School-Based Interventions to Promote Empathy in Children and Adolescents: A Developmental Analysis

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Abstract

Objective. Empathy has been identified as a core component of social and emotional functioning across development. Various prevention and intervention programs have utilized components of empathy-related responding to promote the development of children's and adolescents' socioemotional functioning and impede their aggression in school contexts. In this paper, we assess the effectiveness of select school-based empathy interventions and the extent to which they align with developmental theory and research. **Method.** First, we review current conceptualizations of empathy-related responding, identify its components, outline its normative development, and describe the need for developmentally tailored interventions. We then identify and assess the effectiveness and developmental sensitivity of 19 school-based programs with strong empirical support that target empathy-related responding across childhood and adolescence. **Results.** While the majority of these programs showed some degree of developmental differentiation between grades, none considered developmental differences within grades. **Conclusions.** Commencing interventions that have proven to be effective earlier in development and targeting higher numbers of empathy-related constructs were, in part, associated with larger outcomes. We discuss how future research can bridge the gap between basic developmental research and the design of developmentally tailored interventions to promote empathy-related responding.

Keywords: empathy, sympathy, socioemotional functioning, developmental intervention, aggression intervention

School-based Interventions to Promote Empathy in Children and Adolescents: A Developmental Analysis

Over a decade ago, clinical-developmental researchers stressed the importance of using developmental theory to inform the design, implementation, and evaluation of tailored intervention strategies to promote social-emotional development and reduce mental health risk (Ollendick, Grills, & King, 2001; Weisz & Weersing, 1999). It was recognized that prevailing strategies failed to address the diverse needs and capacities of children at different levels of development (Noam & Hermann, 2002). In the past decade, much progress has been made in the design of tailored interventions for children and adolescents. For instance, age-graded differences have been considered, to some extent, in the design and implementation of school-based, social-emotional learning programs (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). However, despite the bulk of evidence for intra- and inter-individual differences in empathy-related responding from infancy to adolescence (Eisenberg, Spinrad, & Morris, 2014), research has not determined if existing empathy interventions have been systematically translated from developmental research. The effective and developmentally sensitive promotion of empathy is important because it plays a major role in the promotion of social-emotional competence and related prosocial behavior across development (Eisenberg et al., 2014) and externalizing problems, such as conduct disorder, have been linked to atypical empathic development (Decety, Michalska, Akitsuki, & Lahey, 2009; Malti & Noam, 2009).

Levels of empathic capacity vary substantially across development and even between children of the *same* chronological age (Eisenberg et al., 2014). Thus, in addition to distinct periods of development (e.g., early versus middle childhood), it is important for empathy interventions to consider distinct levels of development within periods (e.g., within early

childhood) in their theory and logic models. In the current paper, we examine the effectiveness of select empathy interventions and the extent to which they translate research on empathy's normative development into empathy promotion in children and adolescents (both typically developing and at-risk). This analysis includes, but is not limited to, a requisite review of research on empathy-related responding and its normative development, a selective review of empirical studies that tested empathy-related responding as an outcome of intervention effects, and the identification of intervention strategies that promote empathy as a mechanism of change. In doing so, our objectives are twofold. First, we aim to assist researchers in designing empathy intervention strategies that are effective across development. Second, as a long-term goal, we aim to strengthen the link between developmental research on empathy-related responding and interventions designed to promote social-emotional skills/reduce mental health risk in children and adolescents.

Empathy-Related Responding and its Development from Infancy to Adolescence

Although empathy and sympathy have been used interchangeably in the literature, empathy is distinct in that it requires (and primarily involves) experiencing the same or a similar emotion as the other. Sympathy primarily involves feeling concern for the other and does not require experiencing the same or a similar emotion as the other. Both empathy and sympathy are thought to include an understanding that the emotion or feeling experienced is related to the other and not the self (Hoffman, 2000). According to Eisenberg (2000), pure empathy does not imply concern for the other, but it may lead to sympathetic concern with further cognitive processing of the other's state. In the current discussion, we use empathy-related responding as an umbrella term that includes both empathy and sympathy. Empathy-related responding includes both affective components, such as emotional contagion and other-oriented concern,

and cognitive components, such as apprehending and evaluating the other's state. This distinction is important because some affective components of empathy may emerge as early as toddlerhood, whereas cognitive components gradually increase from early to late childhood (Davidov, Zahn-Waxler, Roth-Hanania, & Knafo, 2013; Roth-Hanania, Davidov, & Zahn Waxler, 2011). Theorists have argued that affective concern for others plays an important role in motivating morally relevant, prosocial behavior (Eisenberg, 2000; Malti, Gummerum, Keller, & Buchmann, 2009) and mitigating antisocial behavior/related health risks (Malti & Ongley, 2014). Children's translation of empathy into sympathy and other-oriented behavioral outcomes likely depends on their emotional understanding, emotion regulation skills, and emotional expressivity (see Hay, 2009). For instance, unregulated, intense negative emotions that accompany empathy may lead to personal distress instead of sympathy. In line with the main aim of this paper, we focus on empathy/sympathy as opposed to empathy/personal distress because the former combination of empathy-related responding is more likely to promote other-oriented, prosocial behavior and inhibit children's antisocial, aggressive outcomes (Eisenberg, Eggum, & Di Giunta, 2010a).

The development of empathy-related responding has been described in prominent theories for decades (see Eisenberg, 2000; Hoffman, 2000). There is some consensus that concern for others emerges in the second to third year of life (e.g., Hoffman, 2000), although recent conceptual models suggest that empathic concern (independent from self-reflection and introspective skills) emerges as early as the first year of life (Davidov et al., 2013). To at least some degree, infants as young as 8 to 14 months seem to react to the distress of others with resonant negative affect (Roth-Hanania et al., 2011), which may be seen as a precursor to empathy. According to Hoffman (2000), empathy is strongly intertwined with social-cognitive

development and thereby changes as children develop increased social-cognitive capacities, such as perspective taking. The notion that affective empathy increases with development has been criticized based on recent longitudinal evidence indicating little to no increase in feelings of empathic concern across early childhood (e.g., Roth-Hanania et al., 2011; Vaish, Carpenter, & Tomasello, 2009). However, other longitudinal and cross-sectional findings suggest that children increasingly anticipate feelings of concern for others from mid-childhood to early adolescence (e.g., Malti, Eisenberg, Kim, & Buchmann, 2013). Similarly, emotion regulation skills have been shown to increase from infancy to adolescence. In the first year of life, infants progress rapidly from external (e.g., parental care) to internal (e.g., self-soothing) sources of regulation. Other regulatory capacities, such as effortful control, delay of gratification, and attentional control have been shown to increase from early childhood to adolescence (Eisenberg, Spinrad, & Eggum, 2010b). Across development, increases in regulation may promote empathy-related responding, as well-regulated children are less likely to experience self-focused over-arousal and more likely to feel concern for others after apprehending their emotional state (Eisenberg & Eggum, 2009).

