students to acquire subject knowledge, which does not encourage a positive or trusting interpersonal relationship between student and teacher. In Japanese culture a trustworthy relationship is a requisite for good education (Tweed and Lehman, 2003). Lewis (1995) advocated that, according to Japanese philosophy, developing a union between student and teacher for achieving better education is essential. She further stated that "emphasis should be placed on the relationship of hearts, the nurturing of bonding between the teacher's and children's hearts" (p. 56). Fryberg and Markus (2007) found that American students believe that teachers should facilitate students to become independent thinkers, although students in India prefer teachers who make emotional bonding and trusting relationships with students. So, the cultural and social belonging of the students acts as a determining factor in shaping students' perception about teachers in particular and education in general.

Mostly theories and instruments in the field of educational psychology have been established in western countries. Various researchers from non-western countries have often voiced their concerns over applicability of these theories and instruments in their respective cultures. Enriquez (1977) pointed out that many educational theories and measuring instruments were not appropriate for non-western cultures. Test scores of a measure being validated in a different culture lacks applicability when it comes to other cultures. However, Hui and Triandis (1985) believed that if a measure has scalar equivalence, this problem may be fixed. Scalar equivalence refers to a measuring construct that has similar metrics across the cultures. They further stated that scalar equivalence is difficult to establish as it involves many steps such as conceptualization, construct operationalization, and item equivalence.

Measures of Student-Teacher Relationship

- Questionnaire for Teacher Interaction (QTI) developed by Wubbels et al. (1985) is a widely used questionnaire to measure student-teacher relationship. This measure taps student-teacher interaction on eight domains: leadership, helpful/friendly (helpfulness), understanding, student responsibility/freedom (freedom), uncertainty, dissatisfaction, admonishment, and strictness. The questionnaire measures various attributes of the teacher such as leadership, helpfulness, and others. However, this scale has no items related to students' attitude toward the student-teacher relationship. In the Indian context, the student-teacher relationship is completely different from the perspective of Wubbels et al. (1985) as teachers are treated beyond these eight dimensions.
- Another useful measure is Psychological Sense of School Membership Scale (PSSMS) developed by Goodenow (1993). This scale was developed to measure perceived relatedness and teacher support. PSSMS has a total of 18 items. The PSSM Scale aims to measure student's attitude toward the school and does not measure student-teacher relationship.
- Teacher-Pupil Rapport Scale is a renowned scale to measure student-teacher relationship. This scale was developed by Rabinowitz and Rosenbaum (1958). They defined teacher-pupil rapport as the generalized, conscious, subjective regard expressed by pupils for their teacher. This scale has four dimensions, Disorder, Halo, Supportive Behavior, and Traditionalism. This scale covers these four dimensions which have less relevance in the Indian context.
- Student Teacher Relationship Scale (STRS; Pianta, 2001) is designed to measure feelings of the teacher about his/her relationship with student, student-teacher interaction and student's attitude toward the teacher. This scale comprises three sub scales: conflict, closeness, and dependency. The first sub scale (conflict) has 12 items, second (closeness) has 11 items, and third (dependency) has five items. The scale is widely used in educational research and many authors have validated it in different cultural contexts.

Student-Teacher Relationship in India

Educational psychologists have emphasized that the teachers are the most important part of the education system, and the behavior of teachers determines the success of the education system. Students are another important part of the education system as students are not merely receiver, but they also play a significant role in functioning of the system.

Another important but somewhat neglected aspect of the education system is student-teacher relationship. Few educationists give less emphasis to student-teacher relationship than knowledge acquisition, pedagogy, and teaching aids. However, student-teacher relationship plays a decisive role in the success of an educational institute. Thus, the role of student-teacher relationship becomes more important in the context of Indian culture. The distinguished tradition of student-teacher relationship (Guru-Shishya Parampara) of India is well known. However, with modernization and changing scenario in education system, the Indian value system has undergone changes, but the deep-rooted tradition of regard and gratefulness toward teachers is profoundly observed in Indian society and culture. In view of this peculiar value system, it would be unfair to examine the student-teacher relationship through the lens of western theories and measure this relationship with instruments developed and validated in the western context. The nature of the student-teacher relationship in the Indian context has been discussed quite often, but no attempt was made to either conceptualize this construct or develop a measure. In view of these shortcomings and a need to develop a culture specific measure, the present study was designed for developing a unique and culturally appropriate instrument to measure student-teacher relationship in the Indian perspective.

