The Influence of Student-Teacher Relationship on School-Age Children’s Empathy: The Mediating Role of Emotional Intelligence

Dan Xiang¹, Guihua Qin¹, Xiaowei Zheng²

¹College of Teacher Education, Zhejiang Normal University, Jinhua, People’s Republic of China; ²College of Education Science, Northwest Normal University, Lanzhou, People’s Republic of China

Correspondence: Xiaowei Zheng, Email 15774001341@163.com

Objective: Empathy is the ability to adopt another person’s perspective and experience the thoughts and emotions of that individual. A growing number of studies have shown that school-age children’s empathy robustly contributes to their interpersonal communication, academic achievement and psychosocial adjustment. For school-age children, school becomes the main place for learning and socializing. The student-teacher relationship is an important interpersonal relationship between children and adults after they leave home, which plays an important role in the development of children’s self-ability. However, the relationship between student-teacher relationship and children’s empathy and its mechanisms are unclear. This study aimed to explore the influence of student-teacher relationship on school-age children’s empathy, and the mediating roles of emotional intelligence.

Methods: 468 school-age children (250 boys and 238 girls) aged 8–11 (M_age = 9.22, SD_age = 1.20) from Guizhou Province completed questionnaires about student-teacher relationship, emotional intelligence, and children’s empathy.

Results: The results showed that student-teacher relationship positively and directly predicted empathy for girls, but not for boys. In addition, we also found that emotional intelligence mediated the relationship between student-teacher relationship and children’s empathy among both boys and girls.

Conclusion: This study reveals the effect of student-teacher relationship on the school-age children’s empathy, and the unique mediating role of emotional intelligence. Moreover, this study further reveals the different effects of student-teacher relationship on boys’ and girls’ empathy, emphasizing that positive student-teacher relationship can directly promote the development of girls’ empathy. Finally, this study emphasizes that cultivating and improving the emotional intelligence of school-age children may be an effective way to promote the development of children’s empathy.

Keywords: student-teacher relationship, emotional intelligence, empathy, school-age children

Introduction

Empathy is a potential psychological motivator for helping others in distress. Empathy refers to an individual’s ability to recognize the emotions of others, understand their emotional reactions and experiences, and respond appropriately.¹,² Previous studies have found that individuals with high empathy are better at observing others’ emotional changes, sharing and understanding others’ emotions, establishing good interpersonal relationships,³,⁴ being better at solving interpersonal conflicts,⁵ reducing the occurrence of aggressive or antisocial behaviors,⁶,⁷ and showing more prosocial behaviors in life.⁸,⁹ In general, empathy is an important component of social and emotional development, affecting the quality of an individual’s behavior toward others and social relationships.¹⁰ Therefore, it is of great significance to investigate the factors that promote the development of individual empathy to ensure individual mental health and social harmony.

In addition, it is necessary to further pay attention to the protective factors and internal mechanism of school-age children’s empathy in childhood. On the one hand, the neurodevelopmental pattern of activation and functional connectivity supports the notion that neural structures associated with an individual’s ability to empathize, such as the...
Students of age relationships and school-age children's empathy

Student-teacher relationships are meaningful emotional and relational connections between students and teachers that develop as a result of long-term interactions. The student-teacher relationship has been conceptualized in terms of attachment theory and as an extension of the parent-child relationship. Moreover, from the perspective of attachment, Hamre and Pianta (2001) proposed that student-teacher relationship includes three dimensions: close student-teacher relationship, which is warm, cordial and effective; conflicted student-teacher relationship, student-teacher relationship is negative, tense and ineffective; dependent student-teacher relationship means that students depend on teachers excessively, and the boundary between students and teachers is not clear. Positive teacher-student relationships are characterized by high intimacy and the relationship between “teaching” and “learning.” Furthermore, Chinese teachers not only teach students knowledge, but also subtly promote the development of students’ social emotions in the process of interaction with students. Specifically, in the interaction between school-age children and teachers, teachers often guide them to identify others’ emotions and understand the reasons behind others’ emotions and behaviors, which may promote the development of school-age children’s empathy. Recent studies have found that supportive student-teacher relationships are associated with children’s empathy. Therefore, it is reasonable to speculate that student-teacher relationships may affect the school-age children’s empathy.

