Language Shapes Children's Attitudes: Consequences of Internal, Behavioral, and Societal Information in Punitive and Nonpunitive Contexts

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Research has probed the consequences of providing people with different types of information regarding why a person possesses a certain characteristic. However, this work has largely examined the consequences of different information subsets (e.g., information focusing on internal vs. societal causes). Less work has compared several types of information within the same paradigm. Using the legal system as an example domain, we provided children (N = 198 6- to 8-year-olds) with several types of information—including information highlighting internal moral character, internal biological factors, behavioral factors, and societal factors—about why a specific outcome (incarceration) might occur. We examined how such language shaped children's attitudes. In Study 1, children reported the most positivity toward people who were incarcerated for societal reasons and the least positivity toward people who were incarcerated for their internal moral character; attitudes linked with behavioral information fell between these extremes. Studies 2a−2b suggested that Study 1's effects could not be fully explained by participants drawing different inferences about individuals in Study 1. Study 3 replicated Study 1's results and showed that information linking incarceration with internal biological factors led to more positivity than information linking incarceration with internal moral character. Finally, Study 4 suggested that the patterns found in Studies 1 and 3 generalize to nonpunitive contexts. Moreover, Study 4 found that the effects in Studies 1 and 3 emerged regardless of whether information was communicated via explanations or descriptions. These results demonstrate that how we express our beliefs about social phenomena shape the realities in which others live.

Keywords: moral cognition, punishment, social cognition, social cognitive development

Supplemental materials: https://doi.org/10.1037/xge0001127.supp

In 2013, *Sesame Street* aired an episode starring three Muppet Kids—Abby, Rosita, and Alex. During this episode, Alex told his Muppet friends that his father was incarcerated. After learning this information, Abby and Rosita promptly asked Alex *why* his father was incarcerated. Such dynamics are not limited to Muppet Kids, as actual children also seek out information about why social phenomena occur from more knowledgeable social partners (Callanan & Oakes, 1992; Legare et al., 2009; Lombrozo, 2012). Importantly, the types of information children hear about why an event occurs can shape their social

cognition (e.g., their attitudes toward a given individual, Heiphetz, 2020; Rhodes & Mandalaywala, 2017). Extrapolating to the current example, any information that Alex might have provided for the reason behind his father's incarceration could have influenced Abby's and Rosita's attitudes toward Alex's father. However, it remains unclear how different types of information about why someone might be incarcerated shapes actual children's attitudes.

Study 1 addressed this topic by providing children with different pieces of information about why someone might be incarcerated (i.e.,

information about internal, behavioral, and societal factors). We subsequently examined how each type of information shaped children's attitudes toward incarcerated people. Studies 2a–2b tested two potential explanations for why participants reported different attitudes across conditions in Study 1. Namely, Study 2a used a between-participants design to examine the extent to which participants' attitudes toward a given individual in Study 1 (which used a within-participants design) influenced their attitudes toward individuals presented later in the study. Study 2b investigated the extent to which participants drew different inferences about wrongdoing across the various conditions used in Study 1. Study 3 built on these findings by examining the extent to which the pattern of results from Study 1 were unique to the specific pieces of information provided in that study, or whether the pattern of results would generalize to differences pieces information of the same type. Finally, Study 4 probed the extent to which the pattern of results found in Studies 1 and 3 generalized to contexts outside of incarceration. Study 4 also examined the extent to which the effects documented in Studies 1 and 3 were specific to information being conveyed via a single linguistic form (i.e., explanations) or whether such effects would also emerge if information was conveyed via another linguistic form (i.e., descriptions).

Information About the Causes of Human Characteristics

Humans are motivated to learn about the world around them (Gopnik, 1998; Lombrozo, 2012). Soon after articulating their first words, children begin seeking out information about why things are the way that they are in conversations with more knowledgeable individuals (Callanan & Oakes, 1992; Frazier et al., 2009; Greif et al., 2006). Seeking out such information can be consequential, as information about the causes of socially relevant phenomena (e.g., why a person possesses a certain characteristic) can shape attitudes and behaviors toward that person (for reviews, see Heiphetz, 2020; Rhodes & Mandalaywala, 2017).

Much work examining this topic has focused on the social ramifications of providing people information about internal causes for various human characteristics. Broadly, internal information focuses on causes residing within an individual. Information about internal causes can either focus on *temporary* properties—including mental and emotional states, desires, preferences, and whims—or *stable* properties such as genetics, traits, and "essences." Although internal properties can be temporary or stable, relatively more studies have focused on the consequences of attributing human characteristics to stable (e.g., Heiphetz, 2019; Hussak & Cimpian, 2018; Mandalaywala et al., 2018, 2019; Pauker et al., 2010, 2016; Rhodes et al., 2018), versus temporary (e.g., Van Wye et al., 2020), internal causes. To build on prior work in this area, we also focused on the ramifications of providing people with information about stable internal causes for social phenomena. For simplicity, we refer to this type of information as "internal" information.

Though past work has largely focused on the consequences of conceptualizing human characteristics as stemming from internal factors, some work has also emphasized the consequences of conceptualizing human characteristics as stemming from behavioral and, separately, societal factors. In line with prior scholarship, we conceptualize behavioral information as linking a given outcome with a person's own observable actions (e.g., Dunlea & Heiphetz, 2020) and societal information as linking a given outcome with

extrinsic or structural constraints acting on an individual (e.g., Flanagan et al., 2014; Vasilyeva et al., 2018). Thus, whereas internal and behavioral information focuses on *individual-level* causes, societal information focuses on causes external to or beyond the individual.

In most domains where researchers have examined the social ramifications of internal information, this type of information has typically led to negative consequences for children's social cognition (for a notable exception, see Carvalho et al., 2021). For instance, information suggesting that racial, ethnic, nationality, and gender category membership stem from internal causes—specifically, ones that are biologically based, immutable, and intrinsic in origin—may underlie negativity toward these groups (Diesendruck & Menahem, 2015; Hussak & Cimpian, 2018; Mandalaywala et al., 2018, 2019; Pauker et al., 2016; Rhodes & Mandalaywala, 2017). Information about internal causes for human characteristics may promote intergroup negativity via several mechanisms, including by accentuating perceived differences between social groups (e.g., Roberts et al., 2017), construing perceived between-group differences as objective and natural (e.g., Gaunt, 2006), and stressing within-group homogeneity (e.g., Yzerbyt et al., 2001).

