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Effects of Person- and Process-Focused Feedback on Prosocial Behavior in Middle Childhood

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Abstract

Effects of person- and process-focused feedback, parental lay theories, and prosocial self-concept on children's prosocial behavior were investigated with 143 9- and 10-year-old children who participated in a single session. Parents reported entity (person-focused) and incremental (process-focused) beliefs related to prosocial behavior. Children completed measures of prosocial self-concept, then participated in a virtual online chat with child actors who asked for help with service projects. After completing the chat, children could assist with the service projects. In the first cohort, children were randomly assigned to receive person-focused, process-focused, or control feedback about sympathy. In the second cohort, with newly-recruited families, children received no feedback. When given process-focused feedback, children spent less time helping and worked on fewer service projects. When given no feedback, children spent less time helping when parents held incremental (process-focused) beliefs. Children with higher prosocial self-concept who received no feedback worked on more service projects.

Keywords

prosocial behavior; attribution; parental attitudes; self-concept

Research demonstrates different effects of two types of attributional feedback on achievement-related motivation and performance. Person-focused feedback evaluates the person. Process-focused feedback evaluates strategies or effort (Henderlong & Lepper, 2002; Kamins & Dweck, 1999). People given person-focused feedback (i.e., praise for intelligence) become more discouraged and perform worse when facing challenging tasks, whereas those given process-focused feedback (i.e., praise for effort) persist more and perform better when confronted with challenge (Dweck & Bush, 1976; Kamins & Dweck, 1999; Mueller & Dweck, 1998). Similar effects are seen for individual differences in tendencies to make person-focused and process-focused attributions, called entity and incremental lay theories, respectively (Molden & Dweck, 2006). Parents often respond to children's prosocial behavior with praise or approval (Grusec, 1991), yet effects of attributional feedback on prosocial behavior have been little studied. The goal of this research was to examine effects of attributional feedback on children's prosocial behavior.

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The primary purpose was to investigate whether negative effects of person-focused feedback, and positive effects of process-focused feedback, generalize to prosocial behavior. A second purpose was to examine parents' entity (person-focused) and incremental (process-focused) lay theories related to prosocial behavior. Because parents' lay theories may relate to long-term socialization patterns, they might be associated with children's prosocial behavior. A third purpose was to explore whether prosocial self-concept moderates effects of attributional feedback on prosocial behavior. Because person-focused feedback evaluates personal characteristics, self-concept about those characteristics might alter effects of feedback.

Attributional Feedback and Prosocial Behavior

Research on achievement demonstrates detrimental effects of person-focused feedback (i.e., praise for intelligence, "My, you are bright"), and beneficial effects of process-focused feedback (i.e., praise for effort, "You really worked hard on that") for motivation and performance following challenging tasks (Dweck & Bush, 1976; Kamins & Dweck, 1999; Mueller & Dweck, 1998). Effects hold for both praise and criticism (Kamins & Dweck, 1999) and are found across a broad age range (kindergarteners: Kamins & Dweck, 1999; fifth graders: Mueller & Dweck, 1998; undergraduates: Hong, Chiu, Dweck, Liu & Wan, 1999; but not preschoolers, Corpus & Lepper, 2007). Work assessing lay theories, individual differences in the propensity to make these attributions, similarly demonstrates beneficial effects of incremental (process-focused) lay theories and detrimental effects of entity (person-focused) lay theories for motivation and performance (Molden & Dweck, 2006).

Regarding prosocial behavior, the scant research addressing attributional feedback paints a complex picture. Grusec and Redler (1980) found no effects of feedback on 5-year-olds' prosocial behavior. However, 10-year-olds increased prosocial behavior regardless of whether the experimenter praised their prosocial action or labeled them a prosocial person, whereas 8-year-olds increased prosocial behavior only after being labeled a prosocial person. Similarly, Mills and Grusec (1989) found that 8- and 9-year-old children engaged in more prosocial behavior after praise for being a prosocial person compared with praise for prosocial action or no praise. Further, Eisenberg, Cialdini, McCreath and Shell (1987) found that person-focused feedback about either conscientiousness or helpfulness promoted second- and fifth-grade children's prosocial behavior compared with no feedback. Kindergarteners' prosocial behavior was unaffected by person-focused feedback of either type.

None of these studies compared person-focused with process-focused feedback. One interpretation of Eisenberg and colleagues' (1987) results is that person-focused feedback about conscientious work may communicate a process-focused message. Process-focused attributions evaluate strategies or effort, and conscientious work habits may be considered strategy and/or effort. Even so, Eisenberg and colleagues' (1987) results would agree with those of Grusec and Redler (1980) and Mills and Grusec (1989) in showing no disadvantage for person-focused feedback for prosocial behavior. These studies instead suggest that person-focused feedback promotes prosocial behavior in middle childhood.

Extant research on lay theories in relation to prosocial behavior is consistent in showing more prosocial behavior or less antisocial behavior in youth who hold incremental lay theories about antisocial behavior (Giles & Heyman, 2003) or about personality in general (Karafantis & Levy, 2004; Yeager, Trzesniewski, Tirri, Nokelainen, & Dweck, 2011; Yeager, Miu, Powers, & Dweck, 2013; Yeager, Trzesniewski, & Dweck, 2013). However, it is difficult to extrapolate this work to experimental feedback about prosocial behavior because lay theories are not only domain-specific (Heyman & Dweck, 1998), but also differentiable between positive and negative behavior within domains (i.e., math skills, math deficits; Ziegler & Stoeger, 2010).