The Mediating Role of Emotional Intelligence

Emotional intelligence refers to an individual’s ability to process emotional information accurately and effectively, including the ability to recognize, understand, express, manage, and use emotions. According to the Person-context interaction theories, the external environment often affects the development of individual ability by acting on internal factors. The student-teacher relationship may promote the development of empathy by promoting the development of emotional intelligence of school-age children.

According to Goleman (1998), children learn early on from the reactions of adults how to manage their emotions and internalize them into their own unique emotional processing patterns. For school-age children, in the interaction and communication with teachers in the school environment, they can often learn to correctly express and effectively manage their emotions through teachers’ feedback, which may improve the development of their emotional intelligence. In addition, school-age children who have a positive relationship with their teachers are more likely to receive the guidance and support they need for emotional development, including ways to identify and understand their emotions and skills to effectively deal with their negative emotions, which can contribute to their emotional intelligence development.
Moreover, previous studies have found that a positive and supportive student-teacher relationship can promote the development of children’s emotional intelligence.\textsuperscript{33,34} Besides, individuals who can effectively identify, understand and manage their own emotions may also be better able to identify, understand the emotions of others, that is, an individual’s emotional intelligence may promote the development of their empathic ability. According to Mayer & Salovey (1997), an individual with optimum emotional intelligence can better perceive, understand, and manage their own emotions, and are more likely to generalize expertly and migrate to the ability to perceive, understand, and manage the emotions of others. Similarly, subsequent researchers have shown that individuals with high levels of emotional intelligence tend to understand the reasons behind others’ emotions and behaviors in interpersonal interactions, and to respond appropriately to others’ negative emotions.\textsuperscript{35} Specifically, children who were able to accurately understand their own emotions were more sensitive to changes in the emotions of their peers, teachers and parents when interacting with others, and were able to respond in a way that matched the current social context. Moreover, previous studies have shown that individual’s emotional intelligence can promote them to show more empathic behaviors.\textsuperscript{36,37} Therefore, it is possible that emotional intelligence of school-age children mediates the relationship between student-teacher relationship and empathy.

**Gender Differences**

Additionally, the impact of student-teacher relationship on children’s empathy may be different between boys and girls. In Chinese culture, teachers treat girls and boys differently.\textsuperscript{26,27} In general, teachers’ guidance to girls is gentle and euphemistic, and the influence of student-teacher relationship on girls is generally warm and emotional. For boys, teachers emphasize that boys should have the spirit of independence, challenge and innovation. Teachers’ attitude and behavior towards boys are stiff, and their guidance is generally ordered and forced.\textsuperscript{26,38} Student-teacher relationship developed in differential treatment may have different effects on empathy of children of different genders in China. In addition, previous studies have suggested that student-teacher relationship, emotional intelligence and empathy may vary based on child gender. Specifically, girls but not boys reported higher student-teacher relationship and empathy.\textsuperscript{16,39} Boys were found to have higher emotional intelligence than girls.\textsuperscript{40} Therefore, we designed a mediation model among boys and girls respectively, to better understand how the processes might operate differently for boys and girls.

**The Present Study**

To sum up, the purpose of this study is to explore the influence and internal mechanism of student-teacher relationship on empathy in Chinese boys and girls at school age. Taking into account the influence of children’s age on emotional intelligence and empathy,\textsuperscript{41,42} the age of children was controlled in this study. Our hypotheses were as follows: (a) Student-teacher relationship can affect the development of children’s empathy, which may be different in boys and girls; (b) The student-teacher relationship can influence empathy by promoting the development of children’s emotional intelligence.

**Methods**

**Participants**

We recruited a total of 500 school-age children from three primary schools in Guizhou Province, China. Only 468 (93.6\%) school-age children (250 boys and 238 girls) aged 8–11 ($M_{\text{age}} = 9.22$, $SD_{\text{age}} = 1.20$) completed a series of questionnaires after we informed them of the purpose of the study. Most fathers (85.0\%) and mothers (81.0\%) had junior high school diplomas or above. Most of the families (81.4\%) had a middle or higher socioeconomic status.