While several lines of research suggest that describing human characteristics as stemming from internal factors has negative social ramifications, researchers have leveraged different comparisons when evaluating the relative impact of such information. Typically, this work has compared different subsets of information. Some lines of work have tested the consequences of internal information about a given characteristic alongside a control group that did not receive any information about the causes of that characteristic (e.g., Bell & Morgan, 2000). For example, in one line of work (Potter & Roberts, 1984), children in the experimental group learned that certain chronic illnesses (e.g., epilepsy) stem from internal biological causes, whereas children in the control group did not receive any information about the origin of such illnesses. More recent research has compared the consequences of two types of information within the same paradigm (e.g., Hussak & Cimpian, 2018; Levy & Dweck, 1999; Mandalaywala et al., 2018; Rhodes et al., 2018). For instance, in one line of work examining the consequences of internal versus societal information (Heiphetz, 2019), children learned about two morally "bad" individuals; the experimenter attributed one individual's badness to stable, inherent features and the other individual's badness to societal factors (i.e., the actions of other people living in society). Moreover, another line of work examined the consequences of providing internal versus behavioral information about why someone might be overweight (e.g., Carvalho et al., 2021).

These past findings provide a crucial foundation to understanding how different types of information about why social phenomena occur shape children's social cognition. However, as previously mentioned, most of these programs of research have focused on distinct subsets of information types (e.g., information type "X" vs. information type "Y" without comparing to information type "Z"), making it difficult to observe differences among various types of information. The current work aimed to garner a clearer understanding of the relation among various types of information by probing the social ramifications of internal, behavioral, and societal information within the same paradigm. Thus, one main contribution of the present work includes providing a more robust understanding of the relation among various types of information.

Studying the Consequences of Different Types of Information Within the Criminal Legal System Context

The current work used the criminal legal system as an example domain in which to study the consequences of different types of information about why a specific socially relevant outcome might occur. We did so because people often reference different types of information when conceptualizing why a given outcome within this domain—namely, incarceration—occurs.

People often conceptualize punishment as stemming from stable, internal causes (for a review, see Dunlea & Heiphetz, 2021b). Predominant cultural narratives in the United States often portray punished individuals as "bad apples [that] can never be made good" (Dodge, 2008, p. 575). Moreover, such narratives often imply that people come in contact with the legal system because they are "bad guys" (Van Cleve, 2016, p. 57) with inherent "moral poverty" (Dilulio et al., 1996, p. 28) and that such individuals cannot change for the better over time. Put differently, predominant cultural narratives in the United States often pinpoint one cause of legal system contact as residing *within* individuals (moral character).

Although people often attribute punishment to internal factors, theorists and laypeople alike also readily link punishment with individuals' behaviors. Theorists focusing on criminal law in the United States context assert that people should be punished for behaviors (*People v. White*, 1840). In accord with such legal prescriptions, recent work suggests that laypeople reference behavioral factors when reasoning about why others might receive punishment (Dunlea & Heiphetz, 2020).

Finally, some scholars conceptualize legal punishment as stemming from societal factors. For example, scholars have recently highlighted how societal factors such as poverty (e.g., Eubanks, 2018) and racism (e.g., Alexander, 2012; Forbes, 2016; Van Cleve, 2016) often underlie carceral trends within the United States. This conceptualization is consistent with how societal information is typically conveyed in developmental psychology research (e.g., Vasilyeva et al., 2018) because it represents incarceration as the outcome of societal forces that are not tied to any specific individual.

Thus, people's notions about why someone might receive punishment are far from monolithic. Although people sometimes link punishment with stable, internal factors residing within an individual, they also readily link punishment with a person's own behaviors (e.g., Dunlea & Heiphetz, 2020). Moreover, people sometimes link punishment with broader factors that are extrinsic to the self (e.g., Van Cleve, 2016). Couching the current work within the context of the criminal legal system afforded us the opportunity to provide participants with different types of information about why an individual might be incarcerated. In doing so, we extended prior literature by probing the social ramifications of several different types of information about the causes of socially relevant phenomena (internal, behavioral, societal) within the same experimental paradigm. As previously mentioned, this was one of the primary theoretical contributions of the present work.

Couching the current work within the criminal legal system context also afforded us the opportunity to test the effectiveness of linking incarceration with societal factors as a way of alleviating negativity toward incarcerated individuals. Typically, people exhibit more positivity toward members of stigmatized social groups when the stigmatized characteristic in question is attributed to societal versus individual-level (internal, behavioral) causes (e.g., Cozzarelli et al., 2001; Kluegel & Smith, 1986; Schuman et al., 1997). However, it remains unclear whether a similar pattern of results might emerge within the context of the criminal legal system. Past work led to two competing possibilities.

On the one hand, the positivity typically associated with linking a stigmatized characteristic with societal factors may not emerge within the criminal legal context. If this is the case, elementary schoolers may report similar levels of negativity toward those whose incarceration is attributed to societal versus individual-level factors. Incarcerated individuals are "one of the most stigmatized groups in society" (Moore et al., 2013, p. 527). Importantly, negativity toward incarcerated individuals is robust even among children. Six- to 8-year-olds—the age range tested in the current work—report a great deal of negativity toward incarcerated individuals (Dunlea & Heiphetz, 2020). Indeed, children's negativity toward incarcerated individuals is so strong that it spills over into their judgments of peers whose parents are incarcerated (Chui, 2010; Saunders, 2018). Importantly, some work suggests that children more readily attend to negative information over positive or neutral information (Baltazar et al., 2012; Kinzler & Shutts, 2008; Vaish et al., 2008). Thus, even when presented with societal information about why someone might come in contact with the criminal legal system, children's negativity toward people who have received punishment may overwhelm the positivity typically associated with societal information. Such a finding would likely stem from children's negativity bias as opposed to children doubting that structural factors can underlie socially-relevant outcomes, since elementary schoolers are capable of recognizing how structural and situational factors underlie different types of social phenomena (Kalish & Shiverick, 2004; Peretz-Lange & Muentener, 2019; Rizzo & Killen, 2020; Vasilyeva et al., 2018).

On the other hand, the positivity typically associated with societal attributions may also emerge within the criminal legal context. If this is the case, elementary schoolers may report more positivity toward people whose punishment is attributed to societal, versus individual-level, factors. As outlined above, attributing stigmatized characteristics to societal rather than individual-level factors typically predicts more positivity toward people with those characteristics (e.g., Cozzarelli et al., 2001; Kluegel & Smith, 1986). Given that this effect has emerged in several domains, a similar pattern may occur in the criminal legal context. This result would suggest that the positivity linked with societal information may be so strong that it overpowers elementary schoolers' negativity toward people who have come in contact with the criminal legal system. Testing between these two competing possibilities is another main theoretical contribution of the current work.

To address the topics discussed above, we recruited 6- to 8-year-old children. Testing elementary schoolers was important for several reasons. First, testing children in this age range allowed us to extend, and compare our results with, previous work examining the downstream social consequences of providing people with different types of information about the causes of human characteristics (e.g., Carvalho, 2021; Heiphetz, 2019). Second, children of this age are capable of understanding information about structural factors underlying socially-relevant outcomes (Peretz-Lange & Muentener, 2019; Vasilyeva et al., 2018). As such, we were able to examine how societal information, as well as information about internal and behavioral causes, influenced children's attitudes. Third, past work suggests that children in this age range can reason about—and

respond to experimental items regarding—people who have been implicated in the criminal legal system (e.g., Bregant et al., 2016; Dunlea et al., 2020; Dunlea & Heiphetz, 2020, 2021a). Finally, around this age, children increasingly begin to report negativity toward out-group members (Buttelmann & Böhm, 2014; Liberman et al., 2018). Testing children of this age allowed us to investigate one potential way to reduce such negativity.