Methodology is important. Studies examining achievement are generally straightforward about the topic. Studies on prosocial behavior, conversely, often involve cover stories to avoid social desirability influences. Also, studies on prosocial behavior often involve choosing between an appealing activity and a prosocial task, whereas studies on achievement generally do not offer such choices. Perhaps most importantly, achievement-related tasks provide ecologically valid opportunities for increasing challenge and for failure feedback. Prosocial tasks provide fewer opportunities for increasing challenge, and failure feedback may be impossible to give because of the cover story.

Creating challenge is critical because the different effects of person-focused and process-focused feedback on achievement appear following challenge or failure. Thus, the current study draws from research on anger and aggression (Casey, 1993; Underwood & Bjornstad, 2001) to experimentally manipulate prosocial challenge by exposing children to helping situations with friendly and unfriendly peers. Interactions with provoking peers elicit negative emotion, particularly anger (Casey, 1993). Anger is associated with lower empathy (Strayer & Roberts, 2004) and therefore might reduce children's willingness to behave prosocially. Furthermore, children showing more anger following peer provocation more often report social goals related to disengaging from the provoking partner (Underwood & Bjornstad, 2001), which again may reduce willingness to behave prosocially. This challenge differs from that in achievement because it is more likely to affect children's motivation than their perception of their ability to behave prosocially. An ecologically valid and ethical challenge that would affect children's perception of prosocial ability may be difficult to create because prosocial behavior is seen as more malleable, less generalizable, and less constrained by heritability than academic achievement (Heyman & Giles, 2004). Despite this difference, the experimental paradigm for the current study provides an important parallel to that used with achievement by including a challenging helping situation after attributional feedback.

Domain differences may also be key. Prosocial behavior is moral, because prosocial actions affect others' rights and welfare. Achievement-related behavior might be considered conventional, because it is socially desirable and structured within social systems; or personal, because consequences are largely individual (Turiel, 2008). Furthermore, whereas parents hold varying beliefs about their children's fundamental achievement-related capacities (e.g., Eccles & Jacobs, 1986), empathy, a building block of prosocial behavior, is considered inherent for typically developing children (Hoffman, 2000). Thus, prosocial behavior may be a domain in which person-focused attributions are especially likely to

promote behavior, because the basic capacity for the behavior is present for all and the behavior has moral implications.

Parental Lay Theories

A corollary goal was to investigate whether parental entity and incremental lay theories might relate to child prosocial behavior in the same way as experimental feedback. Two studies to date address parental lay theories. Pomerantz and Dong (2006) found detrimental longitudinal effects of maternal entity theories about achievement on children's academic performance and self-esteem when mothers also had low perceptions of children's academic competence. Inducing an entity lay theory about achievement led to mothers' unconstructive involvement with their first- or second-grade child during a problem-solving task (Moorman & Pomerantz, 2010). Because parental lay theories might relate to a variety of socialization behaviors, examining their association with children's prosocial behavior may be fruitful in further investigation of prosocial socialization. Though parental lay theories might be a powerful long-term influence on children's behavior, experimental feedback may be more salient in the moment; thus, the effect of parental lay theories was expected to be strongest when children did not receive experimental feedback.

Prosocial Self-Concept

Children's understanding of self undergoes well-documented changes in middle childhood (e.g., Harter, 1999; Marsh, Craven & Debus, 1998). Around ages 8 to 11 years, children describe themselves with differentiated traits, such as "smart," "kind," etc. These trait-oriented organizations of self, called self-schemas or self-concepts, influence information processing and interpersonal judgments (Markus, 1977; Markus, Smith & Moreland, 1985).

Theories about motivation for engaging in moral behaviors, including prosocial behaviors, are beginning to incorporate the self (Hardy & Carlo, 2005). When moral values are more central to one's self-concept, moral actions may be more likely because of desire to behave in a way consistent with one's self-concept (Blasi, 1983). When prosocial traits are central to self-concept, decisions to act prosocially may be largely automatic because prosocial possibilities are more readily accessed (Lapsley & Narvaez, 2004).

Karniol (1982) proposed that prosocial self-concept might be activated in two ways: (a) emotional arousal and (b) informational cues that call attention to the self. When children's self-concept is activated, and includes prosocial traits, they would more often help others. Indeed, when children are made highly self-aware they donate more when higher in prosocial self-concept (Froming, Nasby & McManus, 1998).

Person-focused feedback about a behavior central to self-concept may thus positively influence subsequent behavior by raising self-awareness. Person-focused feedback about prosocial behavior may be more effective for children higher in prosocial self-concept because the feedback calls attention to and confirms their self-concepts.

The Present Study

Parents reported lay theories about children's emotions and prosocial behavior. Children's prosocial self-concept was measured using multiple methods. Then, children engaged in a virtual online chat with three same-sex, same-age child actors who asked for help with a service project. This chat provided opportunities to administer a social challenge (the second child was rude whereas the first and third were friendly) and to give feedback. Children then had an opportunity to help with the service projects. In the first cohort, attributional feedback about prosocial behavior was experimentally manipulated, with random assignment to feedback conditions. In the second cohort, which immediately followed the first and included new participants, no feedback was given.