**Procedures**

We first went into three elementary school in Guizhou Province, China, separately to recruit children willing to participate in the study, with the permission of the school principals. Once the participating children were identified, we further contacted their guardians and teachers and obtained their informed consent. Finally, we informed the participants of the purpose of the study, and after obtaining their informed consent, the children were randomly assigned to complete a set of questionnaires in a quiet classroom under the guidance of a research assistant (2 research assistants
and 20 children per classroom). After about 30 to 40 minutes, the survey was completed and each participant was given a small gift in appreciation for their participation. This study was approved by the Ethics Committee of Zhejiang Normal University.

**Measures**

**Student-Teacher Relationship**

Student-teacher relationship quality was measured using the Student-teacher Relationship instrument (STRI), which was originally developed by Pianta and Nimetz (1991) and revised by Zou et al (2007). The subscale consists of 23 items that measure four factors: closeness (eg, I have a close and warm relationship with my teachers), supportive (eg, Whenever I made progress, my teacher would praise me), conflicting (eg, Teachers and I always seem to be fighting with each other) and satisfaction (eg, Overall, I am very happy with my relationship with my teachers). Each item is rated on a 5-point frequency response scale ranging from 1 (definitely does not apply) to 5 (definitely applies). The conflicting subscales were reversed so that high scores represent a positive student-teacher relationship. Cronbach’s alphas for this study were 0.78. McDonald’s omega (ω) for student-teacher relationship were 0.75.

**Emotional Intelligence**

School-age children’s emotional intelligence was measured using the Chinese version of the Emotional Intelligence Scale (EIS). The subscale consists of 33 items that measure four factors: emotion perception (eg, I can be aware of my emotions at every moment), self-emotion regulation (eg, When I encounter difficulties, I remember when I used to encounter and solve the same difficulties), understanding emotions (eg, I try to make people feel satisfied by arranging things) and emotion utilization (eg, I wish I could do most of the things I want to do). Each item is rated on a 5-point frequency response scale ranging from 1 (completely inconsistent) to 5 (completely consistent) was used. The higher the score, the more frequent the behavior on that dimension. Cronbach’s alphas for this study were 0.86. McDonald’s omega (ω) for emotional intelligence were 0.86.

**Empathy**

School-age children’s empathy was measured using the Interpersonal Reactivity Index (IRI), which was originally developed by Davis (1980) and revised by Rong et al (2010). This 28-item instrument assesses children’s empathy of four dimensions: empathic concern (eg, I am often thoughtful and concerned about those who are not as fortunate as I am), perspective taking (eg, Before making a decision, I will go to the different opinions of everyone), fantasy (eg, I often daydream about what might happen to me), personal distress (eg, In an emergency situation, I feel worried and uncomfortable). Child reported their own dispositions on a 5-point scale, ranging from 1 (does not describe me at all) to 5 (describes me very well). The higher the score, the more frequent the behavior on that dimension. Cronbach’s alphas for this study were 0.84. McDonald’s omega (ω) for empathy were 0.82.

**Analysis**

Utilizing SPSS 25.0, descriptive analyses and Pearson correlations were conducted. Expectation-Maximization (EM) was used to effectively handle the missing data. Mplus 8.0 was used to construct a structural equation model to analyze the relationship between student-teacher relationship and empathy, and the mediating role of emotional intelligence. A chi-square test, comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean residual (SRMR) were provided to evaluate the model’s fit. CFI > 0.90, TLI > 0.90, RMSEA < 0.08, and SRMR < 0.10 represent the model is acceptable.

**Results**

**Descriptive Statistics and Correlations**

Table 1 presents the means, standard deviations, correlations and the results of the independent sample t-test for all variables over time. Correlation analysis showed that student-teacher relationship, emotional intelligence and empathy were significantly correlated in both boys and girls. In addition, results from the independent sample t-test indicated that the empathy level of girls was significantly higher than that of boys.
Measurement Model

The measurement model for 12 latent variables was tested: fantasy, empathic concern, perspective taking, personal distress, identify emotions, express emotions, understand emotions, manage emotions, intimacy, supportive, conflicting and satisfaction. This model revealed a good fit for the data, $\chi^2 (48) = 3.37$, CFI = 0.94, TLI = 0.92, RMSEA = 0.71, SRMR = 0.49. This result showed that all indicators had statistically significant standardized factor loadings on the latent variables ($p$’s < 0.001), that is, all of them were well represented by the latent variables. This provides a good premise for our next structural model construction.