Overview of Current Research

The primary focus of the current work was clarifying how different types of information about why socially relevant phenomena occur shape children's social cognition across various contexts. The main dependent variable of interest across studies was children's attitudes. Specifically, Study 1 examined how three different types of information about why someone might be incarcerated affected 6- to 8-year-olds' attitudes toward incarcerated individuals. Studies 2a and Studies 2b examined two potential explanations for why participants reported different attitudes across conditions in Study 1. Specifically, Study 2a (a between-participants design) examined the extent to which participants' attitudes toward a given individual in Study 1 (a within-participants design) influenced their attitudes toward individuals presented later in the study, while Study 2b investigated the extent to which participants drew different inferences about wrongdoing across the various conditions used in Study 1. Study 3 asked whether the pattern of results from Study 1 was unique to the specific pieces of information provided in Study 1, or whether it would generalize to different pieces information of the same type. Finally, Study 4 examined the extent to which the pattern of results found in Studies 1 and 3 would generalize to contexts beyond incarceration. We did so by asking children about individuals who received a nonspecific form of punishment (getting in trouble) and, separately, about individuals who did not receive any punishment. Study 4 also elucidated the extent to which the effects documented in Studies 1 and 3 were specific to information being conveyed via a particular linguistic form (i.e., explanations) or whether such effects would also emerge if information was communicated via descriptions.

Study 1

Study 1 investigated how different types of information about why someone might be incarcerated shape children's attitudes toward incarcerated individuals. To do so, we told elementary schoolers about three different incarcerated people and attributed their contact with the legal system to their internal moral character, their behavior, or social inequality.

Method

Participants

The final sample included 86 6- to 8-year-olds (M_{age} = 6.97 years, SD_{age} = .79 years; 56% female, 42% male, 1% other, remainder unspecified; 40% White or European American, 29% Black or African American, 7% Asian or Asian American, 9% multiracial, 12% other, remainder unspecified; 19% Hispanic or Latinx, 72% not Hispanic or Latinx, remainder unspecified [our demographic questionnaire asked about ethnicity separately from race]).[1] Data from an additional two children were excluded because the child did not understand the study (n = 1) and because the parent interfered during testing (n = 1). We

recruited children from a departmental database and from museums in the northeastern United States. All children received a small prize (e. g., a sticker) for participating. Several parents (seven in Study 1, eight in Study 3, and three in Study 4) reported that their child knew someone who has been incarcerated. The main pattern of results reported in each study emerged even when these participants were excluded from analyses.

Procedure

This study and all subsequent studies reported here were conducted in accordance with APA ethical standards. Procedures were approved by the IRB at the authors' institution under protocol #AAAQ8299, "The role of essentialism in children's and adults' moral cognition."

Children completed the session in a quiet room located either in a developmental psychology laboratory or in a children's museum. First, the experimenter told children that he or she would ask questions about another person and that there were no right or wrong answers. The experimenter then introduced children to a five-point scale consisting of stick figures arrayed from smallest to largest on a sheet of paper; children learned that they would convey their answers by pointing to a figure on the scale. The experimenter instructed children on how to use the scale (e.g., "If your answer is 'not at all,' you would point here," said while pointing to the smallest picture). The remaining labels were "a little bit," "a medium amount," "a lot," and "completely."

The experimenter then asked children two test questions to gauge their understanding of the scale ("Can you show me where you would point if your answer was 'not at all'?"; "Can you show me where you would point if your answer was 'a medium amount'?"). 95% of children correctly pointed to the scale floor when indicating "not at all," and 83% of children correctly pointed to the scale midpoint when indicating "a medium amount." Participants who answered incorrectly received corrective feedback; all participants who did not answer correctly initially provided the correct answer on their second try.

Subsequently, the experimenter showed children photographs of three different individuals, one at a time, on a Power Point display. The experimenter pointed to each photograph and provided one of three pieces of information regarding why that person was incarcerated (because he was a bad person, because he did something wrong, or because he did not have very much money when he was growing up; see Table 1). After hearing each piece of information, participants indicated how much they liked the person and how much they wanted that person to live in their neighborhood after he left prison. The information used in the current study was adapted from prior work measuring the extent to which children agreed with different explanations for incarceration (Dunlea & Heiphetz, 2020). Here and in subsequent studies—unless otherwise

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[1] Study 1 also included a sample of 123 adults whom we recruited via Amazon's Mechanical Turk (MTurk). They demonstrated a similar pattern of results as did children (reported in the main text). This finding suggests that information about why someone is incarcerated may shape social cognition similarly across development. Because a similar pattern of results emerged among both children and adults, we only recruited children in all other main studies examining how information about why socially-relevant phenomena occur shapes social cognition. For congruency across studies, we focus on only children's responses for Study 1 in the main text; see online supplementary materials for relevant analyses with adults.

Table 1
Information Provided in Studies 1–2b

Information type	Specific information
Internal moral character	"He is in prison because he is a bad person"
Behavioral	"He is in prison because he did something wrong"
Societal	"He is in prison because he didn't have very much money when he was growing up"

noted—the order of the questions, the pieces of information regarding why an individual was incarcerated, and the photographs were counterbalanced across participants, as were pairings between photographs and pieces of information regarding why an individual was incarcerated.

The negative consequences of incarceration disparately accrue to people who have been marginalized on the basis of racial group membership (e.g., Alexander, 2012; Forbes, 2016; Van Cleve, 2016); thus, we reasoned that information about why an individual might be incarcerated may differentially affect participants' attitudes toward Black versus White individuals. For this reason, approximately half of our participants ($n = 45$) saw three different White men, while the remaining participants ($n = 41$) saw three different Black men; see online supplementary materials for example stimuli for this and all subsequent studies. Based on recommendations to include approximately 50 participants per cell in psychological research (Lakens & Evers, 2014; Simmons et al., 2013), we aimed to recruit approximately 50 participants in each condition. All photographs portrayed men because most people incarcerated in the United States are male (Carson & Anderson, 2016). Photographs were taken from Kennedy and colleagues (2009) and were matched on all variables on which faces in that dataset were normed, including perceived age, familiarity, mood, memorability, and picture quality. All research materials for this and each subsequent study in the main text, as well as the scale used to elicit participants' responses, are available on an online data repository (http://dx.doi.org/10.17632/jpdpvtv3nc.3).