The first hypothesis involved experimental feedback. Children given person-focused feedback were expected to show greater prosocial behavior after the chat than children given control feedback. Children given process-focused feedback were also expected to show greater prosocial behavior than those given control feedback. No hypothesis was made regarding main effects of person-focused compared with process-focused feedback given the lack of previous work comparing these two types of feedback in regard to prosocial behavior.

The second hypothesis involved parental lay theories. The pattern of differences between person- and process-focused feedback was expected to also be seen with parents' entity vs incremental lay theories. Because experimenter feedback might be more salient in the experimental context than parental lay theories, effects of parents' lay theories were expected to be stronger for children given no feedback compared with children given control, person-focused, or process-focused feedback.

The third hypothesis involved children's prosocial self-concept. When children were high in prosocial self-concept, greater prosocial behavior was expected with person-focused than with process-focused, control, or no feedback because the person-focused condition might magnify self-reflective focus on prosocial traits.

Method

Participants

One hundred fifty-nine 9- and 10-year-old children (51% female) participated in a single session with a parent or legal guardian (79% mothers, 18% fathers, 2% grandmothers, 1% unreported). One hundred seventeen children participated in the first cohort, and an additional 42 participated in the second cohort, which began immediately following the first. Eleven children were African-American, three were Asian-American, 133 were European-American, one was of Indian nationality, seven were multiracial, and four children's race was not reported. Three children were Hispanic or Latino. Parents' education ranged from some high school to completion of graduate/professional degrees (mode = college degree). Most parents (87%) were married, 5% were separated or divorced, 2% were single, 1% were widowed, and 5% did not report marital status.

Eleven girls and five boys were dropped from the sample due to guessing the children were actors (6) or that they were being videotaped during the donation opportunity (3); equipment error (2); experimenter error (4); or lack of focus (1). The final sample included 70 girls (mean age = 10.18 years, SD = .60) and 73 boys (mean age = 10.20 years, SD = .56).

Families were recruited through flyers, lists of past participants, word of mouth, and commercial mailing list. Parents were paid \$20. Children received a \$50 Series EE US savings bond (purchase price \$25). Children were also given \$15 to choose to keep or donate as part of the procedure (described below).

Apparatus

Children completed two self-concept measures and the virtual chat on a Dell Optiplex desktop computer running MediaLab v2008 and DirectRT v2008. For the bogus pipeline procedure described below, children's heart rate was collected with a James Long psychophysiology data collection system using Vermed pediatric electrodes.

Stimuli

Scripts for the stimuli for the virtual online chat were developed with seven actors (4 girls, 3 boys) aged 10 – 12 years. Friendly (e.g., “Hey, we’re almost the same!”) and rude (e.g., “How old are you? American Girl dolls are only for little kids around here.”) responses were based on Casey (1993). The children also scripted and videotaped requests for help with a service project. Service projects involved (a) sorting school supplies, (b) stuffing envelopes for mail solicitation, and (c) organizing toiletry kits. Clips of child actors were rated by 30 undergraduates to select the most effective versions of each script.

The stimulus development process yielded a bank of three appeals for help and two friendly and one rude response per actor. This allowed counterbalancing for order of service project, order of actors, pairing of service project with friendly/rude responses, and pairing of actors with service project and friendly/rude responses.

Ten 8- to 11-year-old children pilot-tested the chat. A bogus pipeline procedure was used to lend credibility to feedback and to reduce social desirability influences (Jones & Sigall, 1971). Children were told that we had a computer program that reported their sympathy percentile by digitizing video of their face and combining that with their electrocardiogram. To add verisimilitude, we applied pediatric electrodes to children and showed children equipment in the control room.

The chat was programmed using MediaLab. The program began with a video clip of the first actor saying “Hi, I’m [name].” Children then responded to four questions asking their preference about a popular topic (e.g., favorite animal; superpower). The program made it appear that the actor matched on three of the four questions. The program then showed a video clip of the actor making a friendly comment. Following the friendly comment, children saw the actor’s video appeal. Children reported how well the child had done at asking for help, how much time they wanted to spend helping with the project and how many dollar coins they were being paid that they wanted to donate for supplies.

The sequence for the second actor was the same. However, the program indicated that children's responses matched with those of the actor for only one of the four responses, and the second actor was shown making a rude comment. The sequence for the third actor was also the same, and the third actor was shown to match on three of four responses and to make a friendly comment. Thus, the first and last actors were depicted as sharing similar interests with the participants and as being friendly, whereas the middle actor was depicted as having different interests from the participants and as being provoking. MediaLab automated presentation of the actors based on the counterbalancing scheme and recorded children's responses.

Pilot-testers reported that the cover story and chat were highly credible ($M_s = 5.75$ and 6.1 , $SD_s = 1.14$ and $.88$, respectively, on 7-point Likert-type scales) and that the deception involved was at most mildly upsetting ($M = 1.6$, $SD = .84$ on a 7-point Likert-type scale). Thus, feasibility of this stimulus set and method were demonstrated with children in middle childhood.