STUDY ONE

The primary objective of the present study was to develop a scale on student-teacher relationship in the Indian context. To achieve this objective, extensive literature review was done and two focus group discussions were organized to learn from the experience of teachers and researchers. The purpose of the focus group discussion was to obtain practical experience along with theoretical understanding. Focus group discussion was pivotal in understanding the student-teacher relationship in the Indian context. Based on the review of literature and focus group discussions, an item pool was prepared. After thoroughly examining the items, a questionnaire was prepared which included a consent form and demographic details. The questionnaire was administered on the target sample. Obtained data were analyzed using appropriate statistical methods.

Methods
Focus Group Discussion
The first focus group discussion was comprised of eight researchers from the Department of Psychology, University of Allahabad, and the second group consisted of eight school teachers having teaching experience of more than 5 years. Important themes emerged in the focus group discussion such as dedication, devotion, respect, trust, humor, genuineness, subject expertise, obedience, positive interpersonal attachment, and emotional bonding. These themes were overlooked in existing measures. Out of these ten themes, only four were used for scale construction, i.e., devotion, trust, respect, and obedience. The reason for exclusion of other themes were (i) to avoid duplicity; (ii) to make the scale compact; and (iii) to avoid dimensions such as subject expertise. Few dimensions were found to be similar. Contents of the themes devotion and dedication were found overlapping, and devotion incorporated the idea of dedication. Thus, devotion was finalized as a key dimension. Similarly, the contents of positive interpersonal attachment and emotional bonding have already been covered in the dimensions of trust and respect.

TABLE 1 | Descriptive statistics of items and item-sum correlations.

Item	Mean	SD	Skewness	Kurtosis	ISC
Item 1	3.52	1.06	−0.35	−0.78	59**
Item 2	3.72	0.91	−0.84	0.54	0.60**
Item 3	3.61	1.10	−0.48	−0.63	0.64**
Item 4	3.56	0.92	−1.03	1.0	0.55**
Item 5	3.81	1.00	−0.83	0.32	0.60**
Item 6	3.57	1.03	−0.64	−0.10	0.61**
Item 7	3.53	1.10	−0.48	−0.41	0.67**
Item 8	3.65	1.00	−0.77	0.14	0.66**
Item 9	3.45	1.09	−0.31	−0.65	0.60**
Item 10	3.79	0.92	−0.68	0.26	0.65**
Item 11	3.75	0.87	−0.84	0.62	0.66**
Item 12	3.79	0.98	−0.69	0.03	0.69**
Item 13	3.86	0.72	−0.79	1.37	0.63**
Item 14	3.65	1.00	−0.43	−0.46	0.68**
Item 15	3.56	0.91	−0.41	−0.34	0.61**
Item 16	3.56	1.01	−0.26	−0.63	0.57**
Item 17	3.68	0.87	−0.93	0.71	0.69**
Item 18	3.61	0.93	−0.31	−0.47	0.69**
Item 19	3.48	1.14	−0.49	−0.64	0.57**
Item 20	3.67	0.77	−1.05	0.622	0.60**
Item 21	3.60	1.08	−0.40	−0.76	0.68**
Item 22	3.37	1.11	−0.73	−0.34	0.66**
Item 23	3.97	0.91	−0.65	−0.31	0.77**
Item 24	3.50	1.02	−0.54	−0.47	0.73**
Item 25	3.61	1.05	−0.46	−0.64	0.65**
Item 26	3.76	0.79	−0.76	0.35	0.65**
Item 27	3.73	0.87	−0.52	−0.33	0.65**
Item 28	3.31	0.91	−0.18	−0.35	0.68**
Item 29	3.43	1.03	−0.35	−0.70	0.58**
Item 30	3.64	0.82	−0.82	0.42	0.57**
Item 31	3.82	0.90	−0.46	−0.53	0.67**
Item 32	3.73	0.94	−1.14	0.98	0.66**
Item 33	3.70	0.93	−0.48	−0.59	0.64**
Item 34	3.61	0.83	−0.64	−0.02	0.63**
Item 35	3.72	1.00	−0.33	−0.94	0.68**

*ISC, item-total correlation; ** $p < 0.01$.*

TABLE 2 | Details of multicollinearity analysis.