Results

Previous work has conceptualized negative attitudes as incorporating multiple components, including dislike and a desire to avoid the disfavored person or group (Allport, 1954; Pettigrew & Tropp, 2006). Participants' ratings of how much they (dis)liked each person and how much they wanted that person to live in their neighborhood after leaving prison captured both components of negative attitude. Responses to these items were positively correlated among participants for each type of information ($.33 \leq r \leq .50$, $ps \leq .002$). Therefore, we collapsed them into one measure of attitude.[2] Here and in all subsequent studies, we report the Bonferroni-adjusted alpha alongside uncorrected p values. See online supplementary materials for detailed statistics, including descriptive statistics for each item in each of the studies and the p value, 95% confidence interval on the difference between means, and effect size associated with each pairwise comparison. We used the *rstatix* package for R when analyzing data for all studies (Kassambara, 2020).

We analyzed participants' attitudes using a 3 (Information Type: internal vs. behavioral vs. societal) x 2 (Incarcerated Person Race: White vs. Black) mixed analysis of variance (ANOVA) with repeated measures on the first factor (see Figure 1). This

analysis revealed a main effect of Information Type, $F(1.82, 152.88) = 29.44$, $p < .001$, $\eta_p^2 = .26$.[3] Neither the effect of Incarcerated Person Race nor the Information type x Incarcerated Person Race interaction reached significance ($ps \geq .130$). Given the nonsignificant effect of Incarcerated Person Race, we collapsed participants' responses across this variable.

To better understand the effect of Information Type, we compared how children viewed individuals after hearing each type of information. This analysis included three comparisons; therefore, p values needed to be .017 or lower to pass the Bonferroni-corrected significance threshold. Children reported more positive attitudes toward those who were incarcerated because they did not have very much money while growing up than toward those who were incarcerated because they had done something wrong and, separately, toward those who were incarcerated because they were bad people ($ps < .001$, Cohen's $ds \geq .51$). Moreover, children expressed more favorable attitudes toward people who were incarcerated because they had done something wrong than because they were bad people ($p = .008$, Cohen's $d = .29$).

Discussion

Study 1 investigated how different information about why someone might be incarcerated shapes children's attitudes toward incarcerated individuals. Three main findings emerged. First, children reported less positivity toward individuals whose incarceration was attributed to internal moral character than to bad behaviors. This finding dovetails with past work demonstrating the negative consequences of internal attributions for human characteristics (e.g., Heiphetz, 2019; Hussak & Cimpian, 2018). Further, this difference indicates that children can distinguish between "being a bad person" and "doing something bad." Second, children reported more positive attitudes toward individuals whose incarceration was attributed to societal factors than toward individuals who were incarcerated for any other reason. This finding indicates that the relative benefits of providing information about societal, versus individual-level (internal moral character, behavioral), causes emerge even in contexts associated with a great deal of negativity. Third, although the negative consequences of incarceration disparately accrue to Black people (e.g., Alexander, 2012), we did not find that the race manipulation did significantly influence the pattern of results in this study. This finding

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[2] We also investigated the extent to which children responded differently to the items probing how much they disliked each person and the items probing how much they wanted each person to live in their neighborhood. Here and in all subsequent studies, we did not find evidence that children responded differently across item types; see online supplementary materials for relevant analyses.

[3] Here and in all subsequent studies, all noninteger degrees of freedom reflect a Greenhouse-Geisser adjustment to correct for a violation of the assumption of sphericity.

Figure 1

Average Attitudes Toward People Whose Incarceration Was Attributed to Different Causes, Study 1
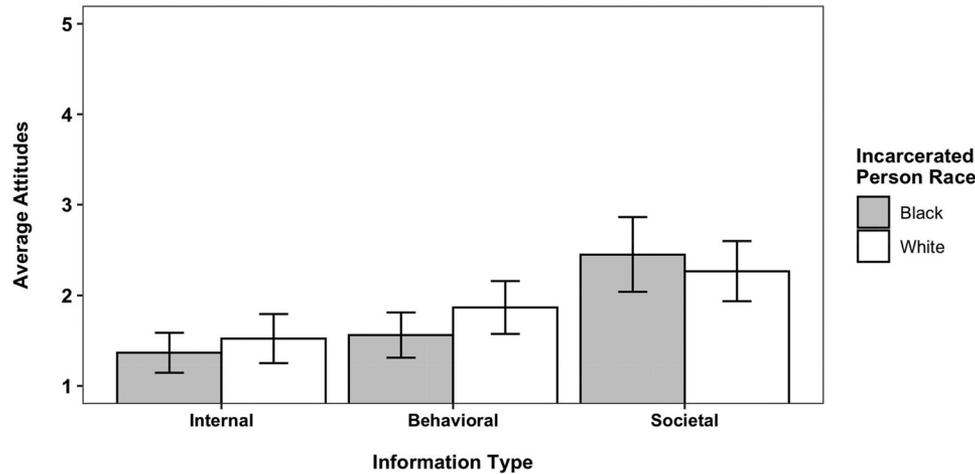
Note. Higher values reflect more positive attitudes. Error bars represent 95% confidence intervals.

suggests that the information provided about incarceration may play a greater role in shaping children's attitudes than does the racial group membership of the individual being discussed. Nevertheless, null results are difficult to interpret; it is possible that children respond differently to Black and White individuals who have been incarcerated and that the current work failed to capture this phenomenon. Thus, caution is warranted in interpreting this result.

Study 2a

Participants in Study 1 reported divergent attitudes toward people incarcerated for different reasons. One interpretation of this pattern of results is that each type of information uniquely shaped children's social cognition. However, an alternative account is that the within-participants manipulation of information type inflated differences across conditions. While there are many benefits to within-participants manipulations (for an overview, see Charness et al., 2012), one potential drawback in the context of Study 1 is that participants' attitudes toward a given individual could have influenced their attitudes toward individuals presented later in the study. Study 2a addressed this possibility by employing a between-participants manipulation of information type. Similar patterns of results across Study 1 and 2a would suggest that the within-participants manipulation of information type in Study 1 may not wholly explain why differences across conditions emerged.

Method

Participants

An a priori power analysis performed in G*Power (Faul et al., 2007) suggested that a sample of 120 participants per between-participants condition would have 80% power ($\alpha = .05$) to detect the smallest effect size associated with a significant comparison in Study 1 (Cohen's $d = .38$). In line with this recommendation, our final sample included 347 adults between 18 and 77 years old ($M_{age} = 41.23$ years, $SD_{age} = 12.36$ years; 51% female, 48% male,

1% other; 82% White or European American, 6% Black or African American, 10% Asian or Asian American, 1% Native American or Pacific Islander, 1% multiracial; 4% Hispanic or Latinx, 96% not Hispanic or Latinx). We overrecruited participants because we expected that some data would be unusable (e.g., due to failing an attention check question).

We recruited participants online via Amazon's Mechanical Turk, which we configured so that only United States residents whose approval rating was at least 95%, who had previously completed at least 1,000 other studies on the online platform, and who had not completed any other studies related to this project could participate. Participants received $.15 if they correctly answered an attention check item presented at the end of the session asking them to recall any of the items they had answered in the study. We excluded data from five additional participants because they incorrectly answered the attention check item. The pattern of results for all analyses remained unchanged when we opted not to exclude any participants.