Materials

Child prosocial self-concept measures—Children completed three measures of prosocial self-concept. Scores were standardized and summed to form a composite score.

Self-Guide Questionnaire (Higgins, Klein & Strauman, 1985): Using a modified version of the Self-Guide questionnaire, children generated up to 10 words or phrases to describe themselves, and up to 10 words or phrases the participating parent would use to describe them. Trained undergraduates coded responses for reference to prosocial behavior (e.g., responsible with animals, kind, do a lot of service work with my church, like to help people). Reliability was good ($K = .87$). Proportion of total responses referring to prosocial behavior was calculated. As is common with proportional scores, the distribution was positively skewed, so a square root transformation was used to normalize the distribution.

Response latency to prosocial terms: Children then completed a computerized task using MediaLab and DirectRT. Similar to procedures used by Froming and colleagues (1998) and Her and Dunsmore (2011), children were presented with 30 trait terms, 12 related to prosocial behavior (e.g., kind) and 18 other trait terms (e.g., smart, funny). Terms were presented in random order. Children made two judgments about each term: (a) does it describe them and (b) is it good or bad. Children could hit the space bar when they weren't sure of their answer or didn't know the term. Ten terms (6 prosocial, 4 other) that were known by 85% of the children were retained to score self-concept. Judgments of trait descriptiveness are faster for terms that are part of self-concept (Stem, 1998). Therefore, children's response latency when making judgments about whether prosocial terms are self-descriptive may be considered an implicit measure of prosocial self-concept. As is typical with reaction time, the distributions showed positive skew, so log transformations were used to normalize the distributions for children's response latencies. To control for general response latency, reaction time to prosocial terms was regressed on reaction time to other terms and the residual was calculated. Thus, lower scores indicated that children responded more rapidly than their own general reaction time when judging self-descriptiveness of

prosocial terms, suggesting the particular salience of prosocial behavior in self-concept. For the other measures of prosocial self-concept, higher scores indicated higher prosocial self-concept; therefore, inverses for the reaction time residuals were calculated before creating the composite score.

Children's Self-Schema Questionnaire (Dunsmore, Bradburn, Costanzo & Fredrickson, 2009): Children completed this questionnaire on MediaLab, rating the self-descriptiveness and importance to their self-concept of five prosocial traits (forgiving, helpful, honest, loving, nice) and five achievement-related traits (capable, doing well at things, imaginative, intelligent, and logical) on nine-point Likert scales (1 = not at all to 9 = very). Only the subscale for descriptiveness of prosocial traits was used in this study. Internal consistency was good (Cronbach's $\alpha = .74$). The subscale distribution was negatively skewed, so an inverse square root transformation was used to normalize the distribution.

Parent measures—Parents completed two measures of lay theories. Scores were standardized and summed to form a composite. In addition, parents completed questionnaires for other studies and provided demographic information.

Prosocial behavior lay theory: This 4-item questionnaire is modeled after Erdley, Cain, Loomis, Dumas-Hines, and Dweck (1997). Parents rated agreement with statements on a six-point Likert scale (1 = strongly agree to 6 = strongly disagree). One item was reverse scored ("Anyone can change their child's prosocial behavior."). High scores indicated incremental lay theory and low scores indicated entity lay theory. Internal consistency was good ($\alpha = .74$).

Parents' Beliefs about Children's Emotions questionnaire (PBACE; Halberstadt, et al., 2008): Parents read a series of statements and rated their agreement on a 6-point Likert-type scale (1= strongly disagree, 6= strongly agree). One 8-item subscale, Developmental Processes, was used for this study. This subscale assesses the extent to which parents believe children's emotional styles are stable or changeable, and was chosen because of similarity to entity and incremental lay theories. One item was reverse-scored ("Children's emotional styles tend to stay the same over time."). High scores indicated belief that emotional styles can change, and low scores that emotional styles are stable. Internal consistency was good ($\alpha = .79$).

Virtual online chat ratings—Following each appeal for help during the chat, children made three ratings. First, on a 7-point Likert scale (1=not so well to 7 = extremely well), they rated how well the actor did at asking for help. Second, they reported how many dollar coins (0 to 5) they intended to donate for the service project. Third, they reported how much time they intended to spend helping with the service project on a 6-point scale: 1=0 minutes, 2=1-3 minutes, 3=4-6 minutes, 4=7-9 minutes, 5=10-12 minutes, 6=13-15 minutes.

Procedure

Parents were fully informed of study procedures by telephone or email prior to scheduling appointments. Parents were asked to tell their child that the study was about how children make decisions about helping others. During the assent process, children were told that they would be talking with other children their age who would ask for help with a service project. They were told that we were interested in how well they thought each child did at asking for help. They were shown the service project materials and told that they might have time to help with one or more of the projects at the end of the study, if they wanted to. They were told that in addition to their savings bond, they would be given 15 dollar coins to keep, or they could donate as many as they wanted to the service projects.

Following parents' informed consent and children's assent, parents completed questionnaires in a separate room while children completed the rest of the procedure. The entire session from this point was videotaped for later coding. Children first completed the measures of prosocial self-concept. This lasted about 20 minutes. Children were offered a break before the virtual online chat.