Structural Model

Firstly, after controlling for child age, structural model (see Figure 1) was estimated in all children, modelling student-teacher relationship as an independent variable, emotional intelligence as mediators and empathy as outcome variables. The result showed good fit to the data: $\chi^2 (50) = 3.81$, CFI = 0.93, TLI = 0.91, RMSEA = 0.07, SRMR = 0.05. Results revealed that student-teacher relationship positively predicted emotional intelligence and children’s empathy respectively ($\beta = 0.55$, $p < 0.001$, 95% CI = (0.43, 0.63); $\beta = 0.32$, $p < 0.001$, 95% CI = (0.15, 0.45); emotional intelligence positively predicted children’s empathy ($\beta = 0.49$, $p < 0.001$, 95% CI = (0.35, 0.63). Moreover, the indirect effects of emotional intelligence between student-teacher relationship and children’s empathy were significant (indirect effects = 0.27, $p < 0.001$, 95% CI = (0.17, 0.37). The bootstrap estimation procedure (with 1000 bootstrapping samples) was adopted to test the mediating effects. The 95% CI of the path did not include zero, indicating that the mediating effects above was significant.

Figure 1 The model to evaluate the impact of student-teacher relationship on empathy and the mediating role of emotional intelligence in all children, after controlling for gender and children’s age.

Notes: All the coefficients are standardized estimates. *$p < 0.05$, ***$p < 0.001$.

Table 1 Means (M), Standard Deviations (SD), and Bivariate Correlations of Key Study Variables

| Variable                  | 1            | 2            | 3            |
|---------------------------|--------------|--------------|--------------|
| 1. Student-teacher relationship | 1            | 0.36***      | 0.26***      |
| 2. Emotional intelligence  | 0.38***      | 1            | 0.35***      |
| 3. Empathy                | 0.25***      | 0.36***      | 1            |
| M ± SD (boys)             | 68.66 ± 10.08| 121.01 ± 15.88| 92.01 ± 11.23|
| M ± SD (girls)            | 68.09 ± 9.35 | 123.06 ± 12.62| 95.28 ± 11.62|
| P (boys and girls)        | 0.53         | 0.13         | 0.002**      |

Notes: Correlations in top of diagonal are for girls, in bottom for boys. ***$p < 0.01$, **$p < 0.001$. 

Psychology Research and Behavior Management 2022:15 https://doi.org/10.2147/PRBM.S380689

DovePress

Xiang et al

Powered by TCPDF (www.tcpdf.org)
Second, we also established a structural mediation model in boys and girls respectively. For boys, the model (see Figure 2) was a good fit to the data, \( \chi^2(49) = 2.99; \) CFI = 0.92; TLI = 0.90; RMSEA = 0.07; SRMR = 0.06. Results revealed that student-teacher relationship positively predicted emotional intelligence (\( \beta = 0.60, p < 0.001, 95\% \) CI = (0.47, 0.72), but insignificantly predicted boy’s empathy (\( \beta = 0.20, p > 0.05, 95\% \) CI = (−0.02, 0.40). In addition, emotional intelligence positively predicted boy’s empathy (\( \beta = 0.56, p < 0.001, 95\% \) CI = (0.37, 0.73). Moreover, the indirect effects of emotional intelligence between student-teacher relationship and boy’s empathy were significant (indirect effects = 0.34, \( p < 0.001, 95\% \) CI = (0.37, 0.73). For girls, the model (see Figure 2) was a good fit to the data, \( \chi^2(48) = 1.89; \) CFI = 0.95; TLI = 0.93; RMSEA = 0.06; SRMR = 0.05. Results revealed that student-teacher relationship positively predicted emotional intelligence and girl’s empathy respectively (\( \beta = 0.47, p < 0.001, 95\% \) CI = (0.28, 0.62); \( \beta = 0.46, p < 0.001, 95\% \) CI = (0.19, 0.60). Moreover, emotional intelligence positively predicted girl’s empathy (\( \beta = 0.42, p < 0.001, 95\% \) CI = (0.26, 0.67). The indirect effects of emotional intelligence between student-teacher relationship and girl’s empathy were significant (indirect effects = 0.22, \( p < 0.01, 95\% \) CI = (0.37, 0.73). The bootstrap estimation procedure (with 1000 bootstrapping samples) was adopted to test the mediating effects in boys and girls. The 95% CI of these paths did not include zero, indicating that the mediating effects above were significant.