Variable	Tolerance	VIF
Item 1	0.451	2.216
Item 2	0.414	2.417
Item 3	0.349	2.864
Item 5	0.394	2.538
Item 6	0.391	2.559
Item 7	0.361	2.771
Item 8	0.341	2.931
Item 9	0.357	2.804
Item 10	0.462	2.163
Item 11	0.427	2.342
Item 12	0.416	2.406
Item 13	0.454	2.200
Item 14	0.433	2.310
Item 15	0.490	2.043
Item 16	0.479	2.086
Item 17	0.397	2.520
Item 18	0.390	2.562
Item 19	0.479	2.090
Item 21	0.360	2.777
Item 22	0.415	2.410
Item 23	0.338	2.955
Item 24	0.307	3.258
Item 25	0.451	2.218
Item 26	0.416	2.405
Item 27	0.337	2.966
Item 28	0.436	2.292
Item 29	0.513	1.949
Item 30	0.455	2.199
Item 31	0.418	2.390
Item 33	0.443	2.259
Item 34	0.470	2.126
Item 35	0.385	2.594

Eight researchers (D. Phil. Students from University of Allahabad, India) having expertise in the area of educational psychology, child development, and school psychology were selected for focus group discussion. This group included four male and four female researchers whose age ranged from 24 to 29. For the second focus group discussion eight school teachers working in various schools of the city (Prayagraj, India) were chosen. School teachers' (four male and four female) age ranged from 33 to 42 years and their teaching experience ranged from 5 to 12 years.

Operational Definition of Construct and Its Dimensions

Student-Teacher Relationship

Student-teacher relation refers to the emotional bonding between student and teacher which is shaped by unique cultural values and beliefs. The student-teacher relationship is characterized by the devotion of student toward teacher, trusting the teacher, showing respect, and following instructions of the teacher.

Devotion: Devotion comes from within while students feel real appreciation for the teacher. Devotion is a feeling of unconditional dedication and compassion toward the teacher.

Trust: Trust is a belief on the part of students that teachers can be counted on in difficult situations, and having faith that teacher's actions are directed only for the improvement and success of the student.

Respect: Respect is a feeling of students being grateful toward the teacher that results in a positive emotional bonding between student and teacher.

Obedience: Obedience is the tendency of students to follow instructions given by the teacher. The behavioral components of obedience are following instructions, giving importance to the words of teacher, and putting extra effort to complete the given task.

TABLE 3 | Principal component analysis of scale.

Variable	Factor one	Factor two	Factor three	Factor four	Extracted communality
Item 1	0.709				0.589
Item 2	0.731				0.606
Item 3	0.778				0.686
Item 5	0.775				0.665
Item 6	0.759				0.643
Item 7	0.753				0.671
Item 8	0.735				0.652
Item 9	0.791				0.674
Item 10			0.592		0.553
Item 11			0.663		0.611
Item 12			0.637		0.615
Item 13			0.680		0.587
Item 14			0.589		0.569
Item 15			0.689		0.587
Item 16			0.688		0.560
Item 17			0.658		0.620
Item 18			0.580		0.587
Item 19				0.751	0.660
Item 21				0.682	0.673
Item 22				0.672	0.637
Item 23				0.482	0.638
Item 24				0.671	0.713
Item 25				0.482	0.486
Item 26				0.469	0.572
Item 27		0.790			0.718
Item 28		0.506			0.528
Item 29		0.649			0.505
Item 30		0.654			0.524
Item 31		0.695			0.640
Item 33		0.688			0.608
Item 34		0.539			0.500
Item 35		0.683			0.646
Initial eigenvalue	13.721	2.986	1.594	1.222	
% of variance	17.780	15.759	15.714	11.760	
Cumulative % of variance	17.180	33.538	49.252	61.012	

Extraction Method, Principal component; Rotation Method, Varimax.

TABLE 4 | Reliability and validity of scale and correlation among dimensions.