After assisting the child in applying cardiac electrodes, the interviewer started the MediaLab program for the chat and left the room. After completing ratings for the first (friendly) actor, children waved at the camera to let the interviewer know they were ready for the next conversation. In the first cohort, when the interviewer re-entered the room, children in all conditions were told the following: "Our computer program says you are at the 80th percentile in sympathy. That means you scored higher than 8 out of 10 other children your age." Children were randomly assigned to person-focused, process-focused, and control (no attribution) conditions. For the person-focused condition, the interviewer went on to say: "You seem like the type of person who is really kind and helpful and understands how other people feel." For the process-focused condition, the interviewer went on to say: "You seem to really work hard and pay attention so you can learn how other people feel." For the control condition, the interviewer did not say anything else.¹ In all conditions, the interviewer used a warm tone of voice and positive facial expression. The interviewer then continued the MediaLab program and left the room.

After the second, provoking actor, children in all three conditions were told, in a disappointed tone of voice, "Hmm, this time you scored in the 20th percentile. That means you scored lower than 8 out of 10 other children your age. That's a lot worse than last time." Again, the interviewer continued the MediaLab program and left the room.

After the third, friendly actor, the interviewer told all children "This time you scored in the 80th percentile again! Way to go! You have really helped us a lot! Thanks!" The interviewer assisted children in removing electrodes. Altogether, the chat lasted about 20 minutes.

In the second cohort, the same procedure for the chat was followed, with the following exceptions. First, children were not assigned to any attributional feedback condition.

¹Please note that the feedback addresses sympathy (80th percentile in sympathy; how other people feel), which may motivate prosocial behavior but is not the same construct (Eisenberg, 2010). This methodological choice was made to avoid overt similarity between the feedback and the later prosocial behavior task that might have alerted children to the true purpose of that task.

Second, children were not told anything about sympathy percentile. In all other respects the procedure for the second cohort was identical to that for the first cohort.

After the chat, children were escorted to an attractive playroom stocked with age-appropriate toys and the supplies for the service projects. Children were given 15 one-dollar coins and shown donation containers labeled for each service project. The interviewer pointed out the materials for the service projects and told the children they could help with the projects while they waited or they could play with any of the toys in the playroom. Children were then left alone in the room. Prosocial behavior is defined as behavior voluntarily engaged in with the intention of helping another (Eisenberg, 2010). By leaving the children alone and pointing out that they could choose whether to help or whether to play, this task assessed voluntary engagement in helping behavior. The interviewer monitored children through video in the control room and returned when children had spent 3 consecutive minutes without donating coins or working on the service projects or when 15 minutes had passed, whichever came first. The donation opportunity thus lasted about 5 to 18 minutes.

Children's behavior when alone in the room was coded for time spent actively working on the service projects (continuously coded as on- or off-task; $K > .80$). For each service project, about half of the children spent no time working on it. Therefore, the aggregate of time spent working across all service projects, which was reasonably normally distributed, was used in analyses. Also, there were no differences in children's likelihood of choosing to work on the second (rude) child's service project compared with the first (friendly) and third (friendly) children's service projects (first child: 53% chose to work on the service project; second child: 48%; third child: 49%; $X^2(2, N = 143) = .80, p = .6703$). Therefore, children's choice of whether or not to work on each service project was scored as 0 (did not spend any time on the service project) or 1 (spent some time on the service project) and summed to indicate how many of the three service projects the children chose to help with.

Children's number of coins donated to each service project was also recorded following the session. Number of coins for each service project was normally distributed and was thus kept as separate dependent measures for analyses.

Children were then reunited with their parent for debriefing. In the parent's presence, the interviewer explained that we did not really have a computer program that could tell how sympathetic they were feeling and that the children in the online chat were actors. However, the service activities they engaged in and the money they donated really would go to help children in need. During this discussion children's thoughts were solicited to determine whether children had guessed any of the deception and whether children felt distressed by the procedure. No child was more than mildly upset by the deception. Children were asked not to tell others about the deception; all indicated understanding and agreed. Sessions lasted approximately 1 hour in total.

Results

Preliminary Analyses

Manipulation checks—Table 1 shows descriptive statistics for the sample as a whole. Means for how well the chat partner did at asking for help, the number of coins children said they would donate to each partner, and the amount of time they said they would spend helping each partner were lower for the second (rude) compared with the first and third (friendly) virtual chat partners. MANOVAs showed that these differences of the second compared with the first and third partners were significant, $F_s(1, 142) > 39, p_s < .0001$. These findings support the effectiveness of the manipulation of social challenge in the chat.

Child sex differences—T-tests showed that there were no significant child sex differences in measures of prosocial self-concept ($p_s > .15$), nor in parents' lay theories ($p_s > .50$). During the donation opportunity, girls worked on more service projects (girls: $M = 1.77$ projects, $SD = 1.25$; boys: $M = 1.25$ projects, $SD = 1.22$; $t(141) = 2.54, p < .05$) and spent more time helping (girls: $M = 486.8$ seconds, $SD = 356.0$; boys: $M = 370.7$ seconds, $SD = 331.2$; $t(141) = 2.02, p < .05$). A repeated measures ANOVA showed that girls also gave significantly more dollar coins than boys to all three chat partners (first partner, girls: $M = 2.74, SD = 1.66$; boys: $M = 2.11, SD = 1.67$; second partner, girls: $M = 2.49, SD = 1.68$; boys: $M = 1.93, SD = 1.65$; third partner, girls: $M = 3.06, SD = 1.93$; boys: $M = 2.32, SD = 1.76$; $F(1, 141) = 5.81, p < .05$). Thus, child sex was controlled in subsequent analyses.

