



Change in Teacher-Student Relationship Quality During a Tier-One Character Education Intervention

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ABSTRACT

The rise in students' mental health struggles and declining rates of prosocial behavior in schools has resulted in increased attention on the social, emotional, and behavioral aspects of schooling. Within the broader category of social-emotional learning, character education includes a focus on students' intrinsic values and ways of thinking related to achieving their goals and developing personal relationships. One increasingly popular, yet under-researched, character education program for school-aged students is the Positivity Project (P2). The P2 program is a universal professional development intervention focused on the 24 unique character strengths from positive psychology. The purpose of the current study was to implement a quasi-experimental design to examine the association between teachers' use of P2 and changes in teacher-student relationship quality. Results suggested significant effects, with increases in closeness and decreases in conflict, yielding moderate effect sizes. Implications for practice and research are discussed.

The rise in students' mental health struggles and declining rates of prosocial behavior in schools has resulted in increased attention on the social, emotional, and behavioral aspects of schooling (Jeynes, 2019; Jones et al., 2013). This curriculum is most often referred to as social-emotional learning (SEL) and meta-analyses have suggested positive effects for students in both academic and non-academic (e.g., behavior, social skills) domains (see Luo et al., 2022; Tayler et al., 2017). Within the broader category of SEL, character education (CE) includes a focus on students' intrinsic values and ways of thinking related to achieving their goals and developing personal relationships (Johnson, 2020; Jones & Doolittle, 2017). Systematic reviews of the literature indicate promising effects for CE programs. For instance, Berkowitz and Bier (2007) reviewed 73 studies published between 1945 and 2004, concluding that CE can improve students' academic performance and their social-emotional functioning. A separate meta-analysis by Jeynes (2019), including literature published from 1970 to 2014, found positive effects for students' academic achievement (e.g., reading, mathematics, science, and social studies), as well as their social skills.

EXAMPLES OF CE PROGRAMS

One of the most well-researched CE programs is the Penn Resiliency Program (PRP; Gillham, Brunwasser, & Freres, 2008), which includes a cognitive-behavioral and social problem-solving skills program. Participants are taught to detect inaccurate thoughts, to evaluate the accuracy of those thoughts, and to challenge negative beliefs by considering alternative interpretations. Participants also learn to be more assertive, decisive, and relaxed when faced with stressful situations. The program has been well-researched and suggested for large-scale rollout; however, results from systematic review and meta-analyses have been inconsistent. Whereas

Brunwasser et al. (2009) conducted a meta-analytic review of 17 studies and found PRP effective in reducing depression ($d = 0.11-0.21$), Bastounis et al. (2016) conducted a similar review of nine randomized controlled trial (RCT) studies and found no significant effects on depression or anxiety. Despite mixed findings in the research on CE, targeting students' subjective well-being through CE has been theorized as a viable and promising path forward in the effort to improve educational outcomes for all students (Elias et al., 2014).

Another popular (i.e., being used in schools across the United States), yet under-researched program, is the Positivity Project (P2; <https://posproject.org/>). Garwood (2022) conducted a pre-post study of P2 and found a significant relationship between P2 implementation and sense of relatedness in school for elementary and middle school students. However, the study did not include a control group and therefore cannot be considered an experimental evaluation of P2. The P2 program is a universal (i.e., Tier-1) professional development intervention focused on CE. Teachers are provided web-based, pre-packed materials to deliver 15-minute, daily lessons on 24 unique character strengths. The 24-character strengths come from positive psychology, which is a theoretical paradigm suggesting it is more efficacious to focus one's inherent strengths rather than their areas of difficulty (i.e., a strengths-based approach; Seligman & Csikszentmihalyi, 2000). Strengths are "pre-existing qualities that arise naturally, feel authentic, are intrinsically motivating to use, and energizing" (Brdar & Kashdan, 2010, p. 151). In practice, positive psychology is inherently the study of optimal human functioning (Seligman & Csikszentmihalyi, 2000). In school-based research, rather than identifying deficits, a positive psychology approach asks, *what is right with the student* (Raley et al., 2021)? Positive psychology does not ignore the negative aspects of one's life; rather, it suggests emphasizing one's strengths as the best way to overcome difficulties (Diener, 2009).