S.N.	Dimension	CR	AVE	Devotion	Trust	Respect	Obedience
1	Devotion	0.91	0.59	*0.76*			
2	Trust	0.92	0.61	0.48**	*0.78*		
3	Respect	0.91	0.60	0.55**	0.53**	*0.77*	
4	Obedience	0.93	0.62	0.43**	0.47**	0.42**	*0.78*

*Highlighted values are square root of AVE of each dimension. Here ** means significant at 0.01 level.*

Generation of Item Pool

Item pool was prepared with reference to the concerned construct and its dimensions. Few negative items were included in the item pool. Edward's (1967) criterion was followed in the construction of items. Then item pool of each dimension was discussed with a group of researchers and teachers. Items which were found not suitable for particular dimension got modified or rejected. After completion of this exercise a scale of 35 items was finalized, which comprised four dimensions and each dimension having nine items, except the respect dimension which had eight items.

Preparation of the Questionnaire

A scale comprising of 35 items was prepared along with the consent form. Consent form included aim and short introduction of the study, instructions to fill the scale, and agreement of confidentiality. A demographic information form was attached to the scale. The participants were requested to choose a response that best represented their perception about each statement, on a five-point Likert-scale (from 1 = *strongly disagree* to 5 = *strongly agree*). The scale was finalized, which contained consent form and demographic details (a complete set of scale in given in **Supplementary Appendix A**).

Participants

Participants were selected from various departments of the University of Allahabad (Uttar Pradesh, India). Students from under-graduate and post-graduate courses were chosen for the study. Out of 500 students who were approached to fill the questionnaire, only 468 (male = 192, female = 276) participants completed the scale. Participants' age ranged from 17 to 26 years (Mean = 20.10, SD = 1.63).

Procedure

Permission for data collection was obtained from the Departmental Ethics Review Committee, Department of Psychology, University of Allahabad (India). Participants were approached and briefly informed about the purpose of the study and instructions were given to fill the questionnaire. After completion of the questionnaire participants were thanked for their valuable time and contribution in the study.

Results
Item Analysis

Item analysis is a set of procedures to investigate the distribution and normality of the data set. Mean, S.D., skewness, and kurtosis were used to examine the distribution of scores of every item. Items were accepted on the basis of fixed criteria on these distributional properties for mean (2–4), S.D. (0.7–1.3), skewness (+1 to −1), and kurtosis (+1 to −1). The item total correlation was used to check consistency of items with aggregate score. All the items were found appropriate on each criterion, except skewness. On the basis of skewness three items (item 4, item 20, item 32) were excluded; these items had a value of skewness more than +1. Details of item analysis are provided in **Table 1**.