Hypothesis Testing

Strategy—First, to test effects of feedback condition on the number of coins children donated, a MANCOVA was conducted. For this repeated measures analysis, the within-subjects factor was chat set (first [friendly], second [rude], third [friendly]). This allowed within-subjects variation in dollar coins donated to be accounted for when testing between-subjects effects.

Second, to test effects of feedback condition on the amount of time children spent helping and on the number of service projects worked on during the donation opportunity, ANCOVAs were conducted. In all analyses, child sex was controlled. Predictor variables were children's prosocial self-concept, parents' lay theories, and feedback condition, as well as interactions of prosocial self-concept with feedback condition, and of lay theories with feedback condition.

Coins donated: There was a within-subjects effect of chat set, $F(2, 129) = 10.51, p < .0001$. Children gave more coins to the first and third interaction partners than to the second (first partner: $M = 2.42, SD = 1.69$; second partner: $M = 2.21, SD = 1.68$; third partner: $M = 2.68, SD = 1.87$; $F(1, 130) = 19.16, p < .0001$). There was a between-subjects effect of child sex, $F(1, 130) = 7.39, p < .01$. As discussed above, girls donated more coins than did boys.

Time spent helping: The model predicting the amount of time children spent helping was significant, $F(12, 130) = 2.48, p < .01, R^2 = .19$. Significant predictors were feedback condition, $F(3, 130) = 3.72, p < .05$, and the interaction of parents' lay theory with feedback

condition, $F(3, 130) = 2.76, p < .05$. Figure 1 shows least-squares means for amount of time spent helping according to feedback condition. As Figure 1 illustrates, contrasts showed that children given process-focused feedback spent less time helping compared with children given person-focused ($F(1, 130) = 7.39, p < .01$) and control feedback ($F(1, 130) = 8.55, p < .01$), who did not differ from each other ($p = .8790$). Children given no feedback did not significantly differ from any of the other groups ($ps > .10$).

To follow up on the significant interaction of parents' lay theory with feedback condition, regressions were conducted separately within feedback condition. Child sex was controlled, and children's prosocial self-concept and parents' lay theories were predictors. The regression models for children given person-focused, process-focused, and control feedback were not significant, $Fs < 1.4, ps > .27$, suggesting that parents' lay theories did not predict children's time spent helping when children were given person-focused, process-focused, or control feedback by the experimenter. The model for children given no feedback was significant, $F(3, 35) = 4.45, p < .01, R^2 = .28$. For children given no feedback by the experimenter, when parents held more incremental lay theories their children spent less time helping, $t = -2.49, p < .05, \beta = -.36$.

Number of projects helped with: The model predicting how many service projects children chose to work on was significant, $F(12, 130) = 2.60, p < .01, R^2 = .19$. Significant predictors were child sex, $F(1, 130) = 5.34, p < .05$, feedback condition, $F(3, 130) = 4.58, p < .01$, and the interaction of prosocial self-concept with feedback condition, $F(3, 130) = 2.69, p < .05$. As discussed earlier, girls worked on more service projects than did boys. Figure 2 shows least squares means for the number of service projects children worked on according to feedback condition. Similar to the above results, contrasts showed that children given process-focused feedback chose to help with fewer service projects compared with children given control ($F(1, 130) = 11.51, p < .001$) and person-focused feedback ($F(1, 130) = 8.80, p < .01$), who helped with a similar number of service projects ($p = .7151$). Children who received no feedback did not significantly differ from any of the other groups ($ps > .05$).

As above, to follow up on the significant interaction of prosocial self-concept with feedback condition, regressions were conducted separately within feedback condition. Child sex was controlled, and children's prosocial self-concept and parents' lay theories were predictors. The regression models for children given person-focused, process-focused, and control feedback were not significant, $Fs < 1.4, ps > .26$, suggesting that children's prosocial self-concept did not predict the number of service projects children worked on when children were given person-focused, process-focused, or control feedback by the experimenter. The regression model was significant for children given no feedback, $F(3, 35) = 3.44, p < .05, R^2 = .23$. When given no feedback by the experimenter, children higher in prosocial self-concept worked on more service projects, $t = 2.04, p < .05, \beta = .30$.

Discussion

The primary purpose of this work was to investigate whether positive effects of process-focused feedback, and negative effects of person-focused feedback, generalize to prosocial

behavior. This study went beyond extant research by developing a credible social challenge protocol and by testing both person-focused and process-focused feedback. The second purpose was to examine effects of parental lay theories about prosocial behavior. The third purpose was to investigate the potential moderating role of prosocial self-concept on effects of attributional feedback.

Assessment of Hypotheses

Type of feedback—In regard to coins donated, there were no effects of feedback condition. Perhaps the momentary nature of coin donation, which did not require persistence but rather an immediate decision, minimized the influence of feedback. The finding that girls donated more coins than boys is consistent with research showing more sharing of money by girls than boys starting in middle childhood (Leman, Keller, Takezawa, & Gummerum, 2009).

