A Brief Intervention to Motivate Empathy among Middle School Students

Erika Weisz[a], Patricia Chen[b], Desmond C. Ong[c,d], Ryan W. Carlson[e], Marissa D. Clark[f], & Jamil Zaki[g]

[a]Department of Psychology, Harvard University
[b]Department of Psychology, National University of Singapore
[c]Department of Information Systems and Analytics, National University of Singapore
[d]Institute of High Performance Computing, Agency for Science, Technology and Research (A*STAR), Singapore
[e]Department of Psychology, Yale University
[f]Department of Psychological and Brain Sciences, Dartmouth College
[g]Department of Psychology, Stanford University

IN PRESS at *Journal of Experimental Psychology: General*

Corresponding Author:
Erika Weisz
Department of Psychology
Harvard University
33 Kirkland Street
Cambridge, MA
02138

Classification: Social Sciences, Psychological and Cognitive Sciences
Key Words: empathy, early adolescence, intervention

Abstract

Empathy tracks socioemotional adjustment during early adolescence, yet adolescents this age tend to show reductions in empathy compared to younger children. Here we took a novel approach to building empathy among early adolescents in four middle schools (n = 857). Rather than addressing the *ability* to empathize, we targeted the *motivation* to empathize. To do so, we leveraged strategies demonstrated to change motivation among early adolescents: social norms and mindsets. Compared to those in other conditions, students who received a norms-based intervention reported greater motivation to empathize with others, which was in turn associated with increased peer-reported prosocial behaviors, as well as lower levels of loneliness and aggression. The effects of this norms condition were strongest at schools with relatively high engagement with the intervention. Findings suggest a novel avenue for increasing empathy among early adolescents—focusing on peer-driven motivation—and underscore the importance of context in shaping intervention outcomes.

Introduction

Empathy is a fundamental part of human social life. It is a multi-componential phenomenon which involves considering others' thoughts, sharing in their feelings, and caring for their welfare (Weisz & Cikara, 2020). It predicts critical outcomes such as individual wellbeing (Depow et al., 2020) and helping behavior (Batson et al., 1988). Nurturing empathy is a goal shared across many organizations and cultures (Teding van Berkhout & Malouff, 2016).

For decades, people have devised various ways to train skills related to empathy such as emotion recognition and perspective taking, especially in adolescence (Williford et al., 2016)—to varying degrees of success (DuBois et al., 1992; Durlak et al., 2011; Eisenberg & Okun, 1996; Gini et al., 2007). Here, we propose and test a different intervention approach that focuses on *motivating* empathy among adolescents, instead of simply teaching them *how to* empathize.

A crucial time to develop empathy is in early adolescence, when people especially need empathy. Although some studies find that empathy is relatively stable over childhood and into the teen years (Dadds et al., 2008), other research examining naturally occurring trends in empathy during the transition from elementary to middle school notes a decline over time (Williford et al., 2016). Age-related declines in empathy have been linked to pubertal changes (Van der Graaff et al., 2014), as well as shifting social landscapes accompanying this developmental period. Adolescents often experience social difficulties (e.g., loneliness; Qualter et al., 2013) and encounter new, more sophisticated forms of anti-social behavior at school (e.g., relational aggression; Crick et al., 1999). They are also more susceptible to peer influence and concerned with social evaluation than ever before (Steinberg & Monahan, 2007).

Interventions that improve socioemotional skills, such as empathy, tend to be less efficacious in early adolescence—especially when they involve direct appeals from authority figures, such as adults (Yeager et al., 2017). How can empathy, and in turn its accompanying social benefits (e.g., prosocial behavior, less loneliness, reduced aggression), be bolstered during this key developmental stage?

One promising strategy involves taking a different approach to increasing empathy. The majority of existing socioemotional learning (SEL) efforts to build empathy—including role play activities, class discussions, and exposure to art (Feshbach & Feshbach, 2009)—employ a *skills-training* approach. These interventions focus on teaching adolescents how to take others' perspectives, recognize others' emotions, and respond to others appropriately—in other words, they target people's *ability* to empathize (Davis & Begovic, 2014).

However, a different, relatively new perspective in psychology is that most people (including early adolescents) are already very much able to empathize—often, they are simply not *motivated* enough to do so (Weisz & Zaki, 2017). Empathy, after all, is more than just the ability to connect with others—it also requires the desire to do so (Keysers & Gazzola, 2014; Zaki, 2014). In this vein, we propose that an effective strategy to increase empathy in adolescents might be to address their *motivation* to empathize, which could in turn affect key socioemotional outcomes related to empathy such as prosocial behavior, loneliness, and aggression.

How might we motivate empathy in adolescents? Two motivational processes are particularly relevant to this age group. The first is *social norms*, the accepted behaviors to which individuals are expected to conform in a particular group or community (Lewin, 1943). Social norms—conveyed by what one's peers value and do—are expected to be a particularly motivating intervention strategy for early

adolescents, given their susceptibility to social influence (Steinberg & Monahan, 2007). Norm interventions have previously been effective at improving a range of socioemotional outcomes, including empathy and prosocial behavior (Nook et al., 2016). Moreover, norms interventions afford participants the opportunity to learn from their peers instead of authority figures (e.g., teachers, parents), thereby circumventing reactance to direct appeals from authority figures.

A second motivational process is *mindsets*, an individual's beliefs about the fixed or malleable nature of traits and abilities. Mindset interventions work by replacing the belief that an attribute (in this case, empathy) is a fixed ability with the belief that it can be developed over time through practice. Previous research demonstrates that individuals with growth mindsets of empathy (who think empathy is malleable) try harder to empathize than those with fixed mindsets of empathy (who think that empathy is relatively stable; see Schumann et al., 2014). Mindset interventions have been used to improve academic and social outcomes among adolescents (Blackwell et al., 2007; Yeager et al., 2013), and recent findings suggest that addressing empathy mindsets through brief intervention might increase motivation to empathize in adult populations (Weisz et al., 2020).

In the present experiment, we developed and compared the effectiveness of two novel, motivation-based empathy interventions (one leveraging social norms, one changing mindsets) for seventh-grade students. We also aimed to address two key limitations in existing empathy interventions for people this age. First, many intervention strategies that are successful with young children or adults may not work with early adolescents (Yeager et al., 2017). As such, we specifically tailored our interventions to be age-appropriate to the motivations of seventh-grader students. Second, many school-based interventions are time- and resource-intensive, often

spanning months or even years (Espelage et al., 2015). Our interventions were crafted as brief, computer-based exercises, which are convenient to deliver at scale.

We expected that both the norms and mindset interventions would increase adolescents' motivation to empathize, which would in turn be associated with downstream outcomes of empathy such as observed prosocial behavior, loneliness, and aggression. We did not have a priori predictions about how these two intervention methods might compare in terms of effectiveness, because no prior research has compared their effects in early adolescence. Hence, we compared both interventions to one another and a neutral control to determine the extent that each intervention increased motivation to empathize. These comparisons would establish which kinds of interventions may be better suited to motivate empathy among early adolescents.