Detecting Multivariate Outliers

After performing item analysis, multivariate outliers were examined. Cases that had Mahalanobis value more than chi-square value at the level of alpha 0.001 with the degree of freedom at 35 were removed. Six cases were found violating the criteria, so these cases were not included in further data analysis.
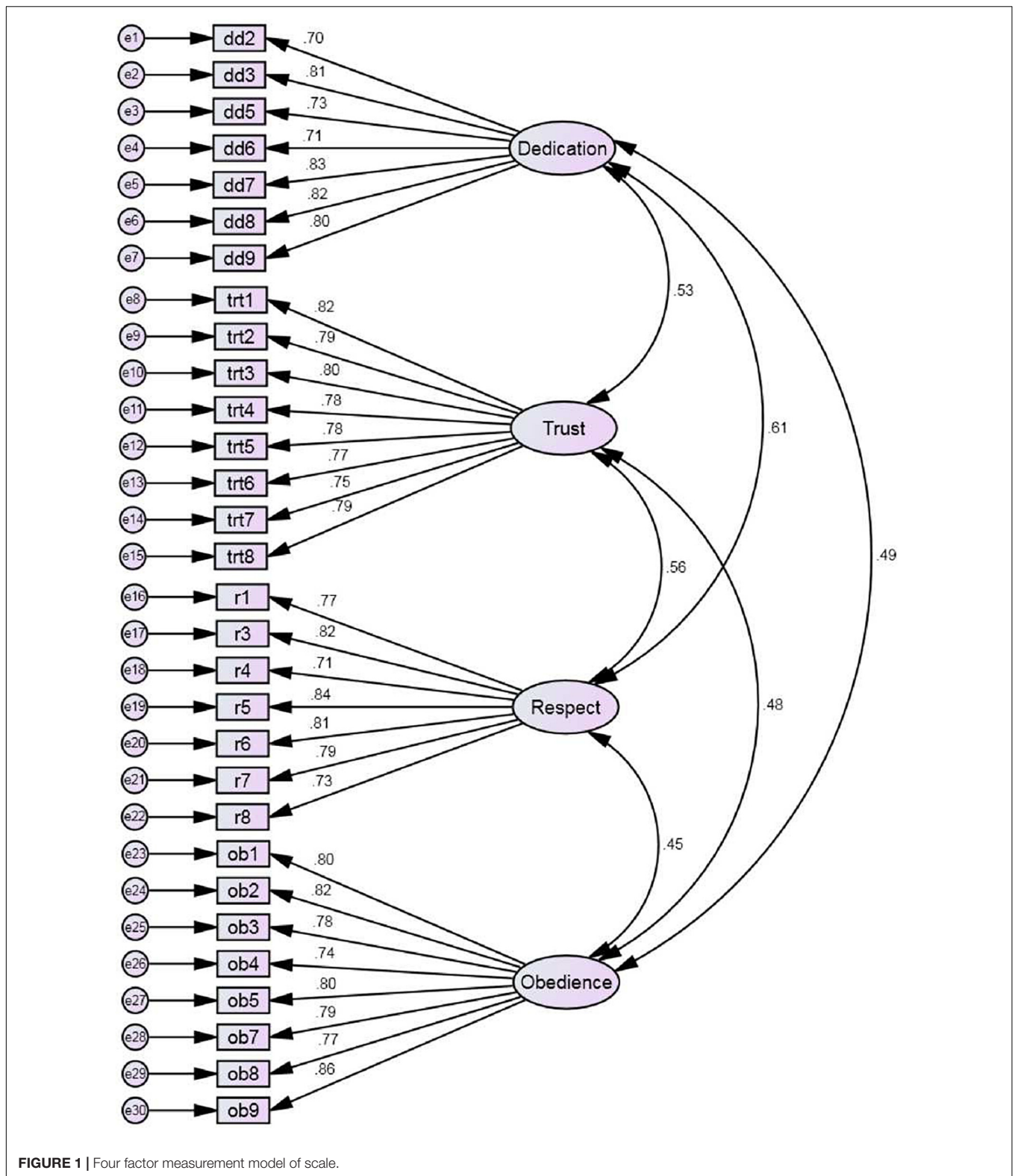
FIGURE 1 | Four factor measurement model of scale.

Detecting Multicollinearity

To examine multicollinearity, analysis was done which showed no multicollinearity issue, therefore each item was included in principal component analysis. Details of multicollinearity analysis are given in **Table 2**.

Principal Component Analysis

Items which had factor loading coefficient less than 0.40 were suppressed. PCA resulted in four factor model having eigenvalue 1.22.

Details of PCA with four factor model are exhibited in **Table 3**.

TABLE 5 | Presents the model fit statistics/indices of proposed model.

Model	Sample	Chi-square	df	CMIN/df	GFI	CFI	RMSEA	90% CI
A	192	607**	399	1.523	0.804	0.938	0.057	0.04, 0.06

*CMIN/df, a ratio of chi-square divided by the degrees of freedom; GFI, adjusted goodness-of-fit index; CFI, comparative fit index; RMSEA, root-mean-square error of approximation; 90% CI, confidence interval; ** $p < 0.01$.*

STUDY TWO

The second study was planned to validate the four factor model of student-teacher relationship derived from study one. Confirmatory factor analysis was applied to establish the structural model, reliability, and validity of the scale of student teacher relationship in the Indian context.

Methods
Participants
Students from under-graduate and post-graduate courses from University of Allahabad (Uttar Pradesh, India) were approached for this study. Out of 250 questionnaires distributed, only 192 (male = 88, female = 104) participants completed the questionnaire. The participants age ranged from 17 to 25 years (Mean = 19.88, SD = 1.55).

Instrument
A self-developed scale on student-teacher relationship.