Procedure

The procedure for Study 2a was identical to Study 1, with four notable exceptions. First, Study 2a only included adults.[4] Second, the stimuli in Study 2a were stick figures standing in a prison cell as opposed to photographs taken from the face database used in Study 1 (Kennedy et al., 2009); the stick figures did not depict racial information (see online supplementary materials for example of stimuli). We used these images because we did not find an effect of race in Study 1. Third, Study 2a employed a 3-level (Information Type: internal vs. behavioral vs. societal) between-participants design. That is, unlike in Study 1 where participants

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[4] Studies 2a–2b included only adult participants. We focused on collecting data from adults for these studies for two main reasons. First, as mentioned in Footnote 1, children and adults showed a similar pattern of response in Study 1. Second, we collected data for Studies 2a and 2b in 2021, during the coronavirus pandemic. Due to the difficulty of recruiting a large sample of child participants during this time, collecting data from adults helped expedite the research process.

learned about three different incarcerated individuals, participants in Study 2a learned about one incarcerated individual. Fourth, participants completed the procedure online and read all experimental items to themselves. They selected the scale label that best matched their response when using the Likert-scale to respond to the main experimental items.

Results

After determining that the two dependent measures ("How much do you like this person?"; "How much do you want this person to live in your neighborhood after he leaves prison?") within each information type condition correlated with each other ($.68 \leq r \leq .89$, $ps < .001$), we collapsed them into one measure of attitude. We analyzed participants' attitudes using a 3 (Information Type: internal vs. behavioral vs. societal) between-participants ANOVA (Figure 2). This analysis revealed a main effect of Information Type, $F(2, 344) = 70.06$, $p < .001$, $\eta_p^2 = .29$. To better understand the effect of Information Type, we compared how adults viewed individuals after hearing each type of information. This analysis included three comparisons; therefore, p values needed to be .017 or lower to pass the Bonferroni-corrected significance threshold. In line with the pattern of responses in Study 1, adults reported more positive attitudes toward those who were incarcerated because they did not have very much money while growing up than toward those who were incarcerated for doing something wrong and, separately, for being bad people ($ps < .001$, Cohen's $ds \geq 1.00$). Also in line with the pattern of responses in Study 1, adults expressed more favorable attitudes toward people who were incarcerated because they had done something wrong than because they were bad people ($p = .007$, Cohen's $d = .46$).

Discussion

Study 2a examined whether the pattern of results obtained in Study 1 would replicate in a new sample when employing a between-participants manipulation of information type. We found a similar pattern of results across Studies 1 and 2a. Namely, as in Study 1, participants in Study 2a reported the most positivity toward individuals who were incarcerated for a societal reason and the least positivity toward individuals who were incarcerated for their internal moral character; attitudes toward those who were incarcerated for behavioral factors fell between these two extremes. Given that this pattern of results emerged both in Studies 1 (using a within-participants manipulation) and 2a (using a between-participants manipulation), it is unlikely that study design wholly explained why Study 1 revealed differences across different types of information.

Study 2b

Study 2b built on Study 2a by examining an additional alternative explanation for why differences emerged across conditions in Study 1. Namely, Study 2b investigated the extent to which participants drew different inferences about wrongdoing across the various conditions used in Study 1. It is possible that participants in Study 1 who learned that a person was incarcerated because he did something wrong might have assumed that people whose incarceration was attributed to other causes (e.g., societal factors) did *not* do something wrong. This reasoning could have led participants to report different attitudes toward each individual. We addressed this possibility in Study 2b by asking adults whether different individuals—namely, those incarcerated for internal, behavioral, and societal reasons— were incarcerated also because they had done something wrong (i.e., committed a crime). If participants consistently draw different inferences about criminal behavior across conditions, it is possible that such inferences underlie the pattern of results found in Study 1. However, if participants do not consistently draw different inferences about criminal behavior across conditions, such a finding would likely rule out the possibility that such inferences wholly underlie the pattern of results found in Study 1.

Figure 2
Average Attitudes Toward People Whose Incarceration Was Attributed to Different Causes, Study 2
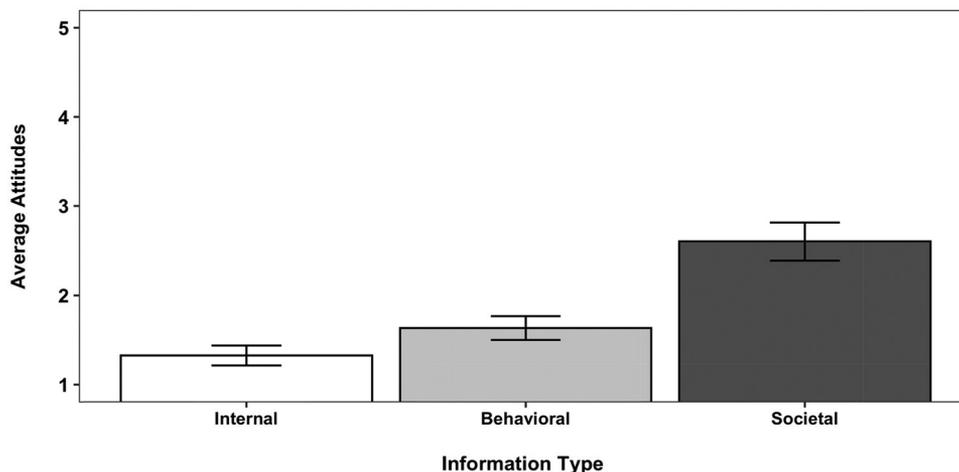
Note. Higher values reflect more positive attitudes. Error bars represent 95% confidence intervals.

Method

Participants

An a priori power analysis performed in G*Power (Faul et al., 2007) suggested that a sample of 92 participants per within-participants condition would have 80% power ($\alpha = .05$) to detect the smallest effect size associated with a significant comparison in Study 1 (Cohen's $d = .38$). In line with this recommendation, our final sample included 117 adults between 19 and 73 years old ($M_{age} = 38.97$ years, $SD_{age} = 10.91$ years; 40% female, 58% male, 2% other; 82% White or European American, 4% Black or African American, 11% Asian or Asian American, 1% Native American or Pacific Islander, 2% multiracial; 6% Hispanic or Latinx, 94% not Hispanic or Latinx). We overrecruited participants because we expected that some data would be unusable (e.g., due to failing an attention check question).

We recruited participants online via Amazon's Mechanical Turk, which we configured so that only United States residents whose approval rating was at least 95%, who had previously completed at least 1,000 other studies on the online platform, and who had not completed any other studies from our lab related to this project could participate. Participants received $.40 if they correctly answered an attention check item presented at the end of the session asking them to recall any of the items they had answered in the study. We excluded data from two additional participants because they incorrectly answered this attention check item. The pattern of results for all analyses remained unchanged when we opted not to exclude any participants.