Discussion
This study is the first to explore the influence of student-teacher relationship on empathy and its internal mechanism in school-age children under the background of Chinese culture. The results showed that the teacher-student relationship could only directly improve the empathy of girls at school age. In addition, we found that emotional intelligence mediates the relationship between teacher-student relationship and empathy in both boys and girls. This finding extends existing research to more clearly describe the different effects of student-teacher relationship on empathy among boys and girls at school age. In addition, our findings may add to the existing literature by providing a more accurate overview by examining the mediating role of emotional intelligence in the relationship between student-teacher relationship and empathy.

Student-Teacher Relationship and School-Age Children’s Empathy
This study found that student-teacher relationship positively predicted girl’s empathy, which was consistent with previous studies.\(^{17,28}\) That is, a positive student-teacher relationship can promote the development of school-age children’s empathy. Our results are consistent with previous studies that positive and supportive student-teacher relationships tend to bring warmth and security to children, enabling them to bravely explore other’s emotional and behavioral changes, acquire good social emotional skills, and exhibit more empathic behaviors when others fall into negative emotions.\(^{24}\) In addition, in the school environment, children can often obtain teachers’ guidance in benign communication and interaction with teachers,\(^{16}\) including the ability to identify and understand others’ emotions and behaviors, and the ability to correctly respond to others’ emotions, which promotes the development of their empathy ability. Therefore,
for school-age children (especially girls), having a positive student-teacher relationship is an effective way to cultivate and improve girl’s empathy ability.

Besides, our results also found that the student-teacher relationship only directly positively predicted empathy in girls. Consistent with our previous hypothesis, the impact of the student-teacher relationship on empathy is different for boys and girls. The possible reasons for this are as follows: Firstly, teachers treat boys and girls differently in Chinese culture. Compared with boys, girls are more likely to establish a positive, warm and closer student-teacher relationship with teachers, which may directly promote the development of girls’ empathy ability. In addition, boys and girls are affected differently by external circumstances. Specifically, compared with boys, girls are more easily influenced by external relationships. Girls pay more attention to the development of emotional communication and relationship with others and are more easily affected by interpersonal relationships. Therefore, when girls are in a warm and positive student-teacher relationship for a long time, they may acquire more interpersonal skills through friendly interactions with teachers, and their empathic abilities develop more rapidly.

The Mediating Role of Emotional Intelligence
Our findings suggested that student-teacher relationship affected school-age children’s empathy through emotional intelligence both in boys and girls. This result supports the previous hypothesis and verifies the Person-context interaction theories. External environmental factors can promote the development of individual ability by influencing individual internal factors, that is, school-age children’s positive student-teacher relationship can promote the development of their emotional intelligence and then promote the development of children’s empathy ability. This finding supports Goleman’s (1998) view that children learn from interactions and reactions with adults how to manage their emotions and internalize them into their own unique emotional processing patterns. In addition, our result also supports and expands Mayer and Salovey’s (1997) view that individuals with high emotional intelligence, who are able to recognize and understand their own emotions, internalize and transfer this ability. Our results revealed the mechanism underlying the relationship between student-teacher relationship and school-age children’s empathy. Children, both boys and girls, can learn to accurately identify and understand their emotions and effectively manage their emotions according to teachers’ timely feedback and guidance in the benign interaction with teachers, thus promoting the development of emotional intelligence. Furthermore, children who can recognize and understand their own emotions tend to understand others’ emotions effectively, respond to others’ emotions correctly and show more empathic behaviors. In conclusion, positive student-teacher relationships can improve school-age children’s emotional intelligence and further promote the development of empathy, which suggests that improving the quality of student-teacher relationship in the school environment and consciously cultivating children’s emotional intelligence is an effective way to promote the development of their empathic ability.