The developers of P2 (see <https://posproject.org/why-relationships/>) assert one of the purposes of the program is to help students build better relationships with others. Although a focus on helping students develop character strengths (e.g., empathy, kindness, open-mindedness, social intelligence) may indeed improve relationship quality with others, no research is yet available to support this claim. One of the most important drivers of students' success in the classroom is the quality of the relationship they have with their teachers, as these relationships foster student engagement (see Quin, 2017 for a review).

TEACHER-STUDENT RELATIONSHIPS, SOCIAL-EMOTIONAL LEARNING, AND CHARACTER EDUCATION

The quality of relationships between students and teachers is strongly associated with students' academic, social, and behavioral success (Flückiger et al., 2018; Kincade et al., 2020; Roorda et al., 2011). Early formation of high-quality relationships (i.e., low conflict, high feelings of trust and closeness) with teachers places students on a trajectory for optimal cognitive development and healthy behavioral functioning well into their secondary years (Hamre & Pianta, 2001; Ladd & Burgess, 2001). On the other hand, relationship stress, or conflict, can exacerbate behavior problems and hinder social-emotional and academic growth (Meehan et al., 2003; Van Loan & Garwood, 2020a). Research indicates that students who exhibit behavioral and learning difficulties often benefit the most from high-quality teacher-student relationships (Baker, 2006; Bierman, 2011), yet these students are more likely to have poor relationships with their teachers (Murray & Greenberg, 2001; Van Loan & Garwood, 2020b).

Some researchers suggest that positive teacher-student relationships are the foundation of successful SEL programs (Gunter et al., 2012; Jennings & Greenberg, 2009). As teachers buy into the SEL curriculum and become more socially and emotionally skilled themselves (because of uptake of the content), they are better able to build relationships with their students (CASEL, 2007; Poulou, 2017a). Another possible mechanism is that, as students experience the program, their social-emotional skills improve, and they elicit more positive interactions from teachers (CASEL, 2007, 2010; Voegler-Lee & Kupersmidt, 2011). For example, Gunter et al. (2012) found delivery of the Strong Start Pre-K SEL program decreased levels of conflict and increased levels of closeness between teachers and students. Similarly, Poulou (2017b) found a significant and positive association between elementary teachers' delivery of SEL and teacher-student relationship quality. Given the promising effects of SEL on teacher-student relationship quality, it is necessary to explore the degree to which similar effects may be found for CE programs, such as P2.

PURPOSE AND RESEARCH QUESTIONS

The purpose of this study was to examine the degree to which implementation of a CE program – P2 – is related to a change in the quality of the teacher-student relationship for elementary school students. Although P2 does not directly teach relationship-buildings skills – instead focusing on character strengths – the developers have claimed relationships as a central focus of their intervention. The following research question guided the study:

- 1. What is the statistical relationship between the use of the P2 program with elementary students and the quality of teacher-student relationships?

METHOD

Participants and Setting

Four suburban, public elementary schools in the midwestern United States served as the setting for the study. Two schools were assigned to treatment (i.e., received the P2 intervention) by the research team and two additional schools served as the control group. A total of 42 teachers in grades 3-4 participated in the study, with the following demographics: 88.1% female, 9.5% male, 2.4% gender not reported; 83.3% White, 7.2% Black, 9.5% race/ethnicity not reported; and an average of 15.1 years teaching (*SD* = 9.3). Information for five students from each classroom spanning grades 3-5 was included in the study. Teachers were asked to select the five students whom they felt most (a) confident would not leave before the end of the school year, and (b) able to report on their relationship quality. Overall student (*N* = 210) demographics were as follows: 54.5% female, 45.5% male; 82.6% White, 10.7% Black, 4% two or more races, 1.6% Hispanic/Latinx, 1.1% Asian. No missing data were present in the study. Demographic data for the full sample, categorized by treatment and control group, is available in Table 1. There were no significant differences in demographic data between the two groups for either teachers or students.