In regard to hands-on help with the service projects, contrary to hypothesis, children given process-focused feedback spent less time helping and helped with fewer service projects than children given control feedback. They also spent less time helping and helped with fewer service projects than children given person-focused feedback. Also contrary to hypothesis, children given person-focused feedback did not differ in time spent helping nor in number of service projects worked on compared with children given control feedback. Children given no feedback did not differ from the other groups. Although results are not consistent with hypotheses, they are thought-provoking in showing detrimental effects of process-focused feedback for children's prosocial behavior, compared with person-focused and control feedback.

Parental lay theory—There were no effects of parental lay theories on children's coin donations or the number of service projects children worked on. There was a significant interaction between parental lay theory and feedback condition predicting the amount of time children spent helping. When children were given no feedback, those with parents who held more incremental theories spent less time helping.

Combined with the previous results, this may suggest that children exposed to process-focused attributions related to prosocial behavior -- whether briefly in the context of the experiment or, perhaps, more chronically through parents' beliefs -- may be less likely than those exposed to person-focused attributions related to prosocial behavior to behave in a way that demonstrates prosociality. Because prosocial behavior is morally desirable, when attributions emphasize a trait-based explanation for prosocial behavior, it is possible that children might be motivated to behave prosocially in order to display moral character. Children exposed to process-based attributions, however, may think that prosocial behavior during any particular opportunity might reflect less on their character than the circumstances of the moment. In other words, it is possible that process-focused feedback might communicate that effort and intentions are more important than immediate behavior. Though this message is productive in many areas, it may be counterproductive for prosocial behavior, for which outcomes may be difficult to quantify and sympathetic intentions may be considered important regardless of the effectiveness of the behavior.

Alternatively, parents' lay theories may reflect their children's prosocial behavior, such that parents who hold entity theories do so because they have seen their children consistently displaying prosociality, whereas parents who hold incremental theories do so because they have seen variability in their children's prosociality. Although the similarity of results for parental lay theories when children were given no feedback compared with those for the experimental feedback conditions mitigates this possibility, longitudinal research will be necessary to determine how parents' lay theories relate to their children's developing behavior.

Prosocial self-concept—There were no effects of prosocial self-concept on children's coin donations or the amount of time children spent helping. There was a significant interaction between prosocial self-concept and feedback condition predicting the number of service projects children worked on. The effect of prosocial self-concept was significant only in the "no feedback" condition. When children were given no feedback, those with higher prosocial self-concept spent more time helping. Perhaps the salience of experimenter feedback may have overwhelmed the influence of children's prosocial self-concept, so that the effect was seen only in the absence of feedback. Indeed, results for parental lay theories and prosocial self-concept may underscore the powerful effect of seemingly small differences in types of feedback.

Comparison with Previous Work

Results of the current work are consistent with previous experimental studies in showing no detrimental effects of person-focused feedback for children's prosocial behavior, though no beneficial effects of person-focused compared with control or no feedback were seen. Creation of a socially challenging situation for this study strengthens its contribution by showing that effects held after children faced a socially challenging situation. This study's inclusion of a process-focused feedback condition, which decreased prosocial behavior compared with person-focused and control feedback, contributed new knowledge to the field, as did the inclusion of measurement of parental lay theories. Results of this study contrast with previous work on attributional feedback influences on achievement-related tasks, which consistently shows that process-focused feedback is beneficial, and person-focused feedback detrimental, for later persistence and performance. Research on lay theories in a variety of domains also generally supports beneficial effects of incremental, and detrimental effects of entity lay theories, though there are a few exceptions. For example, children with incremental theories report more anger and sadness about sibling jealousy (Thompson & Halberstadt, 2008).

Because methodological confounds such as differential use of cover stories and of challenge and failure feedback were addressed by the current research design, domain differences may account for the different effects of attributional feedback. First, prosocial behavior is moral whereas achievement-related behavior might be considered conventional or personal (Turiel, 2008). Second, the basic capacity to engage in prosocial behavior is seen as inherent from infancy (Hoffman, 2000), whereas beliefs about basic skills underlying achievement may vary (Eccles & Jacobs, 1986). Thus, working hard to understand and help someone else may not be perceived as indicating prosocial ability in the same way that needing to work hard to

understand and perform well on an academic task is seen as reflecting less innate ability. Third, for achievement-related tasks, success is often indicated by performance. Regardless of effort or strategies, a score, such as number of correct solutions, determines success. For prosocial tasks, success may be indicated by intention. Someone who grudgingly does more to help may not be perceived as demonstrating prosociality to the same extent as someone who whole-heartedly does less. Thus, process-focused feedback, which calls attention to effort or strategies, may license decreased prosocial behavior following challenge because effort has already been put forth and basic skills have already been mastered.