Based on existing developmental and intervention literature, we will discuss several constructs that comprise and/or relate to empathy-related responding, such as emotion understanding, perspective taking, and prosocial behavior (Eisenberg et al., 2010a). All of these constructs have been included in universal and targeted interventions to promote empathy and social-emotional development, and mitigate/prevent antisocial behaviors. We included prosocial behavior as part of the multi-dimensional construct of empathy-related responding because prototypical prosocial behaviors, such as caring and comforting (Batson, 2011), can be considered behavioral expressions or reflections of empathic/sympathetic feelings (Eisenberg, Spinrad, & Knafo, in press). In line with this reasoning, frequently used prosociality scales have

included items that specifically target sympathetic skills (e.g., Caprara, Steca, Zelli, & Capanna, 2005; Weir & Duveen, 1981) and empathy scales have included prosocial behavior items (e.g., Kochanska, de Vet, Goldman, Murray, & Putnam, 1994). By including overt expressions of prosocial behavior, we feel more confident that we are better capturing the complex and elusive nature of empathy-related responding

The Need for Developmentally Tailored Intervention Strategies

Developmentally tailored intervention strategies are crucial because a mismatch between a child's capacities and a practitioner's perceptions of those capacities can compromise the effectiveness of the intervention process (Noam & Hermann, 2002). For example, the false assumption that a child understands complex, negative emotions, such as guilt, may lead to the inappropriate use of cognitive strategies to promote guilt-induced empathy. Before systematically translating developmental research into intervention planning, it is important to understand the normative trajectories of empathy-related responding (see Spritz & Sandberg, 2010) and assess inter-individual differences prior to treatment delivery. Based on our brief review of developmental theory and research, it is evident that both intra- and inter-individual variations exist in the affective and cognitive components of empathy-related responding from infancy to late adolescence. This speaks to the importance of developmental screens and age-graded interventions to promote such responding.

Two key issues should be addressed by a developmental intervention to promote empathy: The role of development in intervention design/modification and the timing/duration of specific strategies. Regarding the role of development, researchers are beginning to understand how baseline differences in empathy and related social-emotional skills can result in intervention strategies being more effective with certain children and families than others (Malti & Noam,

2009). Some children, regardless of age and background, may show relatively high levels of baseline empathy-related responding, while others may be less differentiated. This could have an immediate effect on program outcomes if less differentiated children lack the social-emotional capacity to comprehend and implement the skills being taught. Simply adjusting existing programs for lower or higher age groups may not suffice, as chronological age is only a rough estimate of developmental capacity at any point in time (Durlak, Fuhrman, & Lampman, 1991). Instead, existing strategies should be further modified based on an understanding of developmental theory, which includes intricate developmental differences within age groups. For example, empathy-related responding in a first-grade classroom is likely to be highly variable based on marked transitions in empathy from 6 to 8 years of age (Eisenberg et al., 2010b). In this case, an approach based on developmental theory would involve screening children for baseline empathic ability and making corresponding adjustments to program content and delivery. Specifically, a puppet show for children with relatively low empathic ability could depict basic perspective taking skills, whereas empathically skilled children could be shown a more sophisticated vignette depicting the coordination of self- and other-oriented or mixed emotions. These modifications should further consider distinct constructs that comprise or relate to empathy, as there are often overlaps (e.g., between emotion understanding and perspective taking) and discrepancies (e.g., between affective and cognitive components) in the development of empathy-related constructs.

Regarding the role of timing/duration, little is known about critical developmental periods to promote empathy-related responding. It has been suggested that socio-emotional interventions beginning earlier in development and continuing longer afford greater and more enduring benefits than shorter interventions that commence later (Ramey & Ramey, 1998). Some evidence

suggests that early intervention (e.g., in infancy) is most beneficial and enduring when supplemented by later intervention (e.g., in toddlerhood; Landry, Smith, Swank, & Guttentag, 2008). At the time, there are no compelling data to suggest that empathy interventions provided after a certain age are less effective. Instead, current evidence supports the notion of *relative* timing effects across development that may depend on the components of empathy-related responding being addressed (e.g., cognitive versus affective; see Malti, 2014).

School-based Interventions to Promote Empathy-related Responding in Children and Adolescents

The promotion of empathy-related responding has been predominantly discussed under the auspices of school-based, social-emotional learning (SEL) programs. SEL curricula aim to promote the development of five interrelated competencies in the areas of emotion, behavior, and cognition: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making [Collaborative for Academic, Social and Emotional Learning (CASEL), 2003]. Two of these competencies (self-awareness and social awareness) partially refer to skills consistent with empathy-related constructs. Self-awareness is defined as "the ability to accurately recognize one's emotions and thoughts and their influence on behavior", whereas social awareness is defined as "the ability to take the perspective of and empathize with others from diverse backgrounds and cultures, to understand social and ethical norms for behavior, and to recognize family, school, and community resources and supports" (CASEL, 2012, p. 11). The former refers to the basic, self-oriented capacity to understand and recognize one's emotions, while the latter refers to other-oriented components of empathy-related responding, namely perspective taking and affective empathy (Björkqvist, Österman & Kaukiainen, 2000; Feshbach, Feshbach, Fauvre, & Ballard-Campbell, 1983). A recent meta-analytic review by Durlak and colleagues (2011) evaluated the impact of 213 school-based SEL

programs on behavior problems, academic performance, and positive social behavior. The largest effect sizes were found for programs that fostered empathy, emotion recognition, stress management, problem solving, and decision-making. Thus, among the skills relevant to SEL, empathy-related constructs appear to be a crucial element of program success.

It is also promising that most empirically supported SEL programs include at least basic (i.e., age-graded) developmental differentiation in their curriculum design (CASEL, 2003). However, it is unclear whether this differentiation extends to include specific strategies that align with/adapt to varying levels of empathic capacity within age groups. SEL program designers are interested in promoting integrated changes in emotion, cognition, and behavior, and, as such, they typically combine the teaching of multiple skills. This represents an obstacle to those interested in empathy promotion per se because investigating the relative contribution of empathy and outlining the developmental approach to promoting empathy have not been specific priorities of SEL interventions (Lemerise & Arsenio, 2000). We therefore conducted a review to identify specific, empathy-related constructs promoted by widespread, evidence-based SEL programs and explored the degree to which these constructs were addressed in a developmentally differentiated manner.

In sum, our review expands on existing research in four important ways: First, we specifically focus on empathy-related constructs as opposed to the broader domain of social-emotional learning. This focus on interventions that target empathy-related responding was chosen because developmental research clearly indicates the beneficial effects of empathy on prosocial and adaptive behavioral outcomes. Second, we analyze the developmental sensitivity of empathy promotion and consider this as a moderator of intervention effects. We also considered additional, important moderators, such as the number of empathy-related constructs

targeted and the explicit notion of affective empathy (i.e., sympathy) as a core target of intervention strategies. Third, our inclusion criteria are stricter than Durlak and colleagues' (2011) recent meta-analysis of SEL interventions, which encompassed any programs that reported sufficient information for effect size calculation. We only included the most widely used and empirically backed programs that focus on at least one empathy-related construct from major intervention databases. Fourth, we include universal (tier 1), targeted (tier 2), and combined universal/targeted school-based empathy interventions.