In addition, we went beyond the typical single-school context in which many socioemotional interventions are tested to explore our intervention efficacy across multiple different schools. Characteristics of school environment, such as average socioeconomic status, drive both experiences of empathy (Jolliffe & Farrington, 2006, 2011) and SEL intervention outcomes (Bierman et al., 2010). Furthermore, questions surrounding the effect of context on intervention efficacy are at the forefront of intervention science today (Walton & Wilson, 2018; Yeager & Walton, 2011). Psychological interventionists highlight the necessity of comparing intervention effects across contexts systematically (Yeager et al., 2019), yet testing novel interventions across multiple contexts that differ in relevant contextual factors is undoubtedly challenging. As such, many SEL interventions only examine outcomes in a single-school context. The present work contributes to empathy intervention science more broadly by comparing the efficacy of these interventions through randomized, controlled experiments across learning environments. This provides

insight into when and for whom different empathy-building strategies are likely to be effective.

Participants were 857 seventh grade students across 4 California middle schools. Schools differed considerably on various climate indicators (refer to ***Supplemental Materials,*** **Table 1**). Participants were randomly assigned to one of the two empathy intervention conditions (norms or mindset), or to a control condition. Each condition was comprised of three computer-based sessions lasting approximately fifty minutes, administered during three class periods across a span of roughly two weeks.

In the norms intervention, students viewed instructional videos and completed reflective writing exercises intended to foster the belief that empathy was socially normative. They were also exposed to pro-empathy messages written by their peers. These elements of the norms intervention were intended to create a synergy between the *injunctive norm* (i.e., perceptions of what behaviors are typically approved or disapproved) and the *descriptive norm* (i.e., perceptions of which behaviors are actually performed) conveyed in the intervention. As a great deal of research has shown, normative messages are most persuasive when injunctive and descriptive norms align (Cialdini, 2003).

In the mindset intervention, participants viewed similarly structured instructional videos emphasizing the message that empathy is malleable and can grow with practice. They also completed reflective writing exercises to help connect this sentiment to their own experiences.

In the control intervention, participants watched instructional videos and completed reflective writing exercises similar to those in the mindset condition, except that they learned that intelligence (rather than empathy) is malleable and can

be changed; see *Materials and Methods*). This control condition was modeled after previous intelligence mindset interventions (Blackwell et al., 2007; Paunesku et al., 2015) and was selected for three reasons: first, a growth mindset of intelligence intervention could easily be adapted to bear structural resemblance to the two experimental conditions. Second, this control provided a conservative test of our intervention effects, given that previous research has documented socioemotional benefits of growth-mindset interventions (Dweck, 2012; Frondozo et al., 2020). Third and most importantly, previous research demonstrates that seventh grade students benefit from intelligence mindset interventions (Blackwell et al., 2007). As such, participants stood to benefit from their involvement with the project irrespective of their condition assignment.

At the end of the intervention, we assessed participants' self-reported motivation to empathize. Approximately four weeks later, participants completed a computer-based follow up assessment that assessed their beliefs about empathy's normativity and malleability. We also assessed downstream experiences and behaviors related to empathy, including the following variables: (a) the key outcome measure of peer-reported observed prosocial behavior, in which students nominated peers who engaged in helping and inclusive behavior (Crick & Grotpeter, 1995); (b) self-reported loneliness, given that empathy positively predicts social network size and centrality (Kardos et al., 2017; Morelli et al., 2017), and (c) maladaptive aggressive behaviors (including both relational and physical forms of aggression,(Crick, 1996; Eisenberg, 2000; Eisenberg et al., 2010; Gini et al., 2007). We examined differences on these outcome measures across the intervention groups, comparing each intervention condition to the control condition.

Materials and Methods

Participants. Participants were 857 students in four Bay Area middle schools (n = 131, 202, 290, and 234 at Schools 1 – 4, respectively; refer to ***Supplemental Materials,*** **Table 1** for how these schools differed on various climate indicators). Out of our sample, 339 identified as male, 386 as female, 13 as other, and 119 did not report their gender. Participants' average age was 12.11 years (SD = 0.34). There were 7 participants identified as American Indian, 22 as Black or African American, 40 as East Asian, 205 as Hispanic or Latino/a, 14 as Middle Eastern, 172 as more than one race, 73 as Other, 15 as Pacific Islander, 33 as South Asian, 152 as White or Caucasian, and 124 did not report race (see ***Supplemental Materials*** for school-specific demographic information). All seventh graders were eligible and invited to participate in the intervention. Parents provided consent via an opt-out procedure, and participants provided assent for the research in a protocol approved by the Stanford University Institutional Review Board. Very few parents opted their children out of the study (i.e., 0 – 5 students per school). Participants were reminded that their involvement was completely voluntary, that they could skip any questions they did not want to answer, and that they could stop at any time without consequence.

Interventions

Conditions. This experiment had three intervention conditions: a social norms condition, a malleable mindset condition, and a control condition, designed to ensure structural similarity. Each condition featured a core message presented across three intervention sessions held during normal class periods (approximately forty to fifty minutes each). Interventions were administered over three sessions during a two-week period, with sessions spaced out at least one day apart. Modules were computer-based, allowing randomization at the level of the individual. At the end of each session, we assessed self-reported engagement as well as perceived peer engagement,

given that previous intervention studies find that engagement with the content of an intervention is critical in shaping outcomes. Please see ***Supplemental Materials*** for a detailed description of each intervention with accompanying materials.

Norms intervention. In the norms intervention, students viewed instructional videos and completed reflective writing exercises intended to foster the belief that empathy was socially normative.

In the first session, meant to serve as an introduction, participants watched animated videos about what empathy is and positive outcomes of empathy. Specifically, participants learned that empathy involves sharing and understanding others' thoughts and feelings. For example, the transcript of the video included the following excerpt: "*So what does it mean to be empathic? Well, as we've already discussed, it means things like feeling upset when somebody that we are close with or somebody we encounter is upset. But it also means feeling good when somebody we interact with is feeling good. Or even feeling excited or joyful when something good happens to someone else.*" As the video continued, they learned how empathy different from sympathy. Finally, they were also shown how empathy often impels people to help others (for a detailed description of all animated videos and writing prompts used in the intervention, please see ***Supplemental Materials***).

These facts provided the definition of and basic background information about empathy that were necessary for us to build upon in the intervention.

The second session was designed to make normative information salient, combining both *injunctive norms*—i.e., perceptions of what behaviors are typically approved or disapproved—and *descriptive norms*—perceptions of which behaviors are actually performed. Participants watched a video describing how seventh graders want to be empathic themselves and like it when their peers are empathic. They read

several pro-empathy paragraphs written by their peers (selected from the responses to the writing exercise from the first intervention session) describing why they valued empathy. Participants were then asked—based on their peers' writing—to describe about how people in their grade felt about empathy. Finally, they were instructed to pay attention to their feelings of empathy and instances at school where classmates showed empathy. These elements of the norms intervention were intended to create a synergy between the injunctive norm and the descriptive norm conveyed in the intervention. As a great deal of research has shown, normative messages are most persuasive when injunctive and descriptive norms align (Cialdini, 2003).