Procedure

As in Study 1, participants viewed pictures of three different incarcerated individuals, one at a time. As in Study 2a, the stimuli portrayed stick figures standing in a prison cell. Participants read that each of the three individuals was incarcerated for a different reason (because he was a bad person, because he did something wrong, or because he did not have very much money when he was growing up). After learning about each individual, participants answered the following yes-or-no item: "Do you think this person is incarcerated also because he committed a crime?" Participants answered this item for a given individual before doing so for a different individual. They learned about each incarcerated individual in a counterbalanced order and read all items to themselves while completing the procedure online.

Results

We investigated participants' inferences about law-breaking using two types of analyses (Figure 3). First, we used a series of binomial tests to compare the proportion of participants indicating that the people they learned about broke the law with .50 (chance, indicating uncertainty about whether such individuals broke the law). This approach yielded three comparisons; thus, p values needed to be .017 or lower to pass the Bonferroni-corrected significance threshold. Participants were more likely than chance to agree that people whose incarceration was attributed to internal ($N = 116$, $p < .001$, Cohen's $g = .40$), behavioral ($N = 117$, $p < .001$, Cohen's $g = .45$), and societal ($N = 117$, $p < .001$, Cohen's $g = .33$) reasons also broke the law.

Next, we used a series of McNemar's tests to compare the extent to which participants' inferences about law-breaking in each condition differed from their inferences about law-breaking in each other condition. This approach yielded three comparisons; thus, p values needed to be .017 or lower to pass the Bonferroni-corrected significance threshold. Participants reported more agreement that people who were incarcerated for behavioral, versus societal, reasons broke the law ($p = .001$, $OR = 8.00$). No other tests reached significance (ps $\geq .070$, ORs ≤ 3.00).

Discussion

Study 2b investigated adults' inferences about people whose incarceration was attributed to internal, behavioral, and societal reasons. The proportion of participants indicating that people were incarcerated for wrongdoing was significantly above chance in

Figure 3

Proportion of Participants Indicating That a Given Individual Was Incarcerated Because He Committed a Crime, Study 2b
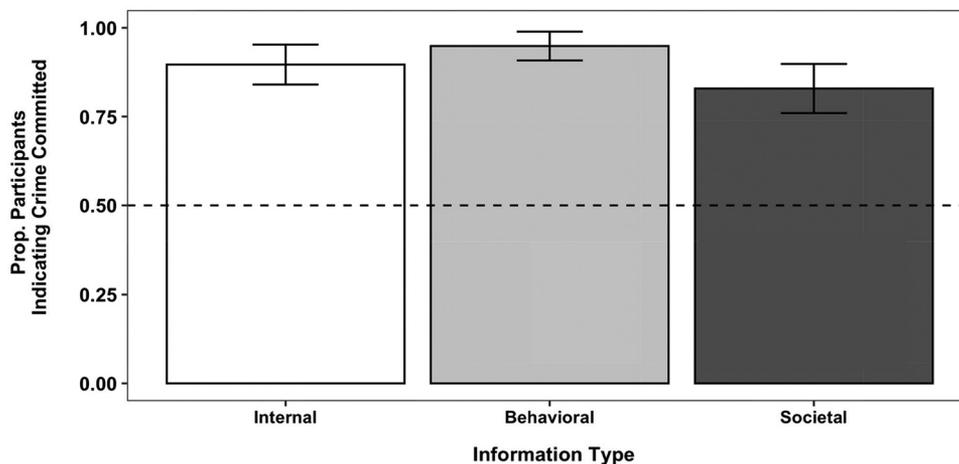
Note. Error bars represent 95% confidence intervals.

each condition. This finding dovetails with prior literature suggesting that adults readily infer that people receive legal punishment for behavioral reasons (Dunlea & Heiphetz, 2020). Although participants largely reported that individuals in each condition engaged in wrongdoing, one main difference emerged across conditions: participants reported more agreement that people who were incarcerated for behavioral, versus societal, reasons broke the law. One interpretation of this finding is that participants made divergent inferences about wrongdoing across some conditions. By extension, the divergent inferences about wrongdoing across the behavioral and societal information conditions may partially explain the difference in attitudes toward those incarcerated for behavioral, versus societal, reasons in Study 1. However, no other significant differences emerged across conditions in Study 2b; thus, it is possible that divergent inferences about wrongdoing may not fully explain *all* differences in Study 1. In particular, it is not clear why divergent inferences about wrongdoing would emerge in response to behavioral versus societal information, but not in responses to any other information pairs.

Study 3

The main contribution of Study 3 was to examine whether the effects from Study 1 would generalize to different pieces of information of the same type. For example, we tested whether providing children with information about the link between poverty and incarceration uniquely leads to relatively favorable evaluations of incarcerated individuals or whether other societal information, such as linking incarceration with racism or unfair treatment by police, would have a similar effect. In addition to telling participants about people who were incarcerated because of their internal moral character, their behavior, and societal reasons, participants learned about people whose incarceration was attributed to factors irrelevant to incarceration (e.g., having a younger brother). The irrelevant reasons served as a control condition in this study. A secondary contribution of Study 3 was to examine whether the main pattern of results from Study 1 replicated in a new sample of children.

Method

Participants

The recruitment procedure for Study 3 was identical to that of Study 1. Our final sample included 72 6- to 8-year-olds (M_{age} = 6.86 years, SD_{age} = .81 years; 43% female, 54% male, remainder unspecified; 29% White or European American, 29% Black or African American, 6% Asian or Asian American, 1% Native American or Pacific Islander, 21% multiracial, 7% other, remainder unspecified; 22% Hispanic or Latinx, 71% not Hispanic or Latinx, remainder unspecified). Data from four additional participants were excluded because the child did not understand the instructions (*n* = 2), wanted to end the study (*n* = 1), or experienced parental interference during testing (*n* = 1). All children received a small prize (e.g., a sticker) for participating.

Procedure

Children completed the session in a quiet room located either in a developmental psychology laboratory or in a children's museum. The procedure for Study 3 was identical to Study 1, with two notable exceptions. First, the stimuli in Study 3 portrayed stick figures standing in a prison cell (see online supplementary materials for example of stimuli) as opposed to photographs taken from a face database (Study 1); the stick figures did not depict racial information. We used these images because we did not find an effect of race in Study 1. As in Study 1, the experimenter displayed each image one at a time on a laptop computer screen.

Second, children learned about 12 different individuals, each of whom was incarcerated for a different reason (three for internal reasons, three for behavioral reasons, three for societal reasons, and three for irrelevant reasons; see Table 2). As mentioned above, the irrelevant information served as a control condition. We adapted the irrelevant information from prior work testing children's agreement with irrelevant explanations for incarceration (Dunlea & Heiphetz, 2020).[5]

Results

Replication of Study 1

First, we tested whether the effects found in Study 1 would replicate in a new sample. To do so, we analyzed participants' responses to the items common to Study 1 and Study 3 using a 3-level (Information Type: internal vs. behavioral vs. societal) repeated measures ANOVA. This analysis revealed a main effect of Information Type, $F(2, 138) = 72.02$, $p < .001$, $\eta_p^2 = .51$. To better understand this effect, we compared how children viewed individuals after hearing each type of information. This analysis included three comparisons; therefore, *p* values needed to be .017 or lower to pass the Bonferroni-corrected significance threshold. Replicating the pattern of results found in Study 1, children reported more positivity toward people who were incarcerated because they did not have very much money while growing up than toward people whose incarceration was attributed to an internal reason or a behavioral reason ($ps < .001$, Cohen's $ds \geq .96$). Also replicating Study 1, children expressed more positivity toward people who were incarcerated because they had done something wrong than toward people who were incarcerated because they were bad people ($p < .001$, Cohen's $d = .44$).