Procedure
Participants were approached and briefly informed about the purpose of study and instructions were given to complete the questionnaire. After obtaining responses, participants were thanked for their valuable time and contribution in the study.

Confirmatory Factor Analysis
Building on four factor model of student-teacher relationship, confirmatory factor analysis (CFA) was employed.

Results
Result of CFA showed that four factor model appropriately explained student-teacher relationship. Appropriateness of four factor model was established using various model fit indices, namely Chi-square statistics; root mean-square error of approximation (RMSEA); and goodness of fit index (GFI). Two items (item 1 and item 18) were excluded from further analysis as they had factor loading below 0.70.

The Chi-square value was found significant. Further GFI value was close to 0.9 which indicated good model fit. RMSEA was also found close to 0.05 level, which indicated good fit nature of four factor model. Also, 90% CI values further established that four factor model explained the construct comprehensively.

Validation of Measurement Model
Convergent Validity
Convergent validity can be measured through Average Variance Extracted and the outer factor loading of each item intended to measure a specific construct. Fornell and Larcker (1981) proposed following criteria to establish convergent validity. Outer loading of each measurement indicator should be greater than 0.70 and AVE score of each construct must exceed 0.50. The result of this study revealed that AVE score of each dimension was found more than 0.50 (**Table 4**) and outer factor loading of each item exceeded 0.70 (**Figure 1**). Thus, it can be concluded that scale has considerable convergent validity.

Discriminant Validity
Discriminant validity specifies that each dimension of the construct is notably different from other dimensions. Having discriminant validity means square root of AVE score of each dimension should be greater than the correlations among the dimensions of scale. Discriminant validity analysis (**Table 4**) showed that scale has adequate discriminant validity.

Composite Reliability
Table 4 represents the reliability analysis of scale which showed high reliability of this scale.

DISCUSSION

There is a growing concern over quality of higher education across the globe. The status of the education system has somewhat limited its focus on materialistic learning. There is a constant debate among the stakeholders about the direction and future of higher education. However, there seems a consensus among educationists and researchers about the necessity to promote value-based education system. Hamre and Pianta (2001) argued that student-teacher relationship plays an important role in the success of the higher education system. They explained that a positive relationship made an environment of trust where students looked forward to their teachers in difficult situations. They further argued that strong student-teacher relationship also helped students to make decent adjustments in other social settings. Moreover, developing countries like India have recognized the need to revitalize their education system to ensure greater economic development (Altbach and Selvaratnam, 1989).

The last few decades have witnessed a growing interest in conceptualizing and measuring the psychological aspects of learning in the classroom, especially in terms of student-teacher relationship (Fraser, 1998; Wubbels and Brekelmans, 1998). Plenty of studies have explained the importance of the student-teacher relationship for both students and teachers. Ben-Chaim and Zoller (2001) found that teachers who have good interpersonal relationship with students experience better job satisfaction. den Brok et al. (2004) found that good student-teacher relationship was associated with high motivation and academic success of students. Brekelmans et al. (2000) argued that strong student-teacher relationship laid the foundation for better student engagement in learning activities.

Few studies have been conducted on student-teacher relationship in the Indian context. The current study made an attempt to address this shortcoming and construct a valid and reliable measure for examining the student-teacher relationship specifically in an Indian context. Data was collected and various

statistical methods were employed to obtain factor structure of the scale, and it was further established through confirmatory factor analysis (**Table 5**). As a result, a scale consisting of 30 items (having four factor structure) intended to measure student-teacher relationship in the Indian context was finalized.

CONCLUSION

This study was designed to develop a measure on student-teacher relationship in the Indian context. A culturally appropriate scale dedicated to Indian context was developed to measure student-teacher relationship. Scale construction was completed while maintaining all the necessary steps and precautions to secure high reliability and validity of the scale. Results of study one and study two established the reliability and validity of the scale for student-teacher relationship in the Indian context. The present study contributed to the knowledge base in the field of education by developing a measure of student-teacher relationship in the Indian context. The findings of this study may be used while formulating educational policies for better functioning of educational institutes. This study will also be helpful in designing culturally appropriate strategies for the development of Indian education system. Further, this scale can also be used by researchers and educationists working in the area.