Limitations and Future Research Directions
Several limitations should be considered when evaluating the findings presented in this research. Firstly, this study adopts a cross-sectional study design, which is difficult to explain the causal relationship between variables, and fails to reveal the longitudinal impact of children’s student-teacher relationship on emotional intelligence and empathy. Therefore, it is necessary to use a longitudinal study design in the future to further explore the longitudinal effects of student-teacher relationship on empathy in school-age children. Second, although previous studies have shown that school-age children and physiological structures related to the feeling ability gradually mature, therefore, this study chose the age range for school-age children, ages 8 to 11, but not yet to other ages of children’s empathy, future research can further expand the age range of participants and investigate the influencing factors and underlying mechanisms of empathy in children at various ages. Finally, all measures in this study were based on children’s self-reports, and the significance of the relationships may have been overstated due to source bias. The use of multiple data collection methods in further studies would be of great value.

Despite the above limitations, this study has several necessities and innovations. Firstly, this study reveals the relationship between school-age children’s student-teacher relationship and empathy in boys and girls, and further reveals the mediating role of children’s emotional intelligence between student-teacher relationship and empathy, providing first-hand empirical evidence for the current research on children’s empathy. In addition, from the perspective of positive psychology, this study examines the
influence of external environment (student-teacher relationship) and internal positive factors (emotional intelligence) on empathy of school-age children, providing a potential effective way to cultivate and promote empathy of school-age children. Finally, this study has generated important implications to cultivate and improve the empathy ability of school-age children. School psychologists can train teachers to teach school teachers skills such as listening to and caring for children’s emotions, praising children for empathizing with others’ emotions and behaviors, and establishing positive student-teacher relationships with children to promote the development of children’s empathy. Moreover, school psychologists and teachers can pay close attention to the development of children’s emotional intelligence, and provide targeted guidance, give full play to the positive role of “external” and “internal” two positive factors to promote the development of school-age children’s empathy.

Conclusion
Findings from the current study provide some initial evidence suggesting that student-teacher relationships in Chinese culture not only promote the development of empathy in school-age children, but may also affect empathy in different ways in boys and girls. Specifically, the student-teacher relationship can not only directly promote the development of girls’ empathy ability, but also indirectly improve girls’ empathy ability by improving their emotional intelligence. In contrast, the student-teacher relationship can only improve the development of the boy’s ability to empathize by improving his emotional intelligence. The results of this study provide suggestions for the intervention to improve the empathy ability of school-age boys and girls, namely, paying attention to and cultivating the emotional intelligence of school-age children is an effective way to improve their empathy ability.

Data Sharing Statement
The dataset analyzed during the current study is available from the corresponding author on reasonable request.

Ethical Approval
All procedures performed in this study involving human participants were in accordance with the ethical standards of Zhejiang Normal University and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent
All participants in the study provided informed consent.

Acknowledgment
Guihua Qin is a co first author.

Disclosure
The authors report no conflicts of interest in this work.