The third session was designed to consolidate the intervention message. Participants first wrote about instances where they observed empathy at school. Next, they were presented with their peers' responses to the writing prompt from the second intervention session (describing how students in their grade valued and practiced empathy). Based on their peers' writing, participants were asked to compose a paragraph summarizing how people at their school felt about empathy.

Mindset intervention. In the mindset intervention, participants learned via similarly structured videos that empathy is malleable and can grow with practice. They also completed reflective writing exercises to help connect this sentiment to their own experiences. This intervention was modeled after previous growth mindset interventions (Blackwell et al., 2007; Paunesku et al., 2015), but specifically addressed beliefs about the malleability of empathy (Schumann et al., 2014).

The first session of the mindset intervention was identical to that of the norms intervention, where participants learned about what empathy is and positive outcomes of empathy. The idea that empathy is malleable and can be increased was introduced during the second session. In the second session, where we made salient the malleable

nature of empathy, participants watched a video describing that empathy can grow with effort, and that practicing empathy makes brain regions that support empathy grow stronger. They were asked to describe a time they were able to overcome difficulty empathizing with someone. At the end of the session, participants were encouraged to try to increase their empathy at a time when it felt challenging.

In the third session, participants in the malleable mindset condition were asked to write about their experience trying to increase empathy. At the end of the session, they were asked to list three "empathic challenges" they were facing or could anticipate facing during seventh grade. They were also asked to describe how they planned to overcome these challenges.

Control intervention. In the control intervention, participants watched instructional videos and completed reflective writing exercises similar to those in the mindset condition, except that they learned that intelligence (rather than empathy) is malleable and can be changed. This control condition was modeled after previous intelligence mindset interventions (Blackwell et al., 2007, see ***Supplemental Materials*** for detailed content).

We implemented several safeguards to attenuate the likelihood of contamination across intervention conditions, such as ensuring that each session within each of the three intervention conditions was similar in structure and length and using similar activities (e.g., watching videos, writing). Although it is possible that contamination occurred between the conditions, this would ultimately make it more difficult to observe an effect in the intervention conditions as compared to the control, consequently providing a conservative test of our intervention.

Intervention Measures

Motivation to empathize. As theorized, our key measure of intervention efficacy was motivation to empathize. At the end of the third session, we assessed students' motivation to empathize using a 9-item questionnaire; see items in ***Supplemental Materials***). All items were rated on a 1 (strongly disagree) to 9 (strongly agree) scale (sample item: "I want to be an empathic person"). Before completing the questionnaire, all participants were given the following definition of empathy: Empathy is often defined as sharing, understanding, and responding to the emotional and mental states of others. We provided this definition to ensure that participants who had not learned about empathy extensively (i.e., those in the control condition) would be able to answer the questionnaire. We created a composite score from 6 items, consistent with previous work using this scale (Schumann et al., 2014). Items were coded such that higher scores indicated greater motivation to empathize.

Approximately four weeks later, participants completed a computer-based follow-up assessment. This follow-up assessed our manipulation checks of whether beliefs about empathy's normativity and malleability were changed as a function of the norms and mindset interventions, respectively. As part of a larger survey, we also assessed several key measures which are theoretically related to developing empathy in this age group: (a) peer-reported observed prosocial behavior; (b) self-reported loneliness, and (c) self-reported relational and physical aggression.

Social normativity of empathy scale. This 6-item scale assessed beliefs about the desirability of empathy and social norms surrounding empathy (e.g., "For the most part, people want to be empathic and experience empathy for others."), using a 1 (strongly disagree) to 7 (strongly agree) scale.

Malleability of empathy scale (Schumann et al., 2014)**.** This 6-item scale assessed participants' beliefs about the malleable nature of empathy (e.g., "No matter

who somebody is, they can always change how empathic a person they are"), using a 1 (strongly disagree) to 7 (strongly agree) scale.

Observed prosocial behavior (Crick & Grotpeter, 1995). Students were asked to nominate peers who were the most prosocial at school, choosing up to five people on three measures of prosocial behavior: those who do nice things for others, who include others, and who cheer each other up. This measure of prosociality allowed us to examine participants' behavioral tendencies without interference from socially desirable responding. Every nomination a participant received from a peer on each of the three categories was summed to create a composite peer-reported observed prosociality score. This composite score excluded self-nominations (i.e., if a participant nominated themselves on any of these categories). It also excluded multiple nominations for the same peer within a single measure of prosociality (i.e., if a participant nominated the same peer three times as someone who includes others, it was only counted once).

Aggression (Crick & Grotpeter, 1995). Previous work suggests that empathy is positively associated with prosocial behavior and negatively associated with aggression and bullying (Gini et al., 2007). Students were therefore asked to complete a self-report measure containing subscales measuring relational aggression (5 items; e.g., "Some kids tell lies about a classmate so that the other kids won't like the classmate anymore. How often do you do this?") and a physical aggression subscale (2 items; e.g., "Some kids push and shove other kids at school. How often do you do this?"). The response scale ranged from 1 (never) to 5 (all the time).

Loneliness (Asher et al., 1985). Adolescents often experience social difficulties such as loneliness (Qualter et al., 2013). Because empathy is positively associated with both number and depth of social ties (Kardos et al., 2017; Morelli et

al., 2017, 2018), we assessed feelings of loneliness at school using a 16-item scale measured (e.g., "I have nobody to talk to in my classes"). Students rated the items on a scale from 1 (always true) to 5 (not true at all). Items were coded such that higher scores indicated more loneliness.

Intervention engagement. To test whether engagement with the intervention moderated the intervention efficacy, we asked participants to provide ratings on two measures of engagement at the end of the third intervention session: self-engagement and peer engagement. As a measure of self-engagement, participants indicated how carefully they engaged with the intervention material by answering the question "How carefully did you read the material in this program today?" using a 1 (not at all carefully) – 5 (extremely carefully) scale. As a measure of peer engagement, participants reported the proportion of their peers who seemed engaged with the intervention by answering the question "How many students were working carefully and quietly on this program today?" on a 1 (fewer than half of the students) – 5 (all students) scale. Ratings from the three sessions were averaged into two composite scores to reflect average self- and average peer engagement. If participants did not have all three ratings, we used ratings from the sessions from which they did provide data to create the average score.

Statistical Analyses

To examine group-based differences in outcome measures and differences across schools, we conducted a series of one-way ANOVAs with condition as a between-subjects variable unless otherwise noted. For the analyses described here, we report partial eta-squared effect sizes for ANOVAs and Cohen's *d* for two-sided *t* tests (with 95% confidence intervals [CIs]) which were derived using the psych

(Revelle, 2019) and effsize (Torchiano, 2020) packages for R. Means and standard deviations are reported in ***Supplemental Materials*****, Tables 2 and 3**.