LIMITATIONS AND FUTURE RECOMMENDATIONS

The sample of the present study consisted of graduate and undergraduate university students. A more diversified sample set consisting of school level students may be studied to obtain further insight about the construct. Future research may include different educational settings for investigating student teacher relationship, as the functioning of institutes differs based on their nature and objectives. A comparative study across various educational settings (religious educational institutes/schools, government owned institutes/schools, and private institutes/schools) may be planned to understand the structure of student teacher relationship across different institutes.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Department of Psychology, University of Allahabad. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

SY and NK designed the study and initiated the data collection process. AY and Naveen drafted the manuscript and initiated the data computation process. TT and TM helped in finalizing the manuscript draft and data computation process. All authors contributed to the article and approved the submitted version.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/feduc. 2022.739704/full#supplementary-material

REFERENCES

Altbach, P. G., and Selvaratnam, V. C. (1989). *From Dependence to Autonomy: The Development of Asian Universities*. London: Kluwer.

Ben-Chaim, D., and Zoller, U. (2001). Self-perceptions versus students' perceptions of teacher interpersonal style in college science and mathematics courses. *Res. Sci. Educ.* 31, 437–454. doi: 10.1023/A:1013172329170

Birch, S. H., and Ladd, G. W. (1997). The teacher-child relationship and children's early school adjustment. *J. Sch. Psychol.* 35, 61–79. doi: 10.1016/S0022-4405(96)00029-5

Brekelmans, M., Sleegers, P., and Fraser, B. J. (2000). "Teaching for active learning," in *New Learning*, eds P. R. J. Simons, J. L. van der Linden, and T. Duffy (Dordrecht: Kluwer), 227–242. doi: 10.1007/0-306-47614-2_12

den Brok, P., Brekelmans, M., and Wubbels, T. (2004). Interpersonal teacher behavior and student outcomes. *Sch. Eff. Sch. Improv.* 15, 407–442. doi: 10.1080/09243450512331383262

Bruner, J. (1996). *The Culture of Education*. Cambridge, MA: Harvard University Press.

Burchinal, M. R., Peisner-Feinberg, E., Pianta, R. C., and Howes, C. (2002). Development of academic skills from preschool through second grade: family and classroom predictors of developmental trajectories. *J. Sch. Psychol.* 40, 415–436. doi: 10.1016/S0022-4405(02)00107-3

Davis, H. A. (2003). Conceptualizing the role and influence of student-teacher relationships on children's social and cognitive development. *Educ. Psychol.* 38, 207–234. doi: 10.1207/s15326985ep3804_2

Edward, A. L. (1967). *Techniques of Attitude Scale Construction*. New York, NY: Vakils, Feffer and Simons Inc.

Enriquez, V. G. (1977). Filipino psychology in the third world. *Philipp. J. Psychol.* 10, 3–17. doi: 10.1089/jpm.2013.0022

Fornell, C., and Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* 18, 39–50. doi: 10.1177/002224378101800104

Fraser, B. J. (1998). Classroom environment instruments: development, validity and applications. *Learn. Environ. Res.* 1, 7–33. doi: 10.1023/A:1009932514731

Fryberg, S. A., and Markus, H. R. (2007). Cultural models of education in American Indian, Asian American and European American contexts. *Soc. Psychol. Educ.* 10, 213–246. doi: 10.1007/s11218-007-9017-z

Goodenow, C. (1993). The psychological sense of school membership among adolescents: scale development and educational correlates. *Psychol. Sch.* 30, 79–90.

Grant, H., and Dweck, C. S. (2001). "Cross-cultural responses to failure: considering outcome attributions with different goals," in *Student Motivation: The Culture and Context of Learning*, eds F. Salili, C-y Chiu, and Y-y Hong (New York, NY: Kluwer Academic/Plenum Press), 203–219. doi: 10.1007/978-1-4615-1273-8_10

Hallinan, M. T. (2008). Teacher influences on students' attachment to school. *Sociol. Educ.* 81, 271–283. doi: 10.1177/003804070808100303

Hamre, B. K., and Pianta, R. C. (2001). Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. *Child Dev.* 72, 625–638. doi: 10.1111/1467-8624.00301

Howes, C., and Ritchie, S. H. (1999). Attachment organizations in children with difficult life circumstances. *Dev. Psychopathol.* 11, 251–268. doi: 10.1017/s0954579499002047

Hui, C. H., and Triandis, H. (1985). Measurement in cross-cultural psychology: a review and comparison of strategies. *J. Cross Cult. Psychol.* 16, 131–152. doi: 10.1177/0022002185016002001

Kiesler, D. J. (1996). *Contemporary Interpersonal Theory and Research Personality, Psychopathology, and Psychotherapy*. New York, NY: John Wiley.