Strengths, Limitations, and Future Directions

One strength was examination of both experimentally-manipulated attributional feedback and parental lay theories. We note that collecting data in two cohorts, one with random assignment to person-focused, process-focused, and control feedback, and a second with all children receiving no feedback, meant that the four conditions were not completely randomly assigned. Nonetheless, inclusion of the “no feedback” condition in the second cohort added to the contribution of this work by showing effects for parental lay theories and child prosocial self-concept in the absence of experimenter-given attributional feedback. Future work addressing how parental lay theories relate to attributional feedback and other emotion socialization practices will be important for understanding children’s developing self-concept and lay theories about prosocial behavior. In turn, children’s prosocial behavior and developing self-concept may influence parents’ socialization efforts and beliefs about the malleability of prosocial behavior. Longitudinal work is needed to establish trajectories of self-concept and lay theory development, socialization, and their transactions.

A second strength was development of the social challenge paradigm. This paradigm was rated as highly realistic by pilot participants, and manipulation checks and debriefing discussions supported its effectiveness, credibility, and ecological validity. We note, however, that the social challenge did not make the actual helping tasks harder, but rather was likely to affect motivation to behave prosocially. In future research it will be worthwhile to investigate other forms of prosocial challenge. Two possibilities are distributive justice dilemmas, in which the challenge involves weighing multiple factors, or dilemmas in which the most prosocial action is unclear. These types of prosocial challenges may elicit concerns about the ability to successfully perform the prosocial behavior. Another possible limitation of the social challenge paradigm is that it may have fostered self-evaluation of performance to a greater extent than is typical in everyday experiences with prosocial behavior. However, if anything, this should have increased similarity to achievement-related situations and thereby increased likelihood of a similar pattern of results. A final possible limitation of the social challenge paradigm is that the feedback wording emphasized sympathy whereas the behavioral task addressed prosocial behavior. This may in some ways highlight the strength of the differences in feedback, because effects generalized to a related but distinct construct. Still, it will be important in future research to test feedback wording and behavioral tasks that tightly match.

Though a strength of the current work was inclusion of parental lay theories related to prosocial behavior, a limitation is the absence of measuring children’s lay theories.

Furthermore, previous work examining effects of lay theories on prosocial and antisocial behavior has tended to take a broader approach, with most studies examining lay theories about personality in general. As noted earlier, lay theories are domain-specific, suggesting that individuals' lay theories about prosocial behavior in particular may differ from their lay theories about personality in general. Also, lay theories within the same domain may differ by valence, suggesting that individuals' lay theories about prosocial behavior may differ from their lay theories about antisocial behavior. Future work examining multiple types of lay theories relevant to prosocial behavior will be important to tease apart differential influences. It may be especially pertinent to investigate potential differences between lay theories applied to one's own behavior compared with lay theories applied to others in order to integrate research on attributional feedback and lay theories with self-consistency approaches to moral development (i.e., Blasi, 1983, 1993).

A final limitation is the relative homogeneity of the current sample in regard to ethnicity. Work on attributional feedback about achievement shows no ethnic differences among African-American, European-American, and Hispanic children (Mueller & Dweck, 1998). However, further examination of the generalizability of the current work is needed. In particular, effects of attributional feedback and parental lay theories on prosocial behavior may differ across cultural contexts when social norms related to collectivism or individualism make prosocial behavior more or less obligatory (Chiu, Dweck, Tong & Fu, 1997).

Conclusion

The current research demonstrated that process-focused feedback results in less prosocial behavior than person-focused and control feedback. When children received no feedback, incremental parental lay theories were associated with less prosocial behavior and higher prosocial self-concept was associated with more prosocial behavior. Findings support the importance of future research examining how attributional feedback may promote or discourage children's prosocial behavior.

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Figure 1.
Amount of time spent helping according to feedback condition.

Figure 2.
Number of service projects worked on according to feedback condition.

Table 1

Descriptive Statistics

Variable	Mean	SD	Range
1. Prosocial self: Questionnaire *	7.74	1.05	4.6 – 9
2. Prosocial self: Reaction time residual	0	.29	–.77 – .89
3. Prosocial self: Interview *	.14	.18	0 – .88
4. Prosocial composite	0	2.06	–4.84 – 6.56
5. Parent lay theory about prosocial behavior	4.67	.83	2.25 – 6
6. Parent belief about changeability of emotional styles	5.22	.52	3.75 – 6
7. Parent lay theory composite	–.01	1.60	–4.33 – 3.10
8. Online chat: How well 1st child did asking for help	5.92	1.19	2 – 7
9. Online chat: How well 2nd child did asking for help	5.17	1.44	1 – 7
10. Online chat: How well 3rd child did asking for help	6.21	1.05	3 – 7
11. Online chat: Money to 1st child	3.00	1.63	0 – 5
12. Online chat: Money to 2nd child	2.62	1.67	0 – 5
13. Online chat: Money to 3rd child	3.27	1.67	0 – 5
14. Online chat: Time to 1st child	4.36	1.29	1 – 7
15. Online chat: Time to 2nd child	3.64	1.43	1 – 6
16. Online chat: Time to 3rd child	4.38	1.40	1 – 7
17. Donation: Coins to 1st child	2.42	1.69	0 – 7
18. Donation: Coins to 2nd child	2.20	1.68	0 – 6
19. Donation: Coins to 3rd child	2.68	1.87	0 – 10
20. Donation: Time on kits (seconds)	425.80	349.92	0 – 900
21. Donation: Number of service projects worked on	1.50	1.26	0 – 3

* Note. transformed scores used to calculate composite; raw scores reported here for ease of interpretation