Indirect effects were modeled using the lavaan package for structural equation modeling in R (Rosseel, 2012). To examine indirect effects of the norms intervention, we fit a mediation model comparing participants assigned to the social norms condition to those in the control condition. We examined whether group assignment (social norms = 1, control = 0) affected downstream outcomes related to empathy (such as peer-reported observed prosocial behavior) via motivation to empathize.

We performed the same analyses to examine indirect effects of the mindset intervention, fitting a mediation model comparing participants assigned to the mindset condition to those in the control condition. We examined whether group assignment (malleable = 1, control = 0) affected downstream outcomes related to empathy. As mentioned previously, the indirect effects of this weaker manipulation on empathy-related outcomes were small in magnitude and did not meet statistical significance (range of $ps < .05$; ***Supplemental Materials*** for detailed analyses).

During the experiment, participants were reminded that their involvement was completely voluntary and that they could skip any questions they did not want to answer or stop at any time without consequence. For this reason, some participants only have partial data (see ***Supplemental Materials*** for detailed information on partial and missing data). We used all available data in our analyses, including data from participants who did not complete every question. However, listwise deletion was employed in instances where participants were missing data for all variables included in a specific analysis. At all schools, participants changed classes throughout the school day, hence we did not nest participants within classrooms in our analyses. Data, code for analyses, and supplemental materials are available in an Open Science

Framework repository, https://osf.io/bm6y3/?view_only=34d5b96b5316484b9cd806dfd953638d.

Results

We observed an overall effect of condition on motivation to empathize, $F(2, 849) = 9.83$, $p < .001$, $\eta^2 = .023$ (see **Figure 1**). Participants in the social norms condition (M = 40.46, SD = 8.75) reported significantly greater motivation to empathize than participants in the control condition (M = 37.22, SD = 8.68), $t(574) = 4.46$, $p < .001$, 95% CI [1.81, 4.66], $d = .37$, and participants in the malleable mindset condition (M = 38.65, SD = 8.90), $t(562) = 2.43$, $p = .015$, 95% CI [.35, 3.27], $d = .20$. Participants in the malleable mindset condition reported greater motivation to empathize than participants in the control condition, although this difference was smaller and only marginally significant, $t(562) = 1.93$, $p = .054$, 95% CI [-.02, 2.88], $d = .16$.

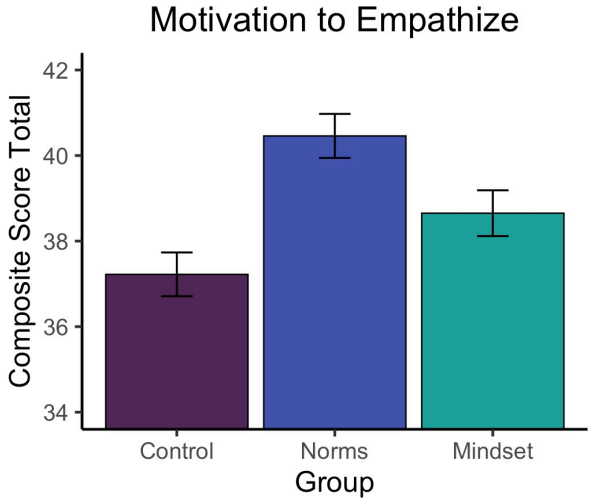

Figure 1. Participants' self-reported motivation to empathize by intervention condition. Mean scores for motivation to empathize questionnaire are presented for each of the three intervention conditions. Error bars reflect +/- 1 standard error.

Second, our manipulation checks showed that, relative to the control condition, the norms intervention was effective at increasing participants' belief that empathy was normative. However, our mindset intervention was less effective at changing participants' beliefs about the malleability of empathy.

There was an overall effect of condition on participants' perceptions of empathy-related norms, $F(2, 746) = 5.50$, $p = .004$, $\eta^2 = .015$. Participants in the social norms condition (M = 28.61, SD = 6.11) believed empathy was more normative than participants in the control condition (M = 26.98, SD = 5.39), $t(508) = 3.20$, $p = .001$, 95% CI [.63, 2.63], $d = .28$, and malleable mindset condition (M = 27.44, SD = 5.62), $t(492) = 2.20$, $p = .028$, 95% CI [.12, 2.20], $d = .20$. As expected, participants in the malleable mindset condition and control condition did not differ in their perceptions of empathy-related social norms, $t(492) = .94$, $p = .35$, 95% CI [-.51, 1.44], $d = .08$.

Although there seemed to be a relationship between condition assignment and participants' beliefs about the malleability of empathy in the predicted direction, this overall difference did not reach statistical significance, $F(2, 764) = 2.35$, $p = .096$, $\eta^2 = .006$. These findings suggested that—although the norms condition was effective at changing normative beliefs—the malleable mindset condition may not have been as effective at changing beliefs about the malleability of empathy.

Downstream effects of motivation to empathize. Given the robust relationship between empathy and prosocial behavior (Batson et al., 1988), increasing one's motivation to empathize should increase engagement in prosocial behavior. We therefore expected that participants assigned to the social norms condition, which successfully increased motivation to empathize relative to controls, would in turn show greater observable prosocial behavior. As theorized, there was an indirect effect

through participants' motivation to empathize. Students assigned to the social norms condition reported more motivation to empathize as compared to students assigned to the control condition, and were in turn more likely to be nominated by peers as having behaved prosocially., (bootstrapped indirect effect from 10,000 samples *ab* = 0.32, 95% CI [.08, .63], *se* = 0.14, *p* = .023, see **Figure 2**), (Rosseel, 2012). There was no direct effect of condition on peer-observed prosocial behavior (*b* = -0.51, *p* = .45).

There were similar indirect effects of the social norms intervention on reducing loneliness (bootstrapped indirect effect from 10,000 samples *ab* = -0.76, 95% CI [-1.37, -0.30], *se* = 0.27, *p* = .006), physical aggression (bootstrapped indirect effect from 10,000 samples *ab* = -0.13, 95% CI [-0.22, -0.07], *se* = 0.04, *p* = .001), and relational aggression (bootstrapped indirect effect from 10,000 samples *ab* = -0.13, 95% CI from [-0.28, -0.03], *se* = 0.07,*p* = .041), via motivation to empathize.

Given the weaker mindset manipulation, the indirect effects of the malleable mindset condition on observed prosocial behavior and these other empathy-related outcomes were small in magnitude and did not meet statistical significance (range of *ps* < .05; see ***Supplemental Materials*** for detailed analyses).