References
1. Davis MH. Measuring individual differences in empathy: evidence for a multidimensional approach. J Pers Soc Psychol. 1983;44(1):113. doi:10.1037/0022-3514.44.1.113
2. Cuff BM, Brown SJ, Taylor L, Howat DJ. Empathy: a review of the concept. Emot Rev. 2016;8(2):144–153. doi:10.1177/1754073914558466
3. Balconi M, Canavesio Y. Empathy, approach attitude, and rTMs on left DLPFC affect emotional face recognition and facial feedback (EMG). J Psychophysiol. 2016;30(1):17. doi:10.1027/0269-8803/a000150
4. Kosonogov V, Titova A, Vorobyeva E. Empathy, but not mimicry restriction, influences the recognition of change in emotional facial expressions. Q J Exp Physio. 2015;68(10):2106–2115. doi:10.1080/1740218.2015.1009476
5. De Wied M, Branje SJ, Meeus WH. Empathy and conflict resolution in friendship relations among adolescents. Aggressive Behavior. Official J Intl Soc Res Aggress. 2017;33(1):48–55. doi:10.1002/ab.20166
6. Campos C, Pasion R, Azeredo A, et al. Refining the link between psychopathy, antisocial behavior, and empathy: a meta-analytical approach across different conceptual frameworks. Clin Psychol Rev. 2022;94:102145. doi:10.1016/j.cpr.2022.102145
7. Morosan L, Ghisletta P, Badoud D, Toffel E, Eliez S, Debbané M. Longitudinal relationships between reflective functioning, empathy, and externalizing behaviors during adolescence and young adulthood. Child Psychiatry Hum Dev. 2020;51(1):59–70. doi:10.1007/s10578-019-00910-8
8. Decety J, Bartal IBA, Uzevofsky F, Knafo-Noam A. Empathy as a driver of prosocial behaviour: highly conserved neurobehavioural mechanisms across species. Philosophical transactions of the royal society B. *Biol. Sci.* 2016;371(1686):20150077. doi:10.1098/rstb.2015.0077
9. Luberto CM, Shinday N, Song R, et al. A systematic review and meta-analysis of the effects of meditation on empathy, compassion, and prosocial behaviors. *Mindfulness*. 2018;9(3):708–724. doi:10.1007/s12671-017-0841-8
10. McDonald NM, Messinger DS. The development of empathy: how, when, and why. In: *Moral Behavior and Free Will: A Neurobiological and Philosophical Approach*. IF-Press Rome; 2011:333–359.
11. Decety J. The neurodevelopment of empathy in humans. *Dev Neurosci.* 2010;32(4):257–267. doi:10.1159/000317771
12. Leppänen JM, Nelson CA. Tuning the developing brain to social signals of emotions. *Nat Rev Neurosci.* 2009;10(1):37–47. doi:10.1038/nrn2554
13. Luna B, Sweeney JA. The emergence of collaborative brain function: FMRI studies of the development of response inhibition. *Ann N Y Acad Sci.* 2004;1024(1):296–309. doi:10.1196/annals.1308.035
14. Decety J, Svetlova M. Putting together phylogenetic and ontogenetic perspectives on empathy. *Dev Cogn Neurosci.* 2012;2(1):1–24. doi:10.1016/j.dcn.2011.05.003
15. Yan QZ, Su YJ. Difference between cognitive empathy and affective empathy in development: meta-analysis preliminary exploration. *Educ Psychol Meas.* 2021;37(1):1–9.
16. Liu Y, Li XW, Chen L, Qu ZY. Perceived positive teacher–student relationship as a protective factor for Chinese left-behind children’s emotional and behavioural adjustment. *Int J Psychol.* 2015;50(5):354–362. doi:10.1002/ijop.12112
17. Rizkyanti CA, Wahyuni C, Alatas S. Empathy and defender role in bullying at school: student-teacher relationship as mediator. *Electron J Res Educ Psychol.* 2019;19(54):227–246. doi:10.25115/ejrep/v19i54.3564
18. Pianta RC, Mashburn AJ, Downer JT, Hamre BK, Justice L. Effects of web-mediated professional development resources on teacher-child interactions in pre-kindergarten classrooms. *Early Child Res Q.* 2008;23:431–451. doi:10.1016/j.ecresq.2008.02.001
19. Longobardi C, Prino LE, Marengo D, Sattanni M. Student-teacher relationships as a protective factor for school adjustment during the transition from middle to high school. *Front Psychol.* 2016;7:1988. doi:10.3389/fpsyg.2016.01988
20. Davis HA. Conceptualizing the role and influence of student-teacher relationships on children’s social and cognitive development. *Educ Psychol.* 2003;38(4):207–234. doi:10.1207/s15326985ep3804_2
21. Bowby J. The Bowlby-Ainsworth attachment theory. *Behav Brain Sci.* 1979;2(4):637–638. doi:10.1017/S0140525X00006495
22. Hamre BK, Pianta RC. Early teacher–child relationships and the trajectory of children’s school outcomes through eighth grade. *Child Dev.* 2001;72(2):625–638. doi:10.1111/1467-8624.00301