Method

Inclusion and Exclusion Criteria

We used the following criteria to select prevention and intervention programs: (a) demonstrated effectiveness with rigorous experimental or quasi-experimental design, (b) curricula emphasized the promotion of empathy/sympathy specifically or empathy-related constructs (perspective taking, emotion understanding, and prosocial behavior), (c) was school-based (classroom or after-school) and included universal (tier 1) and/or targeted programs (tier 2; Ventura County Office of Education RTI^2 Task Force, 2007), and (d) was designed for children between pre-kindergarten and Grade 8. Due to the scarcity of empirically supported SEL programs for infancy and adolescence, interventions for these age groups were excluded. We focused on the school context because it allows for multi-year programming, which contributes to a consistent, long-term learning environment, and peer interactions endemic to school settings are essential for the development of children's empathy and other-oriented, morally relevant behavior (Greenberg et al., 2003; Malti, Dys, & Zuffianò, in press). Furthermore, the most widely used empathy-related intervention programs are employed in school settings (Durlak et al., 2011). Family-based and individualized interventions for children with psychopathologies

(tier 3) were deemed beyond the scope of our analysis because of our focus on social-emotional learning programs, which predominantly focus on school-based, tier 1 and/or tier 2 programs.

The programs that met our inclusion criteria were selected from the following two sources: The 2013 CASEL Guide and the Lifecourse Interventions to Nurture Kids Successfully (LINKS) database. These sources were selected because they have conducted rigorous reviews of SEL program evaluations. The 2013 CASEL Guide is CASEL's most recent compilation of effective SEL programs. Using a systematic framework for quality evaluation, CASEL rated and identified well-designed, evidence-based SEL programs. In their latest review process that began in 2009, CASEL consulted three of the most commonly used intervention databases to identify evidence-based SEL programs: The What Works Clearinghouse, The National Registry of Evidence-Based Programs and Practices, and the Blueprints for Violence Prevention Model and Promising Programs. In addition, program information from CASEL's 2003 guide "Safe and Sound: An Educational Leader's Guide to Evidence-based Social and Emotional Learning" was consulted in this extensive review. In all, CASEL identified 23 programs that met criteria for effectiveness as demonstrated by evaluations that included a control group and pretest/posttest outcome measures (see www.CASEL.org for more details on the review process). The second database we selected from, LINKS (see www.Childtrends.org), includes a vast compilation of almost 600 experimentally evaluated social programs. Depending on the outcome(s) of interest, the database provides specific reports or fact-sheets of evaluated programs according to a list of strict inclusion criteria (e.g., presence of random assignment, treatment and control groups in evaluations). For the present review, the "What Works" document for the promotion and enhancement of positive social skills was consulted (Bandy & Moore, 2011). This report

classified programs into three categories: *Not proven to work*, *mixed reviews*, and *proven to work*. We only considered the latter category, which included a total of 27 programs.

Sample Characteristics

Of the 23 programs that met CASEL criteria, 15 met our inclusion criteria. Of the 27 LINKS programs deemed *proven to work*, seven met our inclusion criteria, three of which overlapped with selected CASEL programs (i.e., Incredible Years Program, Steps to Respect Bullying Prevention Program, and PATHS). Thus, our final sample consisted of 19 programs. Information about empathy-related constructs, developmental differentiation of curricula, intervention strategies, and effectiveness with regards to promoting outcomes of interest was collected from each of the program's official websites, sample curricula materials available online, fact-sheets from both CASEL's 2013 guide and the LINKS database, and existing peer-reviewed program evaluations.

The following content-related and methodological moderator variables were considered: Developmental differentiation between grades was coded as the inclusion of grade-by-grade sequencing (i.e., different lessons for each grade), a broader grouping of lessons (e.g., the same lessons for Grades 1 to 3 and different lessons for Grades 4 to 6), or a lack of differentiation between grades (i.e., the same curricula across grades). Developmental differentiation within grades was coded as the presence/absence of strategies (e.g., developmental screening, content adjustment) to address developmental differences within grades. Frequency of empathy-related construct(s) was coded as the number of empathy-related constructs (see Table 1) that each program targeted. The explicit inclusion of empathy was coded as the presence/absence of empathy as an explicit target of intervention. Intervention tier was coded as universal, targeted, or combined universal/targeted. Intervention timing was coded as the earliest grade that each

program targeted. Lastly, study design was coded as quasi-experimental or randomized control trial.

Dependent Variables: Student Outcomes

We classified student outcomes into three different categories: (a) social-emotional competencies, (b) conduct problems, and (c) academic functioning based on our hypotheses that empathy-related responding promotes social-emotional development, reduces the risk of externalizing behavior, and facilitates academic functioning. In addition, these outcome categories are commonly used by large-scale SEL program evaluations to comprehensively test program effectiveness across a broad range of functioning (i.e., CASEL, 2012; Durlak et al., 2011).

Social-emotional competencies. This category included both evaluations of interpersonal skills and behaviors (e.g., positive peer relations, prosocial behavior, assertiveness, perspective taking, conflict resolution skills, problem solving skills) and evaluations of emotional skills (e.g., empathic concern, emotion understanding, self-confidence). Outcomes were considered at the student level and derived from both students' perspectives (e.g., interviews, questionnaires, role plays) and teacher or parent ratings of students' behavior.

Conduct problems. This category included evaluations of behavior problems such as noncompliance, aggression, bullying, delinquent acts, and disruptive class behaviors. These outcomes were measured by self-reports, observational measures/task performance, and/or third-party ratings. Substance use behaviors were not considered because they were not developmentally relevant to program participants (the majority of participants were much younger than the typical age of onset for substance use behavior).

Academic functioning. This category included both positive academic behaviors (e.g., study habits) and objective indicators of academic functioning (e.g., standardized tests and teacher/parent reports of academic competence).

Coding Reliability

As per Malti and Krettenauer (2013), two trained coders independently reviewed all materials and coded all programs for the six moderator variables. Cohen's κs adjusted for chance agreement were computed to establish inter-rater reliability and ranged from .69 to 1.00 across categories with a mean of .89. To establish reliability for outcomes, the two coders independently calculated effect sizes for a randomly selected 30% (n=11) of the studies. Intra-Class Correlations (ICC) were computed (given the continuous nature of effect size values) and found to be acceptable (i.e., .80 for social-emotional competencies, .89 for conduct problems, and .85 for academic functioning). The coders discussed all disagreements until consensus was reached.

Intervention Strategies

For descriptive purposes, we identified the main pedagogical strategies (e.g., explicit instruction, experiential learning, etc.) that programs used to target empathy-related skills. A systematic review of these strategies (e.g., relative use across the different programs, moderating effects of intervention strategies) was beyond the scope of this analysis because it was not central to understanding the developmental sensitivity of our selected programs. Furthermore, most programs used a broad range of strategies, making it difficult to establish unique moderating effects.