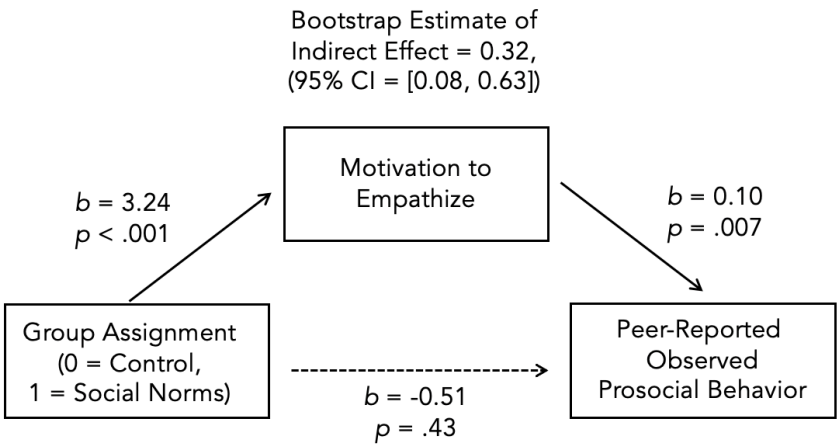

Figure 2. Estimate of indirect effect of group assignment on prosocial behavior. Assignment to the social norms condition indirectly affects peer-reported observed prosocial behavior by increasing participants' motivation to empathize. Regression coefficients were estimated using 10,000 bootstrapped samples.

Examining intervention efficacy across schools. In response to recent calls for intervention research to investigate treatment heterogeneity as a function of context (Walton & Wilson, 2018; Yeager et al., 2019) we additionally explored how characteristics of a school environment could shape both intervention efficacy and experiences of empathy. As mentioned earlier, we had planned a priori to examine student engagement, given that psychological interventions like ours rely on participants actively reading and engaging with them to understand and internalize the intervention messages (Borman et al., 2018; Walton & Wilson, 2018).

In a 3 (intervention conditions) by 4 (school) ANOVA, we found that both intervention condition ($F(2, 840) = 9.89$, $p < .001$, $\eta^2 = .023$) and school ($F(3, 840) = 2.92$, $p = .03$, $\eta^2 = .010$) predicted motivation to empathize. The interaction of intervention condition by school was not significant ($F(6, 840) = .822$, $p = .55$). As shown in **Figures 3A and 3B**, schools differed in their mean levels of participants' self-reported personal engagement with the intervention and their observations of their peers' engagement. Participants at School 1 reported significantly lower levels of personal engagement with the intervention than participants at Schools 2, 3 and 4, and participants at School 3 reported significantly higher levels of personal engagement with the intervention than the three other schools, $F(3, 850) = 18.69$, $p < .001$, $\eta^2 = .062$ (**Figure 3A**). Likewise, for peer engagement, participants at School 1 reported significantly lower levels of perceived peer engagement than participants at

Schools 2, 3, and 4, and participants at School 3 reported significantly higher levels of perceived peer engagement than those at the other three schools, $F(3, 831) = 66.58$, $p < .001$, $\eta^2 = .194$ (**Figure 3B**). There were no differences in self-reported personal engagement, $t(432.00) = -.48$, $p = .63$, 95% CI [-.19, .12], $d = -.05$ and peer engagement, $t(406.34) = .07$, $p = .94$, 95% CI [-.14, .15], $d = .01$, between School 2 and School 4. Notably, these differences appeared to track with variables such as average socioeconomic status (see ***Supplemental Materials,* Table 1**) suggesting that engagement may depend at least in part on variables related to school climate.

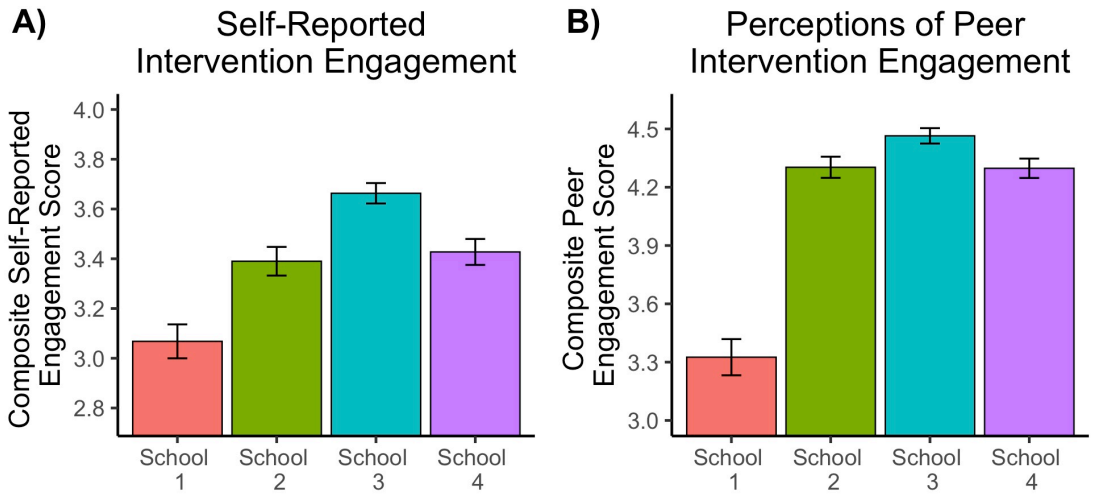

Figure 3. School-based differences in engagement. Mean scores for (A) self-reported intervention engagement, and (B) perceptions of peers' engagement are displayed on the y-axis for each of the four schools. Error bars reflect +/- 1 standard error.

To test whether overall school engagement affected intervention efficacy, we examined whether our manipulation check for the norms intervention (normativity beliefs about empathy; see **Figure 4A**), and our key outcome measure of motivation to empathize (see **Figure 4B**), differed across the four schools. Consistent with the higher mean levels of intervention engagement reported in Schools 2, 3, and 4 compared to School 1, we found that the social norms intervention significantly

increased students' belief that empathy was normative and their motivation to empathize in Schools 2, 3 and 4, but was less effective in School 1, $F(3, 745) = 17.28$, $p < .001$, and $F(3, 848) = 2.84$, $p = .037$, $\eta^2 = .010$, respectively.

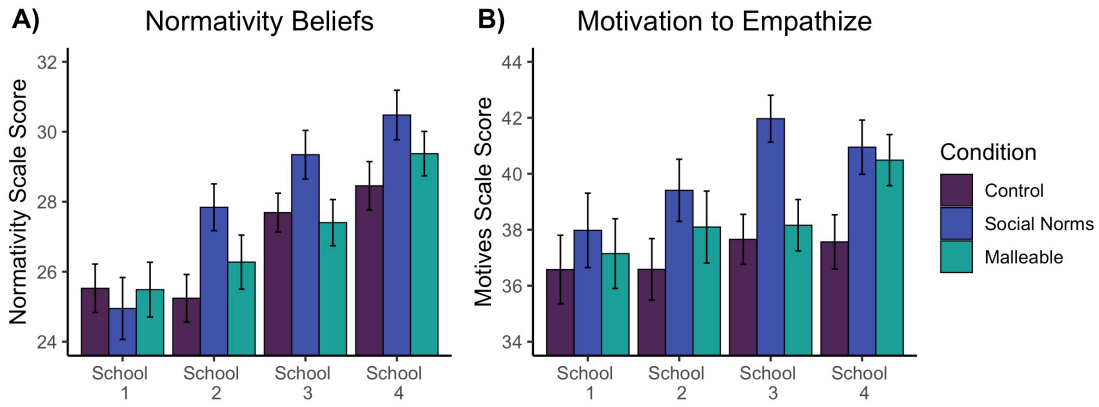

Figure 4. Beliefs about normativity of empathy and motivation to empathize by condition and school. Mean scores for (A) the beliefs about the normativity of empathy scale and (B) the empathic motives questionnaire are displayed on the y-axis for each of the four schools on the x-axis. Error bars reflect +/- 1 standard error.