Lewis, C. C. (1995). *Educating Hearts and Minds: Reflections on Japanese Preschool Land Elementary Education*. New York, NY: Cambridge University Press.

Li, J. (2003). U.S. and Chinese cultural beliefs about learning. *J. Educ. Psychol.* 95, 258–267. doi: 10.1037/0022-0663.95.2.258

Longobardi, C., Badenes-Ribera, L., Fabris, M. A., Martinez, A., and McMahon, S. D. (2018). Prevalence of student violence against teachers: a meta-analysis. *Psychol. Violence* 9, 596–610. doi: 10.1037/vio0000202

Longobardi, C., Prino, L. E., Marengo, D., and Settanni, M. (2016). Student-teacher relationships as a protective factor for school adjustment during the transition from middle to high school. *Front. Psychol.* 7:1988. doi: 10.3389/fpsyg.2016.01988

Longobardi, C., Settanni, M., Lin, S., and Fabris, M. A. (2021). Student–teacher relationship quality and prosocial behaviour: the mediating role of academic achievement and a positive attitude towards school. *Br. J. Educ. Psychol.* 91, 547–562. doi: 10.1111/bjep.12378

Markus, H. R., Mullally, P., and Kitayama, S. (1997). "Selfways: diversity in modes of cultural participation," in *The Conceptual Self in Context: Culture, Experience, Self-Understanding*, eds U. Neisser and D. Jopling (Cambridge: Cambridge University Press), 13–61.

Marzano, R. J. (2003). *What Works in Schools Translating Research into Action*. Alexandria, VA: Association for Supervision and Curriculum Development.

Meyer, D. K., and Turner, J. C. (2002). Discovering emotion in classroom motivation research. *Educ. Psychol.* 37, 107–114. doi: 10.4324/9781410608628-5

Pianta, R. C. (2001). *Student-Teacher Relationship Scale: Professional Manual*. Odessa, FL: Psychological Assessment Resources, Inc.

Rabinowitz, W., and Rosenbaum, I. (1958). A failure in the prediction of pupil-teacher rapport. *J. Educ. Psychol.* 49, 93–98. doi: 10.1037/h0048647

Ray, D. C., Henson, R. K., Schottelkorb, A. A., Brown, A. G., and Muro, J. (2008). Effect of short- and long-term play therapy services on teacher-child relationship stress. *Psychol. Sch.* 45, 994–1009. doi: 10.1002/pits.20347

Tharp, R. (1994). "Intergroup differences among Native Americans in socialization and child cognition: an ethnogenetic analysis," in *Cross-Cultural Roots of Minority Child Development*, eds P. Greenfield and R. Cocking (Hillsdale, NJ: Lawrence Erlbaum), 87–105.

Tomasello, M. (2001). "Perceiving intentions and learning words in the second year of life," in *Language Development: The Essential Readings*, eds M. Tomasello and E. Bates (Hoboken, NJ: Blackwell Publishing), 111–128. doi: 10.1017/CBO9780511620669.007

Tweed, R. G., and Lehman, D. R. (2003). Confucian and socratic learning. *Am. Psychol.* 58, 148–149. doi: 10.1037/0003-066x.58.2.148

Wubbels, T., Creton, H. A., and Hooymayers, H. P. (1985). Discipline problems of beginning teachers, interactional teacher behaviour mapped out. *Res. Educ.* 12:153.

Wubbels, T., and Levy, J. (1993). *Do You Know What You Look Like? Interpersonal Relationships in Education*. London: Falmer Press.

Wubbels, Th, and Brekelmans, M. (1998). "The teacher factor in the social climate of the classroom," in *International Handbook of Science Education*, eds B. J. Fraser and K. G. Tobin (Dordrecht: Kluwer), 565–580.