Table 1: Demographic and Descriptive Data for Sample by Group Assignment

Teachers (<i>N</i> = 42)				
Item	<i>n</i>	Treatment (<i>n</i> = 22)	<i>n</i>	Control (<i>n</i> = 20)
Sex (%)				
Female	19	86.36	18	90.0
Male	3	13.64	2	10.0
Race (%)				

White	18	81.81	17	85.0
Black	1	4.55	2	10.0
Not Reported	3	13.64	1	5.0
Years Teaching, <i>M</i> (<i>SD</i>)	22	14.5 (8.74)	20	15.85 (10.1)
Baseline Conflict, <i>M</i> (<i>SD</i>)	110	2.34 (0.63)	100	2.43 (0.68)
Baseline Closeness, <i>M</i> (<i>SD</i>)	110	3.76 (0.28)	100	3.79 (0.25)

Note. No significant differences between groups on any variables (all *p*-values < .05); The sample sizes for Conflict and Closeness are greater than the total number because there were five students per teacher in each group.

Design

In order to explore the relationship between use of the P2 program and teacher-student relationship quality, we implemented a quasi-experimental design with pre- and post-data collection. All four included schools were using a positive behavior and intervention support (PBIS) approach to supporting student behavior. Although the four schools were in different school districts, their approaches to PBIS were fairly similar, as they taught their students universal rules and expectations. They also incentivized prosocial student behavior and deterred undesirable behavior by use of a token economy system. Students earned points that could then be used to purchase items (e.g., homework passes, food at the school store) at pre-determined times throughout the school year. Tier-2 (e.g., small social skills groups) and tier-3 (e.g., individualized behavior intervention plans) supports were also utilized in each school. All four schools agreed to take part in the survey after being told their teachers could earn \$50 gift cards for completing online surveys at two time points throughout the school year. Two of the schools chosen by the researchers would receive the P2 intervention at reduced cost and the remaining two schools would be offered the program the following year at reduced cost, should they so choose.

Intervention

The P2 program targets the 24 unique and malleable character strengths (see Figure 1; Peterson & Seligman, 2004) established in positive psychology to help all students become their best selves. In addition to taking a positive approach to intervention and the promotion of positive behaviors, which increases teacher buy-in and fidelity (Owens & Waters, 2020), the P2 program claims it was specifically designed to provide teachers with the autonomy they need to meet their students' individual needs while also taking the guesswork out of content delivery. By allowing teachers to tailor content to their individual students, P2 also claims to foster the teacher-student relationship because students feel their teachers are offering material that is relevant to them. A positive relationship between teacher and student is shown to increase fidelity during interventions (see Sutherland et al., 2013). The P2 implementation strategy playbooks, which are differentiated by grade level, provide teachers with zero-prep tools to teach character building and relationship skills. The playbooks contain detailed lesson plans and weekly slide presentations that teachers use for 15-minute, daily character-strength instruction.

Figure 1: Positive Psychology's 24 Character Strengths

Creativity	Curiosity	Open-Mindedness	Love of Learning
Perspective	Bravery	Persistence	Integrity
Enthusiasm	Love	Kindness	Social Intelligence

Teamwork	Fairness	Leadership	Forgiveness
Humility	Prudence	Self-control	Appreciation of Beauty
Gratitude	Optimism	Humor	Purpose

P2 partnership schools are allowed access to a digital library maintained by the developers. This library contains 32 weeks of grade-level differentiated slide presentations for 15-minute, daily lessons on character strengths. Training for teachers to implement P2 includes a three-hour staff-wide online training video. Because the program is pre-packaged and designed to be ready for use “off the shelf,” teachers are prepared to then implement the program right away. A typical week of P2 lessons follows this structure: Days 1 and 2 introduce the character strength and reinforce students’ learning through group discussions and formative assessment; Days 3 and 4 involve an activity where students use the character strength; and Day 5 involves reflection, such as journaling.

Procedures

Procedures for the current study were approved by the institution review board (IRB) at the home institution of the first author of this study. In the beginning of the school year, all four schools implemented their business-as-usual PBIS practices. The two P2 schools also began implementing the P2 character education program with daily lessons. In January, teachers at all four schools completed an online survey through Qualtrics. In addition to basic demographic questions, teachers each identified five students in their classrooms whom they felt they could most accurately report on relationship quality with the students. This pre-survey was provided in January to allow teachers a few months to get to know their students. Then, in late May, teachers from all four schools completed the same questions for the same respective five students in their classrooms regarding relationship quality. To capture fidelity of implementation, teachers in P2 classrooms were also asked to report what percentage of P2 lessons they used throughout the school year on a scale of 0-100% with intervals of 10%. Finally, as a check for social validity, teachers in P2 schools were asked to answer a Yes or No question regarding whether or not they would like to continue using the P2 program beyond the current school year.