Discussion

We found that a three-session, computer-based intervention addressing empathic social norms effectively increased adolescents' perceptions that empathy is normative, and strengthened their motivation to be empathic toward others. These psychological changes, in turn, had implications for downstream outcomes of importance to adolescents—including peer-reported observed prosocial behavior, feelings of loneliness, and even reported aggressive behaviors toward others. Compared to shifting beliefs about the malleability of empathy, changing perceived norms seemed more effective in motivating empathy among early adolescents.

These findings underscore the significance of a motivated framework of empathy for intervention—a relatively new approach that complements most existing programs that focus on empathy-related skills (Weisz & Zaki, 2017; Zaki, 2014).

Developing empathy is not just about practicing skills. It also relies on the *desire* to share and understand others' feelings and experiences. The present experiment offers a major theoretical departure from previous empathy training efforts in that it specifically targets empathy-related motivation, unlike most existing efforts which aim to cultivate empathy-related skills. That our norms intervention indirectly influenced downstream outcomes of empathy suggests adolescents may already know how to empathize, but in some cases lack the will to exercise it. This opens up a new avenue for developing and testing interventions to increase empathy.

Decades of intervention studies show that an intervention needs to match the motivations of its target audience to be effective (Walton & Wilson, 2018). Our work introduces a new scalable tool for motivating empathy that allows adolescents to convey normative information to one another—a strategy that seems particularly useful in contexts where direct appeals to adolescents can backfire or fall short (Yeager et al., 2017). Especially among early adolescents, intervening on perceived social norms may have been more successful than instilling the belief that empathy is malleable for a number of possible reasons. One, the social, emotional, and cognitive changes that characterize early adolescence—including susceptibility to peer influence (Steinberg & Monahan, 2007)—may make children this age especially receptive to interventions employing normative influence. Leveraging these motivations, by presenting students with pro-empathy statements written by their peers, capitalizes on such age-appropriate social sensitivity. Two, direct appeals from adults are often ineffective in changing adolescents' beliefs and behaviors (Yeager et al., 2017).

Our norms intervention employed a more indirect technique by sharing with participants their peers' views on empathy, which may be a more developmentally

appropriate intervention strategy for children this age. Although the malleable mindset intervention increased motivation to empathize, this change was only marginally significant compared to the control group. Hearing directly from peers may have made the social norms intervention particularly appealing to seventh-grade students.

Context matters for intervention efficacy (Walton & Wilson, 2018; Yeager & Walton, 2011). This is an idea that psychological interventionists have proposed, but are only beginning to test more systematically (Yeager et al., 2019)—in part because testing new interventions across multiple school contexts, while simultaneously assessing relevant contextual factors, is undoubtedly challenging. The present work contributes to empathy intervention science by suggesting—and testing—how context might impact intervention efficacy. As described, students' self-reported intervention engagement and peers' engagement tracked relative intervention efficacy across the four schools.

Beyond this, we observed that the four schools also differed considerably on variables related to school climate, including average socioeconomic status and rates of aggression, which may relate to engagement with empathy messaging. Indeed, our additional exploratory analyses indicated that participants in schools with lower rates of aggression and higher average socioeconomic status reported greater intervention engagement (see ***Supplemental Materials,*** **Tables 1 - 3)**. This pattern aligns with previous evidence demonstrating a relationship between variables related to school climate (such as average socioeconomic status), experiences of empathy (Jolliffe & Farrington, 2006, 2011) and socioemotional learning intervention outcomes (Bierman et al., 2010). As such, these findings suggest a key role of school climate in

moderating intervention efficacy via engagement, though more research is needed to evaluate this possibility.

The present experiment is a first step at testing norms and mindset-change interventions for motivating empathy in early adolescents, which future research can further build upon. For example, we chose a growth mindset of intelligence intervention as the control condition in this study, because of the well-established domain-specificity of mindset effects (Dweck et al., 1995; Schumann et al., 2014). Although it is possible that an intelligence mindset intervention could affect beliefs about empathy, it seems theoretically unlikely. We made this choice to ensure that every participant stood to benefit from their involvement with the project—a common and practical pre-requisite for testing interventions in schools. Nevertheless, this choice of control was conservative—especially as a comparison group for the malleable mindset condition. Future research could test the malleable mindset intervention against a less conservative, more neutral control condition (such as a wait-list control).

Another important step for future work is teasing out the effects of injunctive and descriptive norms in driving motivation to empathize. In the present experiment, we invoked both types of norms and set them in alignment, consistent with recommendations from previous work (Cialdini, 2003). However, other work suggests that descriptive and injunctive norms differ in the extent to which they influence behavior (Bicchieri & Xiao, 2009). As such, an exciting direction for future work is isolating the unique contributions of descriptive and injunctive norms in motivating empathy.

Experimenter demand is a problem in nearly every experiment with human subjects, but it presents a particularly fascinating challenge in the context of studies

about normative beliefs. We aimed to minimize the effects of experimenter demand wherever possible (e.g., by assessing prosocial behavior via peer reports). However, we were not able to eliminate it completely from this experiment, and it is therefore possible that self-reported variables (such as motivation to empathize) reflected perceptions of what participants thought they should think instead of what they actually thought. Though speculative, some of our data suggest that seventh graders were comfortable expressing views that did not align with the intervention. The 6-item motivation to empathize composite has 54 total points. The averages for each condition, however, do not approach this maximum score. The average for the social norms condition—the condition with the highest endorsement of motivation to empathize—was 40.5. Nevertheless, distinguishing true beliefs from socially-desirable responding in the context of norm-based interventions is a critically important avenue for future research.

Developing empathy matters at every stage of development, and especially so during early adolescence when it tends to decline (Williford et al., 2016). Our field experiment across 4 schools provides the first empirical evidence that early adolescents are receptive to motivation-based empathy interventions—especially those that align with existing social norms, which involve paying attention to and emulating one's peers. These findings underscore the power of a motivation-based approach to empathy, demonstrating that interventions that affect motivation to empathize can produce long-lasting changes in empathy and related behavior during some of the most challenging times in people's lives.

Broader Context

For the authors, memories of seventh grade range from utterly bleak to willfully forgotten. Indeed, the middle school years are awkward, uncomfortable and

painful for many. We therefore sought to improve the middle school experience by addressing "empathy gaps" that occur during this developmental period. Many researchers have tried to increase empathy among middle schoolers. Most of these efforts involve training empathy-related skills such as perspective taking. One reason this strategy may not be particularly effective, however, is because most seventh graders are perfectly able to take others' perspectives; indeed, they can even use this power to inflict harm on others.