Results

Table 1 provides a summary of the selected evidence-based programs, including developmental period(s) targeted and empathy-related construct(s) promoted. Table 2 describes the 36 studies that conducted rigorous evaluations of our 19 programs, and the specific grade(s) targeted by each program. The age range of participants across programs was approximately 4 to 11 years. Of the 19 programs, 16 (84%) included some degree of between-grade developmental differentiation. Of these 16, 13 programs (81%) designed specific sessions for each grade (grade-by-grade sequencing), whereas the remaining 3 (19%) programs (i.e., Mind Up, I Can Problem Solve, and Peace-Builders) included a broader grouping of lessons (e.g., three sets of lessons that each covered three grades). For statistical analyses, we combined absent and rudimentary tailoring into one category (i.e. 6 programs versus 13 programs). Because none of the programs explicitly mentioned strategies to adjust their curricula for possible developmental differences within grade (e.g. screening children), this variable was dropped.

Regarding number of empathy-related constructs, 37% of the programs (n = 7) mentioned the use of 1 or 2 constructs, while the remaining 63% (n = 12) mentioned the use of 3-4 empathy-related constructs. Just over half of the programs (i.e., 53%; n = 10) explicitly referred to empathy promotion as one of the core targets of the intervention.

The majority of program curricula were universal or tier 1 (84%, n = 16), whereas 5% (n = 1) of the programs were targeted (tier 2), and the remaining 11% (n = 2) included both universal and targeted components. Because of the low frequency of targeted and combined interventions, these categories were combined into one for further analyses.

Regarding the earliest grade targeted by interventions, results revealed that 21% (n = 4) of programs commenced at prekindergarten, 63% (n = 12) at kindergarten or first grade, 5% (n = 1) at third grade, and 11% (n = 2) at fourth grade. For moderator analyses, we collapsed

prekindergarten/kindergarten/first grade into one category, and third/fourth grade into another, resulting in "early versus late start" categories. Finally, of the 36 evaluation studies, 69% (n = 25) were randomized controlled trials, whereas 31% (n=11) were quasi-experimental studies.

Program Effectiveness

Table 2 provides an overview of grades targeted by each program and evaluation study design (i.e., randomized control trial versus quasi-experimental). Mean effect sizes/effect size ranges for each of our outcome categories and moderators are reported in Table 3. All effect sizes were reported using Cohen's *d*. All of the selected evidence-based programs found significant effects for outcomes related to social-emotional competencies. In addition, 14 of the programs (74%) found reductions in conduct problems, and six (32%) found positive effects on academic functioning.

Effect size computation followed a two-step procedure. First, effect sizes for specific outcome measures were computed for each article. Then, these specific effect sizes were categorized and averaged according to the aforementioned broader outcomes of social-emotional competencies, conduct problems, and academic functioning. Second, an overall mean effect size adjusting for sample size was computed for each these three outcomes across the 19 programs. Data analyses were performed using the Comprehensive Meta-Analysis (CMA) program, version 2 (Borenstein, Hedges, Higgins, & Rothstein, 2004). Four of the 36 articles provided insufficient information to compute overall effect sizes. Specifically, two studies were omitted because they did not report sample sizes for their intervention and control groups (i.e., Brown, Low, Smith, & Haggerty, 2011 [Steps to Respect], and Hall & Bacon, 2005 [Too Good for Violence]), and two were omitted because they lacked other information necessary to compute effect sizes (i.e.,

standard deviations, degrees of freedom; Vaughn & Ridley, 1984 [Interpersonal Skills Program], and Aber, Jones, Chaudry, & Samples, 1998 [Resolving Conflict Creatively Program]).

Overall Effect Sizes

Table 3 presents the mean effects (Cohen's d) and 95% confidence intervals for each of the three outcome categories and seven moderator variables. Although the CMA program computes effects for both fixed- and random-effects models, we reported from random-effects models because all of our studies were gathered from published literature (see Borenstein et al., 2004). According to Cohen's (1988) guidelines, .20, .50, and .80 were considered cut-offs for small, medium, and large effects, respectively. Mean effect sizes for the three outcome categories were in the small range and, as indicated by the Q statistic, there was a large degree of variability within them. This heterogeneity suggests that moderator variables may affect outcomes. Comparing effect sizes across studies, we found that their strength ranged from 0.04 to 1.29 for social-emotional competencies, from 0.02 to 0.66 for conduct problems, and from 0.06 to 0.44 for academic functioning. For social-emotional competencies, 23 studies (77%) showed small effect sizes (i.e., 0.04-0.49), 3 studies (10%) showed moderate effect sizes (i.e., 0.65-0.73), and 4 studies (13%) showed large effect sizes (i.e., >.80). For conduct problems, 21 studies (91%) showed small effect sizes (0.02-0.49), and two studies (9%) showed moderate effect sizes (0.50-0.66). For academic functioning, all 9 studies showed small effect sizes. In sum, effects on outcomes were small in size. Given that the current analysis focused on only interventions with rigorous evaluations, however, these effects are meaningful.

Moderators of Effect Size

Random-effects moderator analyses were conducted in an effort to explain the significant heterogeneity of effect sizes. Table 3 summarizes the results of moderator analyses for the three

outcomes. Overall, the majority of moderators did not result in significantly different effect sizes. For social-emotional competencies, the effect size was higher for interventions that started earlier as opposed to later, $Q(1) = 10.32$, $p < .001$. For both conduct problems and academic functioning, the effect size was higher when interventions targeted higher numbers of empathy-related constructs, $Q(1) = 5.11$, $p < .05$ and $Q(1) = 14, 25$, $p < .001$, respectively. In addition, effect sizes were larger for academic functioning in targeted or combined interventions in relation to universal programs, $Q(1) = 5.92$, $p < .05$. However, this effect was based on a very small amount of targeted/combined interventions ($n = 2$) and should be interpreted with caution.

Discussion

Empathy-related responding develops significantly from infancy to adolescence (Eisenberg et al., 2014). A developmentally tailored curriculum that caters to these differences is likely to enhance the success of empathy interventions (Malti & Noam, 2009). In the current paper, we argue that a complete developmental tailoring goes beyond age-related adaptations of curricula to account for variations in developmental level within age groups. This sensitivity ensures that children of varying age, developmental level, and clinical need receive optimized treatment that identifies and builds upon their differential capacities.

We analyzed the effectiveness and developmental sensitivity of select school-based empathy interventions that have proven to be effective. This analysis is timely and important for multiple reasons. Although a mass of programs on the market claim to be evidence-based in their promotion of empathy and related constructs, their developmental appropriateness has not been systematically analyzed. This is surprising, as extensive research on the normative development of empathy-related responding from infancy to late adolescence has been conducted, including age-related links to (mal)adaptive outcomes (Eisenberg et al., 2014). Across development,

empathy and related constructs have been shown to promote children's other-oriented, prosocial behavior and impede their antisocial, maladaptive behavior (Eisenberg, 2000; Malti et al., 2009). Developmentally informed intervention strategies that effectively target empathy at various developmental levels to promote prosociality and impede aggression are a logical next step that, based on our current analysis, has not been fully taken by leading empathy interventions.