23. Pianta RC. *Enhancing Relationships Between Children and Teachers*. Washington, DC: American Psychological Association; 1999.
24. Baker JA, Grant S, Morlock L. The teacher-student relationship as a developmental context for children with internalizing or externalizing behavior problems. *Sch Psychol Q.* 2008;23(1):3. doi:10.1037/a0013830.23.1.3
25. Lynch M, Cicchetti D. Maltreated children’s reports of relatedness to their teachers. *New Dir Child Adolesc Dev.* 1992;57:81–107. doi:10.1002/cd.23219925707
26. Chen MD, Zee M, Komen HM, Roorda DL. Understanding cross-cultural differences in affective teacher-student relationships: a comparison between Dutch and Chinese primary school teachers and students. *J Sch Psychol.* 2019;76:89–106. doi:10.1016/j.jsp.2019.07.011
27. Ma X, Li Y, Liu Z. The mechanism of teacher-student relationship affecting primary school students’ social emotional ability and its educational enlightenment. *J Fujian Inst Educ.* 2022;23(07):54–61.
28. Carmona J, Luciano AM. A student-teacher testimonio: reflexivity, empathy, and pedagogy. *Counterpoints*. 2014;449:75–92.
29. Mayer JD, Salovey P. What is emotional intelligence? In: Salovey P, Sluyter D, editors. *Educational Implications*. New York, NY: Basic Books; 1997:3–31.
30. Petrides KV, Furnham A. Trait emotional intelligence: behavioral validation in two studies of emotion recognition and reactivity to mood induction. *Eur J Pers.* 2003;17:39–57. doi:10.1002/per.466
31. Magnusson D, Stattin H. Person-context interaction theories. In: Damon W, Lerner RM, editors. *Handbook of Child Psychology: Theoretical Models of Human Development*. John Wiley & Sons Inc; 1998:685–759.
32. Birch SH, Ladd GW. The teacher-child relationship and children’s early school adjustment. *J Sch Psychol.* 1997;35(1):61–79. doi:10.1016/S0022-4405(96)00029-5
33. Poulov MS. Social and emotional learning and teacher–student relationships: preschool teachers’ and students’ perceptions. *Early Child Educ J.* 2017;45(3):427–435. doi:10.1007/s10643-016-0800-3
34. Stillman SB, Stillman P, Martinez L, Freedman J, Jensen AL, Leet C. Strengthening social emotional learning with student, teacher, and schoolwide assessments. *J Appl Dev Psychol.* 2018;55:71–92. doi:10.1016/j.appdev.2017.07.010
35. Castillo R, Salguero JM, Fernández-Berrocal P, Balluerka N. Effects of an emotional intelligence intervention on aggression and empathy among adolescents. *J Adolesc.* 2013;36(5):883–892. doi:10.1016/j.jadoado.2013.07.001
36. Gómez-Leal R, Costa A, Megías-Robles A, Fernández-Berrocal P, Faria L. Relationship between emotional intelligence and empathy towards humans and animals. *PeerJ.* 2021;9:e11274. doi:10.7717/peerj.11274
37. Humphrey RH. The benefits of emotional intelligence and empathy to entrepreneurship. *Entrepreneurship Res J.* 2013;3(3):287–294. doi:10.1515/eqj-2013-0057
38. Ge YB, Ding W, Xie RB, Kayani S, Li WJ. The role of resilience and student-teacher relationship to parent-child Separation-PTSS among Left-behind Children in China. *Child Youth Serv Rev.* 2022;106561. doi:10.1016/j.childyouth.2022.106561
39. Toussaint L, Webb JR. Gender differences in the relationship between empathy and forgiveness. *J Soc Psychol.* 2005;145(6):673–685. doi:10.3200/SOCP.145.6.673-686
40. Ahmad S, Bangash H, Khan SA. Emotional intelligence and gender differences. *Sarhad J Agric.* 2009;25(1):127–130.
41. Fariselli L, Ghini M, Freedman J. Age and emotional intelligence. *Six Secs.* 2008;2008:1–10.
42. Khandani Z, Mosanezhad Jaddi E, Hekmati I, et al. Comparison of cognitive empathy, emotional empathy, and social functioning in different age groups. *Aust Psychol.* 2015;50(1):80–85. doi:10.1111/ap.12099
43. Wang C. The relationship between parental rearing styles with general self-efﬁcacy and emotional intelligence in high school students. *Chin Ment Health J.* 2002;16(11):781–782.
44. Gold MS, Bentler PM. Treatments of missing data: a Monte Carlo comparison of RBHDI, iterative stochastic regression imputation, and expectation-maximization. *Struct Equ Model*. 2000;7(3):319–355. doi:10.1207/S15328007SEM0703_1

45. Hu LT, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct Equ Model*. 1999;6(1):1–55. doi:10.1080/10705519909540118

46. Sagrestano LM. Power strategies in interpersonal relationships: the effects of expertise and gender. *Psychol Women Q*. 1992;16(4):481–495. doi:10.1111/j.1471-6402.1992.tb00270.x