What most existing interventions overlook is *motivation*, a critical ingredient in fostering empathy. So in the present inquiry, we designed and tested two novel interventions that specifically targeted early adolescents' motivation to empathize. Participants who received a peer-driven, norms-based intervention experienced greater motivation to empathize, compared to participants who did not. This indirectly affected participants' prosocial behavior as judged by their peers.

We see motivation-based interventions as a promising strategy for building empathy. This class of interventions may be effective among populations historically resistant to existing social and emotional teachings. We hope that researchers and practitioners continue to examine the fidelity of motivation-based empathy interventions in other contexts and among other populations. We hope that future cohorts of students find seventh grade more pleasant.

References

Asher, S. R., Wheeler, V. A., Steven, R., & Valerie, A. (1985). Children's loneliness: a comparison of rejected and neglected peer status. *Journal of Consulting and Clinical Psychology*, *53*(4), 500.

Batson, C. D., Dyck, J. L., Brandt, J. R., Batson, J. G., Powell, A. L., McMaster, M. R., & Griffitt, C. (1988). Five studies testing two new egoistic alternatives to the empathy-altruism hypothesis. *Journal of Personality and Social Psychology*, *55*(1), 52–77. https://doi.org/10.1037/0022-3514.55.1.52

Bicchieri, C., & Xiao, E. (2009). Do the right thing: But only if others do so. *Journal of Behavioral Decision Making*, *22*(2), 191–208. https://doi.org/10.1002/bdm.621

Bierman, K. L., Coie, J. D., Dodge, K. A., Greenberg, M. T., Lochman, J. E., McMahon, R. J., & Pinderhughes, E. (2010). The effects of a multiyear universal social–emotional learning program: The role of student and school characteristics. *Journal of Consulting and Clinical Psychology*, *78*(2), 156–168. https://doi.org/10.1037/a0018607

Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development*, *78*(1), 246–263. https://doi.org/10.1111/j.1467-8624.2007.00995.x

Borman, G. D., Grigg, J., Rozek, C. S., Hanselman, P., & Dewey, N. A. (2018). Self-Affirmation Effects Are Produced by School Context, Student Engagement With the Intervention, and Time: Lessons From a District-Wide Implementation. *Psychological Science*, *29*(11), 1773–1784. https://doi.org/10.1177/0956797618784016

Cialdini, R. B. (2003). Crafting normative messages to protect the environment. *Current Directions in Psychological Science*, *12*(4), 105–109. https://doi.org/10.1111/1467-8721.01242

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived

stress. *Journal of Health and Social Behavior*, *24*(4), 385–396.

Crick, N. R. (1996). *The Role of Overt Aggression , Relational Aggression , and Prosocial Behavior in the Prediction of Children ' s Future Social Adjustment 2318 Child Development*. *April 1995*, 2317–2327.

Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development*, *66*(3), 710–722. http://www.ncbi.nlm.nih.gov/pubmed/7789197

Crick, N. R., Werner, N., Casas, J., O'Brien, K., Nelson, D., Grotpeter, J., & Markon, K. (1999). Childhood aggression and gender: A new look at an old problem. *Nebraska Symposium on Motivation. Nebraska Symposium on Motivation*, *45*, 75–141.

Dadds, M. R., Hunter, K., Hawes, D. J., Frost, A. D. J., Vassallo, S., Bunn, P., Merz, S., & Masry, Y. El. (2008). A measure of cognitive and affective empathy in children using parent ratings. *Child Psychiatry and Human Development*, *39*(2), 111–122. https://doi.org/10.1007/s10578-007-0075-4

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113–126. https://doi.org/10.1037//0022-3514.44.1.113

Davis, M. H., & Begovic, E. (2014). Empathy-Related Interventions. In A. C. Parks & S. M. Schueller (Eds.), *The Wiley Blackwell Handbook of Positive Psychological Interventions* (pp. 111–134).

Depow, G. J., Francis, Z., & Inzlicht, M. (2020). The Experience of Empathy in Everyday Life. *Psychological Science*, *Under Revi*, 1–43.

DuBois, D. L., Felner, R. D., Brand, S., Adan, A. M., & Evans, E. G. (1992). A Prospective Study of Life Stress, Social Support, and Adaptation in Early

Adolescence. *Child Development*, *63*(3), 542–557. https://doi.org/10.1111/j.1467-8624.1992.tb01645.x

Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Weissberg, R. P., Schellinger, K. B., Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Schellinger, K. B., & Taylor, R. D. (2011). The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis ofSchool-Based Universal Interventions. *Child Development*, *82*(1), 405–432. https://doi.org/10.1007/s10972-014-9381-4

Dweck, C. S. (2012). Mindsets and human nature: Promoting change in the Middle East, the schoolyard, the racial divide, and willpower. *American Psychologist*, *67*(8), 614–622. https://doi.org/10.1037/a0029783

Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implicit Theories and Their Role in Judgments and Reactions : A World from Two Perspectives. *Psychological Inquiry*, *6*(4), 267–285.

Eisenberg, N. (2000). Emotion , Regulation , and Moral Development. *Annual Review of Psychology*, *51*, 665–697. https://doi.org/10.1146/annurev.psych.51.1.665

Eisenberg, N., Eggum, N. D., & Di Giunta, L. (2010). Empathy-Related Responding: Associations with Prosocial Behavior, Aggression, and Intergroup Relations. *Social Issues and Policy Review*, *4*(1), 143–180. https://doi.org/10.1111/j.1751-2409.2010.01020.x

Eisenberg, N., & Okun, M. A. (1996). The relations of dispositional regulation and emotionally to elder's empathy-related responding and affect while volunteering. *Journal of Personality*, *64*(March 1996), 157–183. https://doi.org/10.1111/j.1467-6494.1996.tb00818.x

Espelage, D. L., Low, S., Polanin, J. R., & Brown, E. C. (2015). Clinical trial of Second Step© middle-school program: Impact on aggression & victimization.

Journal of Applied Developmental Psychology, *37*(1), 52–63. https://doi.org/10.1016/j.appdev.2014.11.007

Feshbach, N. D., & Feshbach, S. (2009). Empathy and Education. In *The Social Neuroscience of Empathy* (Vol. 85, pp. 85–98). The MIT Press. https://doi.org/10.7551/mitpress/9780262012973.003.0008

Frondozo, C. E., King, R. B., Nalipay, M. J. N., & Mordeno, I. G. (2020). Mindsets matter for teachers, too: Growth mindset about teaching ability predicts teachers' enjoyment and engagement. *Current Psychology*, *1*, 2–5. https://doi.org/10.1007/s12144-020-01008-4

Gini, G., Albiero, P., Benelli, B., & Altoè, G. (2007). Does empathy predict adolescents' bullying and defending behavior? *Aggressive Behavior*, *33*(5), 467–476. https://doi.org/10.1002/ab.20204

Ingoglia, S., Lo Coco, A., & Albiero, P. (2016). Development of a Brief Form of the Interpersonal Reactivity Index (B-IRI). *Journal of Personality Assessment*, *April*, 1–11. https://doi.org/10.1080/00223891.2016.1149858