Overall, a developmentally tailored intervention has three core elements: 1) the application of a developmentally tailored curriculum that reflects an understanding of normative development (beyond mere age-related considerations), 2) the use of early screening and developmental assessment tools to inform treatment planning, and 3) the selection and use of pedagogical strategies that are developmentally informed. While some of these elements are apparent in current intervention practice, others remain to be integrated. Below, we elaborate on each of these important aspects, identify strengths and weaknesses in current school-based intervention programming, and discuss areas for future research to explore.

Understanding the Normative Development of Empathy-related Responding

Clearly, it is important for practitioners, teachers, and program developers to understand the normative development of empathy-related responding. This understanding can help determine if, and by how much, a child (or a classroom) is normative, delayed, or advanced in empathic or related social-cognitive capacity (Malti & Noam, 2009; see Spritz & Sandberg, 2010). The majority of our selected programs included some degree of between-grade differentiation in their curricula, suggesting that the need for age-graded differentiation has been acknowledged. However, the findings did not reveal that age-graded strategies were more effective. Future research should therefore determine the degree to which age-graded tailoring is needed and being considered for specific, empathy-related aspects of the curricula versus other

aspects that do not directly concern empathy promotion. For example, age-sensitive language and content may exist but core strategies to promote empathy may remain the same across age groups and developmental level. To this end, future intervention programs and program evaluations should explicitly state the specificity and extent of age-graded tailoring.

None of our selected programs explicitly mentioned strategies (e.g., screening children) to adjust their curricula for possible developmental differences within grades. This is surprising because developmental level, regardless of chronological age, can vary substantially (Durlak et al., 1991). Future interventions should employ a systematic logic model that elaborates on the intervention's theory of change, explaining how normative development of empathy-related responding is translated into specific intervention strategies at design, development, and implementation stages. In other words, a specific elaboration on *mechanisms of change* in the logic model is necessary to explain *how* empathy-related responding will be promoted across development (both between and within age groups) and thereby strengthen the research-practice link in this area. It is also important to determine and include the most necessary adaptations that meet the needs and resources of practitioners without sacrificing key mechanisms of change derived from developmental evidence and theory (see Bumbarger & Perkins, 2008). This will help ensure strong evidence and theory-driven hypotheses on expected changes in empathy-related responding while maintaining practical ease of implementation.

Utilizing Developmental Assessments of Empathy-related Responding

Developmental researchers have emphasized the use of both early screenings and comprehensive assessment tools to evaluate children's social-emotional development and empathy-related responding in school (Malti & Noam, 2008, 2009; Noam, Malti, & Guhn, 2012) and clinical settings (e.g., Holmbeck, O'Mahar, Abad, Colder, & Updegrove, 2006; Shirk, 1999).

This emphasis was in response to a broadened consideration of protective factors in intervention programming and, more specifically, a lack of assessments in schools that spanned beyond the domains of academic functioning and mental health risk. Two commonly used school-based instruments are the Devereux Student Strengths Assessment (DESSA) and the Holistic Student Assessment (HSA). The HSA is a developmental assessment tool that is rooted in social-emotional developmental theory and research and that assesses social emotional strengths and difficulties (Noam et al., 2012). In its original version, it is comprised of both teacher-reported and self-reported rating scales as well as an observational tool designed to assess and guide prevention and intervention planning and evaluate outcomes related to social-emotional strengths and challenges of students. The results generate individual, classroom, and school-based profiles of the socio- emotional strengths and challenges of each student. These assessment tools are essential for implementing strengths-based social-emotional interventions as they identify core dimensions of socioemotional functioning which can guide prevention and intervention planning and implementation.

However, the current school-based assessment tools are restricted to overt empathy and do not assess the various components of empathy-related responding, and even fewer tools exist for individual assessments of the various components of empathy-related responding. Yet, screening and assessment tools that are rooted in developmental theory, that create both individual and group-level data, and that are and systematically linked to state-of-the-art research on developmental psychopathology and socioemotional development can play a crucial role in optimizing interventions to meet the differential socioemotional needs of children and adolescents (Malti & Noam, in press). Specifically, these tools can help practitioners chose the most effective strategies for promoting empathy-related responding and decreasing mental health

risks through a developmentally sensitive, three-tiered delivery system (i.e., promotion, prevention, and intervention). In addition to other benefits, a developmental focus on protecting against risk and promoting resilience may contribute to increased academic functioning and productivity in children and adolescents (Masten, 2001).

Integrating Developmental Knowledge into Strategy Selection and Practice

Although understanding the normative development of empathy-related responding and utilizing developmental screens and comprehensive assessments are essential ingredients of a developmental intervention, they need to be systematically integrated into the selection and employment of intervention strategies that lead children to their "zone of proximal development" (see Vygotsky, 1978). This may require modifying existing strategies to fit various developmental levels (Weisz & Weersing, 1999) or developing new strategies that reflect such differences. Specifically, program developers should ensure optimal correspondence between the skills being taught and the capacities of participating children. A clear developmental approach should be followed in designing and planning the entire set of a program's activities (Vadeboncoeur & Collie, 2013). For instance, it is likely that perspective-taking skills can be enhanced by cooperative learning in small groups in which the capacities of less competent children are stimulated by interaction and collaboration with more skilled children (e.g., via the use of verbal cues, prompts, etc.). A developmental screen would assist in making decisions about group composition and strategies used to promote empathy-related skills in group settings.

Our selected programs adopted an array of strategies (e.g., experiential learning and cooperative learning) considered to be effective in facilitating empathy-related responding (Kress & Elias, 2006). However, these strategies were not tailored for within-grade developmental differences. Although many programs did consider age-graded differences in their curricula, this

was not related to stronger outcomes, which may suggest that full developmental differentiation (both within and across grades) is necessary to achieve unique improvements from developmental tailoring. This may also relate to the quality and scope of existing evaluation studies. For example, only four (24%) of our 17 selected programs (i.e., Caring School Community, Steps to Respect, Peace-Builders, and Interpersonal Skills Program) had their curricula evaluated for all of their targeted grades. More fruitful evaluations may be necessary to tease apart the effects of developmental tailoring.

All of the evidence-based programs we reviewed evidenced a positive, albeit small, impact on three core areas of children's development (i.e., social-emotional competencies, conduct problems, and academic functioning). Yet, programs targeting higher numbers of empathy-related constructs were more effective in mitigating conduct problems and promoting academic functioning. Given our specific focus on interventions that focused on empathy-related responding, it is important to acknowledge that this finding does not necessarily generalize to interventions that do not focus on empathy-related responding. In addition, programs that explicitly targeted empathic concern were not more effective than programs than did not. This may be related to the fact that we exclusively focused on programs with an evidence base, which inherently reduces variability in outcomes and moderator analysis. Nonetheless, the finding suggests that the various components of empathy-related responding may work in concert to improve children's outcomes and that empathy interventions should strive to promote empathy-related responding in its entirety.