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[5] In addition to answering the questions described in the main text, participants also reported the extent to which they believed that each individual deserved to be incarcerated. We asked children a yes-or-no item ("Do you think this person deserves to be in prison?") followed by a second, more fine-grained item ("How sure are you? Are you very sure, kind of sure, or not very sure?"). We assigned responses numerical values from 1 (very sure that the character *does not* deserve to be in prison) to 6 (very sure that the character *does* deserve to be in prison). The purpose of asking these additional items was to test a potential mechanism that might explain why different attributions for incarceration shape divergent perceptions of punished individuals. Perceptions of how much individuals deserved punishment generally mediated the relation between different attributions and attitudes toward incarcerated individuals. All descriptive statistics for items measuring perceptions of deservingness are presented in the online supplementary materials, as are the direct, indirect, and total effects for all mediation models. These results may provide initial insight into *why* different types of information regarding why someone might receive punishment might lead to varied attitudes toward incarcerated people. However, we did not test a potential mechanism in Study 4 because we were concerned that doing so would increase the length of the study to be beyond the length of children's attention span. Thus, for congruency, we focus on children's attitudes in the main text.

Table 2
Information Provided in Study 3

Information type	Specific information
Internal moral character	"He is in prison because he is a bad person"
Internal biological	"He is in prison because something in his brain makes him different from people who are not in prison"
	"He is in prison because of the way he was born"
Behavioral	"He is in prison because he broke the rules"
	"He is in prison because he made a mistake"
	"He is in prison because he did something wrong"
Societal	"He is in prison because he didn't have very much money when he was growing up"
	"He is in prison because of the color of his skin"
	"He is in prison because the police arrest a lot of other people in his neighborhood"
Irrelevant	"He is in prison because he has a younger brother"
	"He is in prison because he uses his left hand to draw"
	"He is in prison because he ate a peanut butter and jelly sandwich for lunch yesterday"

Generalizability of Attitudes in Study 1

Next, we examined the extent to which the pattern of results found in Study 1 generalized to different pieces of information of the same type. After determining that each set of items within each information type had acceptable reliability ($\alpha_{internal}$ = .71; $\alpha_{behavioral}$ = .67; $\alpha_{societal}$ = .86; $\alpha_{irrelevant}$ = .77), we collapsed across items measuring the same type of information and analyzed these measures using a 4-level (Information Type: internal vs. behavioral vs. societal vs. irrelevant) repeated measures ANOVA (Figure 4).

This analysis revealed a main effect of Information Type, $F(3, 207)$ = 92.44, $p < .001$, η_p^2 = .57. To better understand this effect, we compared how children viewed individuals after hearing each type of information. This analysis included six comparisons; therefore, p values needed to be .008 or lower to pass the Bonferroni-corrected significance threshold. Replicating the pattern of results found in Study 1, children reported more positivity toward people who were incarcerated for societal reasons than for internal or behavioral reasons (ps < .001, Cohen's ds ≥ .91). However, unlike the pattern of results found in Study 1, children expressed more favorable attitudes toward people

whose incarceration was attributed to internal rather than behavioral reasons ($p < .001$, Cohen's d = .63). Finally, attitudes toward those who were incarcerated for societal and irrelevant reasons did not differ from one another ($p = .009$, Cohen's d = .32).

While Studies 1 and 3 suggest that attributing incarceration to societal factors yields more positive attitudes toward incarcerated people than does attributing incarceration to internal or behavioral factors, it was initially unclear why children in Study 3 reported more positivity after learning information about behavioral versus internal factors underlying incarceration. One possibility is that the additional items attributing incarceration to internal factors highlighted internal *biological* factors as opposed to internal moral character. While viewing members of stigmatized social groups as sharing underlying, inherent features often predicts negative social ramifications (e.g., Allport, 1954; Heiphetz, 2019; Hussak & Cimpian, 2018), attributing stigmatized qualities to internal biological factors may sometimes foster more positive perceptions (Carvalho et al., 2021; Dar-Nimrod et al., 2011; Monterosso et al., 2005; Robbins & Litton, 2018).

To test whether items attributing incarceration to internal biological factors yielded different attitudes than attributing incarceration

Figure 4
Average Attitudes Toward People Whose Incarceration Was Attributed to Different Causes, Study 3
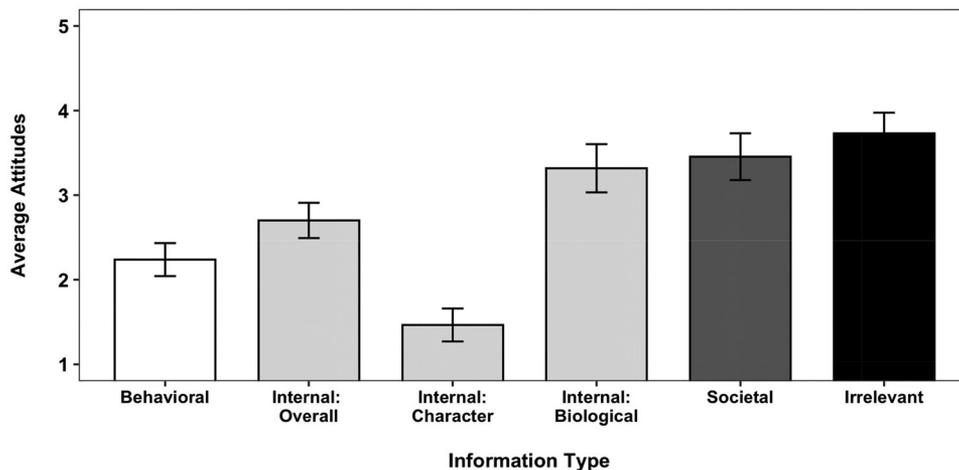
Note. Higher values reflect more positive attitudes. Error bars represent 95% confidence intervals.

to internal moral character, we collapsed items referencing each information subtype into two different variables. We then compared participants' responses to these items using paired-samples *t* test. Indeed, children expressed more favorable attitudes toward individuals whose incarceration was attributed to internal biological factors than to internal moral character, $t(69) = 11.39$, $p < .001$, Cohen's $d = 1.36$.