Jolliffe, D., & Farrington, D. P. (2006). Development and validation of the Basic Empathy Scale. *Journal of Adolescence*, *29*(4), 589–611. https://doi.org/10.1016/j.adolescence.2005.08.010

Jolliffe, D., & Farrington, D. P. (2011). Is low empathy related to bullying after controlling for individual and social background variables? *Journal of Adolescence*, *34*(1), 59–71. https://doi.org/10.1016/j.adolescence.2010.02.001

Kardos, P., Leidner, B., Pléh, C., Soltész, P., & Unoka, Z. (2017). Empathic people have more friends: Empathic abilities predict social network size and position in social network predicts empathic efforts. *Social Networks*, *50*(July), 1–5. https://doi.org/10.1016/j.socnet.2017.01.004

Keysers, C., & Gazzola, V. (2014). Dissociating the ability and propensity for empathy. *Trends in Cognitive Sciences*, *18*(4), 163–166. https://doi.org/10.1016/j.tics.2013.12.011

Lewin, K. (1943). *Forces behind food habits and methods of change. In: The problem of Changing Food Habits. Report of the Committee on Food Habits* (Vol. 1943). http://www.nap.edu/catalog.php?record_id=9566

Morelli, S. A., Leong, Y. C., Carlson, R. W., Kullar, M., & Zaki, J. (2018). Neural detection of socially valued community members. *Proceedings of the National Academy of Sciences*, *115*(32), 201712811. https://doi.org/10.1073/pnas.1712811115

Morelli, S. A., Ong, D. C., Makati, R., Jackson, M. O., & Zaki, J. (2017). Empathy and well-being correlate with centrality in different social networks. *Proceedings of the National Academy of Sciences*, *114*(37), 9843–9847. https://doi.org/10.1073/pnas.1702155114

Nook, E. C., Ong, D. C., Morelli, S. A., Mitchell, J. P., & Zaki, J. (2016). Prosocial conformity: Prosocial norms generalize across behavior and empathy. *Personality and Social Psychology Bulletin*, *42*(8), 1045–1062. https://doi.org/10.1177/0146167298248001

Paunesku, D., Walton, G. M., Romero, C., Smith, E. N., Yeager, D. S., & Dweck, C. S. (2015). Mind-Set Interventions Are a Scalable Treatment for Academic Underachievement. *Psychological Science*, *26*(6), 784–793. https://doi.org/10.1177/0956797615571017

Qualter, P., Brown, S. L., Rotenberg, K. J., Vanhalst, J., Harris, R. A., Goossens, L., Bangee, M., & Munn, P. (2013). Trajectories of loneliness during childhood and adolescence: Predictors and health outcomes. *Journal of Adolescence*, *36*(6),

1283–1293. https://doi.org/10.1016/j.adolescence.2013.01.005

Revelle, W. (2019). *psych: Procedures for Psychological, Psychometric, and Personality Research*. https://cran.r-project.org/package=psych

Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*, *48*(2), 1–36.

Schumann, K., Zaki, J., & Dweck, C. S. (2014). Addressing the empathy deficit: Beliefs about the malleability of empathy predict effortful responses when empathy is challenging. *Journal of Personality and Social Psychology*, *107*(3), 475–493. https://doi.org/10.1037/a0036738

Steinberg, L., & Monahan, K. C. (2007). Age Differences in Resistance to Peer Influence Laurence. *Developmental Psychology*, *43*(6), 1531–1543. https://doi.org/10.1037/0012-1649.43.6.1531.Age

Teding van Berkhout, E., & Malouff, J. J. M. (2016). The Efficacy of Empathy Training: A Meta-Analysis of Randomized Controlled Trials. *Journal of Counseling Psychology*, *63*(1), 1–10. https://doi.org/10.1037/cou0000093

Torchiano, M. (2020). *effsize: Efficient Effect Size Computation*. https://doi.org/10.5281/zenodo.1480624

Van der Graaff, J., Branje, S., De Wied, M., Hawk, S., Van Lier, P., & Meeus, W. (2014). Perspective taking and empathic concern in adolescence: gender differences in developmental changes. *Developmental Psychology*, *50*(3), 881–888. https://doi.org/10.1037/a0034325

Walton, G. M., & Wilson, T. D. (2018). Wise interventions: Psychological remedies for social and personal problems. *Psychological Review*, *125*(5), 617–655. https://doi.org/10.1037/rev0000115

Weisz, E. (2022, January 5). A Brief Intervention to Motivate Empathy in Middle

School. Retrieved from osf.io/bm6y3

Weisz, E., & Cikara, M. (2020). Strategic Regulation of Empathy. *Trends in Cognitive Sciences*. https://doi.org/10.1016/j.tics.2020.12.002

Weisz, E., Ong, D. C., Carlson, R. W., & Zaki, J. (2020). Building Empathy through Motivation-Based Interventions. *Emotion*.

Weisz, E., & Zaki, J. (2017). Empathy Building Interventions: A Review of Existing Work and Suggestions for Future Directions. In M. Doty, J. & Seppala, E., Simon-Thomas, E., Cameron, D., Brown, S., & Worline (Ed.), *Oxford Handbook of Compassion Science*.

Williford, A., Boulton, A. J., Forrest-Bank, S. S., Bender, K. A., Dieterich, W. A., & Jenson, J. M. (2016). The Effect of Bullying and Victimization on Cognitive Empathy Development During the Transition to Middle School. *Child and Youth Care Forum*, *45*(4), 525–541. https://doi.org/10.1007/s10566-015-9343-9

Yeager, D. S., Dahl, R. E., & Dweck, C. S. (2017). Why Interventions to Influence Adolescent Behavior Often Fail but Could Succeed. *Perspectives on Psychological Science*, *13*(1), 101–122. https://doi.org/10.1177/1745691617722620

Yeager, D. S., Hanselman, P., Walton, G. M., Murray, J. S., Crosnoe, R., Muller, C., Tipton, E., Schneider, B., Hulleman, C. S., Hinojosa, C. P., Paunesku, D., Romero, C., Flint, K., Roberts, A., Trott, J., Iachan, R., Buontempo, J., Yang, S. M., Carvalho, C. M., … Dweck, C. S. (2019). A national experiment reveals where a growth mindset improves achievement. *Nature*. https://doi.org/10.1038/s41586-019-1466-y

Yeager, D. S., Trzesniewski, K. H., & Dweck, C. S. (2013). An Implicit Theories of Personality Intervention Reduces Adolescent Aggression in Response to

Victimization and Exclusion. *Child Development*, *84*(3), 970–988. https://doi.org/10.1111/cdev.12003

Yeager, D. S., & Walton, G. M. (2011). Social-Psychological Interventions in Education: They're Not Magic. *Review of Educational Research*, *81*(2), 267–301. https://doi.org/10.3102/0034654311405999

Zaki, J. (2014). Empathy: A motivated account. *Psychological Bulletin*, *140*(6), 1608–1647. http://psycnet.apa.org/journals/bul/140/6/1608/