Furthermore, empathy interventions that commenced earlier in development were more effective in promoting social-emotional competence. Early social-emotional competence plays a critical role in establishing a healthy parent-child bond that sets the foundation for later

relationships with family and peers (see Eisenberg et al., 2014). Our results suggest that early empathy promotion is critical to establishing this foundation.

Conclusions and Future Directions

Despite our current efforts, more research is needed to understand the effects of developmental tailoring, intervention timing, and duration on empathy promotion and related outcomes. Amongst many others, the following important questions remain unanswered: How do we move to even better developmentally tailored intervention approaches to empathy-related responding? Do the effects of intervention timing depend on the components of empathy-related responding being addressed (e.g., affective versus cognitive)? Do cognitive components of empathy require more sustained intervention efforts than affective components? In addition to understanding the normative development of empathy, the answers to these questions will likely require understanding the causes and antecedents that affect developmental trajectories of empathy-related responding. While the former is well understood, more research is needed to identify the causes of empathy across development. In addition, research is needed to identify if program effectiveness differs for types of empathy-related constructs targeted. This information can eventually be used to determine key time periods when empathic capacity is most susceptible to change and intervention is most crucial to ensure the development of empathy-related responding.

In the present study, we reviewed intervention effects on three important, broad outcomes. Future research and evaluations should also identify the specific social-emotional competencies (e.g., perspective taking, emotional understanding), conduct problems (e.g., aggressive behavior, bullying), and/or academic capacities (e.g., academic motivation, mathematic ability) that are more or less affected by empathy interventions and the

developmental periods in which these effects are most likely to occur. Furthermore, future work that measures the subcomponents of empathy-related responding, including their single and combined effects on various outcomes, would be useful to determine which components are more or less effective across development (see van Noorden, Haselager, Cillessen, & Bukowski, 2014). Nonetheless, the current results suggest that all major components of empathy-related responding should be addressed whenever possible.

In summary, existing school-based interventions that aim to promote empathy-related responding in children and adolescents have acknowledged the need to developmentally tailor their intervention efforts, as reflected in their age-/grade-dependent curricula. Nonetheless, future research and practice is needed to promote practitioners' understanding of normative, empathic development, increase the routine use of developmental screenings and highly differentiated socioemotional assessment tools, and systematically integrate developmental knowledge and assessment into the eventual selection/utilization of developmentally appropriate strategies. In addition to age-related differences, these strategies should address differences in developmental level. Collectively, these steps will contribute to a better understanding of when and how to promote empathy-related responding in children and adolescents of varying empathic capacity, and, ultimately, our success in doing so.

References

Aber, J. L., Jones, S. M., Brown, J. L., Chaudry, N., & Samples, F. (1998). Resolving conflict creatively: Evaluating the developmental effects of a school-based violence prevention program in neighborhood and classroom context. *Developmental Psychopathology, 10*(2), 187-213.

Bandy, T., & Moore, K. A. (2011). What works for promoting and enhancing positive social skills: Lessons from experimental evaluations of programs and interventions. *Child Trends Fact Sheet*, 2011-07.

Batson, C.D. (2011). *Altruism in humans*. New York: Oxford University Press.

Björkqvist, K., Österman, K., & Kaukiainen, A. (2000). Social intelligence - empathy = aggression? *Aggression and Violent Behavior, 5*, 191-200. doi: 10.1016/S1359-1789(98)00029-9

Borenstein, M., Hedges, L., Higgins, J., & Rothstein, H. (2004). *Comprehensive meta-analysis Version 2: A computer program for research synthesis* [Computer software]. Englewood, NJ: Biostat.

Brown, E. C., Low, S., Smith, B. H., & Haggerty, K. P. (2011). Outcomes from a school-randomized controlled trial of Steps to Respect: A School Bullying Prevention Program. *School Psychology Review, 40*(3), 423-443.

Bumbarger, B.K., & Perkins, D.F. (2008). After randomised trials: Issues related to dissemination of evidence-based interventions. *Journal of Children's Services, 3*(2), 55-64. doi:10.1108/17466660200800012

Caprara, G.V., Steca, P., Zelli, A., & Capanna, C. (2005). A new scale for measuring adults' prosocialness. *European Journal of Psychological Assessment, 2,* 77–89. doi:10.1027/1015-5759.21.2.77

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Collaborative for Academic, Social, and Emotional Learning (CASEL) (2003). *Safe and sound: An educational leader's guide to evidence based social and emotional learning (SEL) programs*. Chicago, IL: Author.

Collaborative for Academic, Social, and Emotional Learning (CASEL) (2012). *CASEL guide: Effective social and emotional learning programs*. Chicago, IL: Author.

Davidov, M., Zahn-Waxler, C., Roth-Hanania, R., & Knafo, A. (2013). Concern for others in the first year of life: Theory, evidence, and avenues for research. *Child Development Perspectives, 7,* 126-131. doi: 10.1111/cdep.12028

Decety, J., Michalska, K.J., Akitsuki, Y., & Lahey, B.B. (2009). Atypical empathic responses in adolescents with aggressive conduct disorder: A functional MRI investigation. *Biological Psychology,* 80, 203-211. doi: 10.1016/j.biopsycho.2008.09.004

Durlak, J.A., Fuhrman, T., & Lampman, C. (1991). Effectiveness of cognitive-behavior therapy for maladapting children: A meta-analysis. *Psychological Bulletin, 110*(2), 204-214. doi: 10.1037/0033-2909.110.2.204

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). Enhancing students' social and emotional development promotes success in school: Results of a meta-analysis. *Child Development, 82,* 474–450. doi: 10.1111/j.1467-8624.2010.01564.x

Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annual Review of Psychology, 51,* 665-697. doi: 10.1146/annurev.psych.51.1.665

Eisenberg, N., & Eggum, N. D. (2009). Empathic responding: Sympathy and personal distress. In J. Decety & W. Ickes (Eds.), *The social neuroscience of empathy* (pp. 71-83). Cambridge, MA: MIT Press. doi:10.7551/mitpress/9780262012973.003.0007

Eisenberg, N., Eggum, N.D., & Di Giunta, L. (2010a). Empathy-related responding: Associations with prosocial behavior, aggression, and intergroup relations. *Social Issues and Policy Review, 4*(1), 143-180. doi: 10.1111/j.1751-2409.2010.01020.x

Eisenberg, N., Spinrad, T. L., & Eggum, N. D. (2010b). Emotion-related self-regulation and its relation to children's maladjustment. *Annual Review of Clinical Psychology, 6,* 495-525. doi:10.1146/annurev.clinpsy.121208.131208

Eisenberg, N., Spinrad, T., & Knafo, A. (in press). Prosocial development. In M. E. Lamb (Vol. Ed.) & R.M. Lerner (Series Ed.), *Handbook of child psychology and developmental science, Vol. 3: Social, emotional and personality development* (7th edition). New York: Wiley.

Eisenberg, N., Spinrad, T. L., & Morris, A. (2014). Empathy-related responding in children. In M. Killen & J. Smetana (Eds.), *Handbook of moral development* (2nd Ed.) (pp. 184-207). New York: Psychology Press.