Measures

The short form of the Student-Teacher Relationship Scale (STRS; Pianta, 2001) is a 15-item measure with two subscales to measure the degree of closeness (e.g., *I share an affectionate, warm relationship with this child*; $\alpha = .86$) and conflict (*This child easily becomes angry with me*; $\alpha = .87$) between teacher and student. Responses are provided from teachers using a 5-point Likert-type scale (1=*Definitely does not apply*; 2=*Not really*; 3=*Neutral, not sure*; 4=*Applies somewhat*; 5=*Definitely applies*). The STRS is one of the most widely used measures of teacher-student relationship quality (Poling et al., 2022).

DATA ANALYSIS

We conducted multi-level modeling (MLM) analyses to answer our research question using the MIXED procedure in SAS 9.4. The two random levels in the models were (a) students and (b) classrooms. We used MLM because the nested nature of students in classrooms indicated a small amount of dependency based on intraclass correlations (ICCs) for Closeness (0.28) and Conflict (0.28). Three-level models were not necessary as ICCs at the school level did not indicate a relevant level of dependency at level three for either Closeness (.07) or Conflict (.05).

The dependent variable in each model was the post-P2 survey response score for Closeness and Conflict, respectively. We also included child gender (female = 0, male = 1) as a covariate, as previous research indicates relationship quality varies based on child gender (Rimm-Kauffman et al., 2015). Race was not included as a covariate due to the relatively homogenous nature of the sample. The respective baseline scores for Closeness and Conflict were also included to account for pre-intervention relationship quality. Group status (0 = control, 1 = treatment) was a fixed factor in both models. We calculated effect sizes for significant effects using Hedge's g , based on recommendations from the What Works Clearinghouse (WWC, 2022).

RESULTS

No significant differences in teacher-student relationship scores based on closeness or conflict were present between the two groups at baseline. Independent t -tests conducted using post-intervention data revealed significant effects in favor of the treatment group. Closeness scores for the treatment group ($M = 3.94$, $SD = 0.13$) were significantly higher than those of the control group ($M = 3.81$, $SD = 0.22$), $t(208) = 5.27$, $p < .001$. A main effect (see Table 2) was found for group ($b = 0.13$, $p < .001$), such that students in the treatment group had significantly higher posttest scores for closeness, resulting in a moderate effect ($g = 0.73$). Conflict scores for the treatment group ($M = 2.01$, $SD = 0.58$) were significantly lower than those of the control group ($M = 2.35$, $SD = 0.63$), $t(208) = 4.07$, $p < .001$. A main effect (see Table 2) was found for group ($b = -0.31$, $p < .001$), such that students in the treatment group had significantly lower posttest scores for conflict, resulting in a moderate effect ($g = -0.65$). Regarding fidelity of implementation, results indicated an overall rate of 92.73% ($SD = 8.27$), with a range of 70-100%. Overall, 20 out of 22 teachers (90.90%) indicated they would like to continue using the P2 program in the following school year.

Table 2: MLM Effects for Closeness and Conflict

Fixed Effects	B	SE	g
Closeness			
Pretest	0.51***	0.04	
Child Gender	0.03	0.05	
Group	0.13***	0.03	0.73
Conflict			
Pretest	0.60***	0.07	
Child Gender	-0.21	0.14	
Group	-0.31***	0.08	-0.65

Note. Bolded g indicates significant effect size. MLM = multi-level modeling.

*** $p < .001$

DISCUSSION

The purpose of this study was to examine the degree to which implementation of a character education program – P2 – was related to two aspects of teacher-student relationship quality. Results indicated significant effects, such that when compared to teachers and students in a control group, those involved in the intervention experienced higher rates of closeness and lower rates of conflict. These findings are important for three reasons, which we discuss below.