Feshbach, N., Feshbach, S., Fauvre, M., Ballard-Campbell, M. (1983). *Learning to care: Classroom activities for social and affective development*. Glenview, Illinois: Scott, Foresman and Company.

Greenberg, M., Weissberg, R., O'Brien, M., Zins, J., Fredericks, L., Resnik, H., & Elias, M. (2003). Enhancing school-based prevention and youth development through coordinated

social, emotional and academic learning. *American Psychologist, 58*, 466–474. . doi: 10.1037/0003-066X.58.6-7.466

Hall, B. W., & Bacon, T. P. (2005). Building a foundation against violence: Impact of a school-based prevention program on elementary students. *Journal of School Violence, 4*(4), 63-83.

Hay, D. F. (2009). The roots and branches of human altruism. *British Journal of Psychology, 100*(3), 473-479. doi: 10.1348/000712609X442096

Hoffman, M. L. (2000). *Empathy and moral development: Implications for caring and justice*. New York, NY: Cambridge University Press.

Holmbeck, G.N., O'Mahar, K., Abad, M., Colder, C., & Updegrove, A. (2006). Cognitive-behavioral therapy with adolescents: Guides from developmental psychology. In P.C. Kendall (Ed.), *Child and adolescent therapy: Cognitive-behavioral procedures* (3rd ed., pp. 419-464). New York: Guilford Press.

Kochanska, G., De Vet, K., Goldman, M., Murray, K., & Putnam, S. (1994). Maternal reports and conscience development and temperament in young children. *Child Development, 65*, 852–868.

Kress, J. S., & Elias, M. J. (2006). Building learning communities through social and emotional learning: Navigating the rough seas of implementation. *Professional School Counseling, 10*(1), 102-107.

Landry, S. H., Smith, K. E., Swank, P. R., & Guttentag, C. (2008). A responsive parenting intervention: The optimal timing across early childhood for impacting maternal behaviors and child outcomes. *Developmental Psychology, 44*(5), 1335–1353. doi: 10.1037/a0013030

Lemerise, E. A., & Arsenio, W. F. (2000). An integrated model of emotion processes and cognition in social information processing. *Child Development, 71*, 107–118. doi: 10.1111/1467-8624.00124

Malti, T. (2014, under review). *Toward an integrated clinical-developmental model of guilt.*

Malti, T., Dys, S.P., & Zuffianò, A., (in press). The moral foundations of prosocial behaviour. In R.E. Tremblay, M. Boivin, & R. D. Peters (Eds.), *Encyclopedia on early childhood development* [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development.

Malti, T., Eisenberg, N., Kim, H., & Buchmann, M. (2013). Developmental trajectories of sympathy, moral emotion attributions, and moral reasoning: The role of parental support. *Social Development, 22*(4). 773-793. doi: 10.1111/sode.12031

Malti, T., Gummerum, M., Keller, M., & Buchmann, M. (2009). Children's moral motivation, sympathy, and prosocial behavior. *Child Development, 80*, 442-460. doi: 10.1111/j.1467-8624.2009.01271.x

Malti, T., & Krettenauer, T. (2013). The relation of moral emotion attributions to prosocial and antisocial behavior: A meta-analysis. *Child Development, 84*(2), 397-412.

Malti, T., & Noam, G.G. (Eds.) (2008). Where youth development meets mental health and education: The RALLY approach. *New Directions for Youth Development, No. 120.*

Malti, T., & Noam, G.G. (2009). A developmental approach to the prevention of adolescents' aggressive behavior and the promotion of resilience. *European Journal of Developmental Science 3,* 235-246.

Malti, T., & Noam, G.G. (in press). Socioemotional functioning: From developmental theory into practice. *European Journal of Developmental Psychology.*

Malti, T., & Ongley, S. (2014). The development of moral emotions and moral reasoning. In M. Killen & J. Smetana (Eds.), *Handbook of moral development* (2nd Ed.) (pp. 163-183). New York: Psychology Press.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56(3),* 227-238. doi: 10.1037/0003-066X.56.3.227

Noam, G. G., & Hermann, C. A. (2002). Where education and mental health meet: Developmental prevention and early intervention in schools. *Development and Psychopathology, 14*(4), 861-875. doi: 10.1017.S0954579402004108

Noam, G.G., Malti, T., & Guhn, M. (2012). From clinical-developmental theory to assessment: The Holistic Student Assessment Tool. *International Journal of Conflict and Violence, 6*(2), 201-213. doi: 10.1017/S0954579402004108

Ollendick, T.H., Grills, A.E., & King, N.J. (2001). Applying developmental theory to the assessment and treatment of childhood disorders: Does it make a difference? *Clinical Psychology and Psychotherapy, 8*, 304-314. doi: 10.1002/cpp.311

Pickens, J. (2009). Socio-emotional programme promotes positive behaviour in preschoolers. *Child Care in Practice, 15*(4), 261-278. doi:10.1080/13575270903149323.

Ramey, C. T., & Ramey, S. L. (1998). Early intervention and early experience. *American Psychologist* 53, 109-120. doi: 10.1037//0003-066X.53.2.109

Roth-Hanania, R., Davidov, M., & Zahn-Waxler, C. (2011). Empathy development from 8 to 16 months: Early signs of concern for others. *Infant Behavior & Development, 34*(3), 447-458. doi: 10.1016/j.infbeh.2011.04.007

Shirk, S. (1999). Developmental therapy. In W.K. Silverman, & T.H. Ollendick (Eds.), *Developmental issues in the clinical treatment of children* (pp. 60-73). Needham Heights, MA: Allyn & Bacon.

Spritz, B. L., & Sandberg, E.H. (2010). The case for children's cognitive development: A clinical-developmental perspective. In E.H. Sandberg & B.L. Spritz (Eds.), *A clinician's guide to normal cognitive development in childhood* (pp. 3-19). New York: Routledge/Taylor & Francis.

van Noorden, T. H. J., Haselager, G. J. T., Cillessen, A. H. N., & Bukowski, W. M. (2014). Empathy and involvement in bullying in children and adolescents: A systematic review. *Journal of Adolescence*. Advance online publication.

Vadeboncoeur, J. A., & Collie, R. J. (2013). Locating social and emotional learning in schooled environments: A Vygotskian perspective on learning as unified. *Mind, Culture, and Activity*, *20*(3), 201-225. doi: 10.1080/10749039.2012.755205

Vaish, A., Carpenter, M., & Tomasello, M. (2009). Sympathy through affective perspective taking and its relation to prosocial behavior in toddlers. *Developmental Psychology, 45*(2), 534-543. doi: 10.1037/a0014322

Vaughn, S. R., & Ridley, C. A. (1984). Interpersonal problem-solving skills training with aggressive young children. *Journal of Applied Developmental Psychology, 5,* 213-223.