First, the data represent an experimental evaluation of the effects of the P2 program, which is currently being used in nearly 1,000 school across the United States (see

<https://posproject.org/impact/>). Schools need to implement programming with empirical evidence of effectiveness to be sure students are receiving the best education possible. Second, one would expect to see a proximal effect (i.e., a direct impact) on measures of students' social-emotional skills or character strengths from a character education program because this is the very information being taught to students. However, results from this study demonstrate a distal effect, meaning a skill not directly being taught in the program – relationship building – is being impacted by the intervention. Teacher-student relationship quality is especially important to students' success in school, as previous research has demonstrated strong associations between relationship quality and students' positive academic, behavioral, and social outcomes (Poling et al., 2022; Roorda et al., 2017). Finally, results indicated a high level of fidelity (91%) of implementation by the teachers involved in the study. The key for any CE program is the fidelity with which it is implemented by teachers (Wanless & Domitrovich, 2015). Interventions developed through rigorous research often fall short in the classroom when teachers' fidelity fails to reach the level demonstrated by research teams (Durlak & DuPre, 2008). Identifying programming that teachers are willing to implement with fidelity, which promotes better outcomes for student participants, is therefore a priority.

PRACTICAL IMPLICATIONS

Although results of the study are promising, they represent just one example of empirical effectiveness for the P2 program. However, the significant effects on relationship quality, as well as the high rates of fidelity reported by teachers, are reason to continue experimental studies of the P2 program. Research points to several critical issues related to teachers that are most important to consider when aiming to maintain a high level of fidelity (Durlak & DuPre, 2008; Han & Weiss, 2005; Larson et al., 2018). First, the teacher's opinion on the type of program (i.e., whether it is focused on promoting positive attributes or reducing negative behaviors) influences fidelity. Research has long demonstrated that teachers prefer interventions that aim to promote positive behaviors rather than reduce negative behaviors (Elliot et al., 1984; Martens et al., 1986; Owens & Waters, 2020). The P2 program is based in positive psychology, which adopts a strengths-based approach to intervention. Furthermore, social validity data indicated that 91% of teachers would like to continue using P2 in the future. Second, flexibility/adaptability and ease of use of the program for teachers impacts fidelity (Han & Weiss, 2005). Programs may need to be structured so teachers have the autonomy to adapt the content to changing circumstances and the needs of their students. At the same time, the program needs to be adequately developed to the point where teachers can deliver the content to their students with easy-to-understand core principles and intervention techniques. The P2 program provides teachers with zero-prep materials for ease of use, while also allowing teachers to decide for themselves how best to infuse the learning into their curriculum. Finally, the teacher's ability to cultivate a positive relationship with children receiving an intervention is key to promoting fidelity (Sutherland et al., 2013). Student engagement in material, which is positively associated with high-quality teacher-student relationships (see Quin, 2017), has been posited as more important to program effectiveness than strict adherence to an intervention protocol (Low et al., 2014).

LIMITATIONS AND FUTURE DIRECTIONS

Three limitations of the current study must be acknowledged. First, the sample was relatively homogenous regarding the race and ethnicity of both teachers and students. Future research on the use of P2 with diverse samples should be explored. Second, although quasi-experimental

designs are an acceptable form of research, the gold standard continues to be RCTs. Future studies should be done where participants are randomized by condition. Finally, the only data available for this study was teacher-reported and there is always the risk of social desirability bias in self-report data. Future studies would benefit from use of multi-informant data collection methods.

Despite these limitations, there are other areas of future research also worth exploring. Ecological models suggest that, if a program has a positive impact on some aspect of the classroom (e.g., improving teacher-student relationship quality), teachers are also positively impacted (e.g., teaching becomes less stressful), and this may, in turn, improve fidelity (Domitrovich et al., 2016). Future research should explore these possible mechanisms of change with large sample sizes to explore mediation and moderation effects in student and teacher outcomes. Teachers may experience secondary beneficial effects of character education programs when they internalize the content (Bradshaw et al., 2009). Whether this is related to rates of fidelity of implementation or not remains to be seen, but the high rates of fidelity in this study – coupled with the knowledge that only 50% of teachers typically implement social-emotional learning interventions with high fidelity (Low et al. 2016) – indicate the need for future research in this arena.

Disclosure Statement

In accordance with my ethical obligations as a researcher, I am reporting that I have previously been paid as a Research Consultant to The Positivity Project. My role has been to assist the CEO in the evaluation of internal data collected by the company; develop surveys for partner schools to help the company determine its impact; and to lead efforts to evaluate the impact of the program. I have disclosed these interests to my home institution and maintain a plan to mitigate any potential conflicts arising from this involvement. None of the consulting fees I have received have had any impact on the research reported in the enclosed manuscript.

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