Ventura County Office of Education RTI^2 Task Force (2007). Ventura County RTI Model: Pyramid of Instruction and Intervention. Retrieved from http://www.vcoe.org/

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Weir, K., & Duveen, G. (1981). Further development and validation of the Prosocial Behavior Questionnaire for use by teachers. *Journal of Child Psychology and Psychiatry, 22*, 357– 374.

Weisz, J.R., & Weersing, V.R. (1999). Developmental outcome research. In W.K. Silverman, & T.H. Ollendick (Eds.) *Developmental issues in the clinical treatment of children* (pp. 457-469). Needham Heights, MA: Allyn & Bacon.

Table 1

Summary of Selected Evidence-Based Programs, Age-Range/Grades Targeted, and Empathy -Related Constructs Promoted

Program	Early Childhood	Middle Childhood	Early Adolescence	Empathy-Related Construct(s)
1. 4Rs Program	•	•	•	EU, PT, PB
2. Caring School Community	•	•		E, PB
3. I Can Problem Solve	•	•		EU, PT, PB
4. Incredible Years School Dinosaur Program	•	•		EU, E, PT
5. Michigan Model for Health	•	•	•	EU, E, PB
6. Mind Up	•	•	•	EU, PT, PB
7. Open Circle	•	•		EU, PT, PB
8. PATHS	•	•		E, PT, PB
9. Peace Works: Peacemaking Skills For Little Kids	•	•		E, EU, PB
10. Raising Healthy Children	•	•		PB
11. Resolving Conflict Creatively Program	•	•	•	E, EU, PB
12. RULER	•	•	•	E, EU, PT
13. Second Step	•	•	•	E, EU, PT
14. Steps to Respect		•		EU
15. Too Good for Violence	•	•	•	EU, PB
16. PeaceBuilders	•	•		PB
17. Anger Coping Program		•	•	EU, PT
18. Interpersonal Skills Program	•			E, EU, PT, PB
19. Big Brothers/Big Sisters		•	•	PB

Note. Early childhood: Pre-K-1st grade. Middle childhood: 2nd-6th grade. Early adolescence: 7th to 9th grade.
E = Empathy. EU = Emotion understanding. PT = Perspective taking. PB = Prosocial behavior.

Table 2

Summary of Grades Targeted by Each Program and Evaluation Study Design

Program Name	Grades Targeted	Evaluations	Study Design
1. 4Rs Program	3-4	Jones, Brown Hoglund, & Aber (2010)*	RCT
	3	Jones, Brown, & Aber (2011)*	RCT
2. Caring School Community	K-4	Solomon, Watson, Delucci, Schaps & Battistich (1988)	RCT
	3-6	Solomon, Battistich, Watson, Schaps & Lewis (2000)	RCT
	3-6	Battistich (2003)	QE
	3-6	Battistich, Schaps, Watson & Solomon (1996)	QE
	6-8	Battistich, Schaps, & Wilson (2004)	QE
	3-5	Muñoz & Vanderhaar (2006)*	QE
3. I can Problem Solve	1	Kumpfer, Alvarado, Tait, & Turner (2002)*	RCT
	K	Boyle & Hasset-Walker (2008)*	RCT
	PreK-K	Shure & Spivack (1980)	QE
4. Incredible Years School Dinosaur program	K-1	Webster-Stratton, Reid, & Stoolmiller (2008)	RCT
	PreK-K	Webster-Stratton, Reid, & Hammond (2001)	RCT
5. Michigan Model for Health	4-5	O'neill, Clark, & Jones (2011)*	RCT
6. Mind Up	4-7	Schonert-Reichl & Lawlor (2010)*	QE
7. Open Circle	4	Hennesey (2007)*	QE
8. PATHS	1-6	Greenberg & Kusché 1998	QE
	K-1	Conduct Problems Prevention Research Group (1999a)	RCT
	K-1	Conduct Problems Prevention Research Group (1999b)	RCT
	1-3	Conduct Problems Prevention Research Group (2010)	RCT
9. Peace Works	PreK	Pickens (2009)*	RCT
10. Raising Healthy Children	1-2	Catalano, Mazza, Harachi, Abbot, Haggerty, & Fleming (2003)	RCT

11. Resolving Conflict Creatively Program	2-6	Aber, Jones, Brown, Chaudry, & Samples (1998)*	QE
12. RULER	5-6	Brackett, Rivers, Reyes, & Salovey (2012)	QE
13. Second Step	2-5	Frey, Bobbit, Van Schoiack Edstrom, & Hirschstein (2005)	RCT
	5-6	Holsen, Smith, & Frey (2008)	QE
	2-5	Schick & Cierpka (2005)*	RCT
14. Steps to Respect	3-6	Brown, Low, Smith, & Haggerty (2011)*	RCT
	3-6	Frey, Hischstein, Snell, Van Schoiack Edstrom, MacKenzie, & Broderick (2005)	RCT
15. Too Good for Violence	3	Hall & Bacon (2005)*	RCT
16. PeaceBuilders	K-5	Flannery et al., (2003)*	RCT
17. Anger Coping Program	4-6	Lochman (1992)	QE
18. Interpersonal Skills Program	PreK-K	Vaughn & Ridley (1984)	RCT
	PreK	Ridley & Vaughn (1983)	RCT
	PreK	Ridley & Vaughn (1982)	RCT
19. Big Brothers/Big Sisters	4-9	Herrera, Grossman, Kauh, & McMaken (2011)*	RCT

Note. RCT = Randomized Control Trial. QE = Quasi-Experimental.

*Programs evaluated by independent researcher.

Table 3
Summary of Meta-Analytic Results on Effects of Moderators for Outcomes

	Outcomes					
	Social-Emotional Competencies		Conduct Problems		Academic Functioning	
Cohen's *d (95% CI)*	0.27 (0.20-0.34)		0.17 (0.13-0.22)		0.16 (0.10-0.20)	
Heterogeneity *Q*(df)	205.44 (29)***		54.03(22)***		17.38(8)*	
Moderators	*d*	*Q*	*d*	*Q*	*d*	*Q*
Developmental differentiation across grades						
No/minimal	0.40***		0.20**		[a]	
Yes	0.27***	1.43	0.18***	0.20	[a]	
Number of empathy-related construct						
1-2	0.24***		0.12***		0.10**	
3-4	0.30***	0.59	0.21***	5.11*	0.33***	14.25***
Explicit inclusion of empathic concern						
No	0.22***		0.17***		[a]	
Yes	0.31***	1.64	0.19***	0.10	[a]	
Level of intervention						
Universal	0.27***		0.19***		0.13**	
Targeted/both	0.36***	0.98	0.17***	0.27	0.32***	5.92*
Timing of intervention					[a]	
Prek-K-1st grade	0.30***		0.19***		[a]	
2-4th grade	0.10*	10.32**	0.14**	0.97		
Study design						
QE	0.33***		0.29***		0.21**	
RCT	0.27***	0.69	0.15***	3.81	0.16***	0.19

Note. Cohen's *d* is reported for random-effects models. [a] Not included in subgroup analyses due to insufficient *n (<2).*
* p < .05. ** p < .01. *** p < .001.