Because this analysis revealed a significant difference between these information subtypes, we conducted a follow-up analysis that separated items measuring perceptions of people who were incarcerated for internal factors into two variables, one measuring attitudes toward individuals whose incarceration was attributed to internal moral character and another measuring attitudes toward individuals whose incarceration was attributed to internal biological factors. We then reanalyzed participants' responses using a 5-level (Information Type: internal moral character vs. internal biological vs. behavioral vs. societal vs. irrelevant) repeated measures ANOVA (Figure 4). This analysis revealed a main effect of Information Type, $F(2.86, 197.09) = 116.39$, $p < .001$, $\eta_p^2 = .63$. To better understand this main effect, we compared how children viewed individuals after hearing each type of information. This analysis included 10 comparisons; therefore, p values needed to be .005 or lower to pass the Bonferroni-corrected significance threshold. Children expressed more negative attitudes toward people whose incarceration was attributed to their internal moral character than those who were incarcerated for internal biological, behavioral, societal, and irrelevant reasons ($ps < .001$, Cohen's $ds \geq$ .83). Moreover, children expressed more negative attitudes toward people who were incarcerated for behavioral reasons rather than internal biological, societal, and irrelevant reasons ($ps < .001$, Cohen's $ds \geq 1.08$). Finally, children exhibited more negative attitudes toward individuals whose incarceration was attributed to internal biological factors than to irrelevant reasons ($p < .001$, Cohen's $d = .46$). No other pairwise comparisons reached significance ($ps \geq .009$, Cohen's $ds \leq .32$).

Discussion

Study 3 replicated and extended the pattern of results from Study 1. As in Study 1, participants in Study 3 expressed more positivity toward individuals who were incarcerated because they did not have very much money while growing up than toward individuals who were incarcerated because they had done something wrong, and participants also expressed more positivity toward individuals who were incarcerated because they had done something wrong than toward individuals who were incarcerated for their internal moral character.

Additionally, Study 3 extended the results of Study 1 by examining whether the results from these studies generalized to different pieces of information of the same type. Together, Studies 1 and 3 provided converging evidence that information about societal causes for incarceration yields more positive attitudes toward incarcerated people than does information about individual-level (behavioral, internal) causes. However, one difference emerged between Studies 1 and 3: only participants in Study 3 reported more positivity toward individuals after learning information about behavioral, versus internal, reasons for incarceration. Follow-up analyses suggested that this pattern of results emerged because the experimental items in Study 3 highlighted two distinct types of internal factors: internal moral

character and internal biological factors. While some past work has found that information about internal biological factors may help alleviate negativity toward those who possess stigmatized characteristics (e.g., Robbins & Litton, 2018), the present work is among the first to demonstrate this effect in children (for an exception with children, see Carvalho et al., 2021). Thus, the present work suggests that children readily differentiate between different types of information regarding internal factors and adds nuance to prior work examining the downstream consequences of internal information.[6]

Study 4

Studies 1 and 3 suggest that providing children with societal information about incarceration, versus information referencing internal moral character or behaviors, leads them to report more positivity toward incarcerated people. However, because Studies 1 and 3 only examined children's attitudes toward incarcerated people, the extent to which this pattern would generalize to other contexts is unclear. Thus, the primary contribution of Study 4 was to examine the extent to which the pattern of results from Studies 1 and 3 would generalize to contexts beyond incarceration. We did so by providing children with different types of information about why people received specific (incarceration) and nonspecific (getting in trouble) forms of punishment. We also provided children with descriptions of individuals who did not receive any punishment. Comparing the "incarceration" and "in trouble" conditions allowed us to clarify the extent to which the pattern of results found in Studies 1 and 3 generalizes across punitive contexts. Moreover, comparing the "incarceration" and "in trouble" conditions with the "no punishment" condition clarified whether the pattern of results found in Studies 1 and 3 was unique to information being conveyed via one specific type of linguistic form (i.e., explanations, the focus of Studies 1 and 3) or whether such a pattern would also emerge when information was conveyed via another linguistic form (i.e., descriptions). Finally, Study 4 examined the extent to which the main pattern of results from Study 3 replicated in a new sample of participants.

Method

Participants

The recruitment procedure for Study 4 was identical to that of Studies 1 and 3, except that we also recruited children to participate in the study via Zoom, an online videoconferencing platform. We initially planned to follow the same recruitment procedure outlined in Studies 1 and 3. However, we needed to alter our recruitment procedure given the coronavirus outbreak in Spring 2020. We recruited Zoom participants by advertising in parenting groups on social media. These groups were specific to families living in

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[6] An additional study (Study S1), presented in the online supplementary materials, built on the results of Study 3 by investigating the extent to which the deleterious effects of attributions highlighting internal moral character could be ameliorated by simultaneously highlighting other types of information that are associated with more positive attitudes (e.g., information linking incarceration with societal factors). Overall, simultaneously highlighting other types of information significantly attenuated the negativity associated with attributions emphasizing internal moral character; see online supplementary materials for additional details regarding this study.

the northeastern United States, the same geographic region where we recruited in-person participants.

An a priori power analysis performed in G*Power (Faul et al., 2007) suggested a sample of 40 participants would have 80% power ($\alpha = .05$) to detect the smallest effect size associated with a significant comparison in Study 3 (Cohen's $d = .46$). In line with this recommendation, our final sample included 40 6- to 8-year-olds ($M_{age} = 6.93$ years, $SD_{age} = .86$ years; 60% female, 40% male; 70% White or European American, 3% Black or African American, 8% Asian or Asian American, 13% multiracial, 3% other, remainder unspecified; 15% Hispanic or Latinx, 75% not Hispanic or Latinx, remainder unspecified). Eighty-five percent of participants completed this study in-person (either at a museum or in a developmental psychology lab); the remainder participated via Zoom. We did not exclude data from any participants in this study. The main pattern of results reported below emerged even when responses from those participating via Zoom were excluded from analyses, suggesting that testing method did not reliably influence how children responded to experimental items. All children who participated in person received a small prize (e.g., a sticker), and all children who participated online received a $5 gift card.

Procedure

Children who participated in-person completed the session in a quiet room located either in a developmental psychology laboratory or in a children's museum. Children who participated online completed the session in a quiet room in their homes. The procedure for Study 4 was identical to Study 3, with three main exceptions. First, the stimuli in Study 4 showed stick figures against a white backdrop (see online supplementary materials for example of stimuli) as opposed to stick figures standing in a prison cell. Unlike Study 3, where participants learned only about incarcerated individuals, participants in Study 4 learned about individuals in several contexts. Because not all characters were incarcerated, we portrayed all individuals as simply standing against a white backdrop. Second, we did not test a potential mechanism in Study 4, as we did in Study 3, because we were concerned that doing so would increase the length of the study beyond the length of children's attention spans.

Third, children completed the current study in three blocks. In Block I, children learned about different individuals, each of whom was described in a different way. Mirroring the information types used in Study 3, we described each individual by highlighting internal moral characteristics, behaviors, internal biological factors, societal inequalities, or irrelevant characteristics. For instance, during one trial, an experimenter said, "Look, here is a person. He didn't have very much money when he was growing up." Participants learned about two individuals per description category, for a total of 10 individuals. After learning about each individual, participants answered the same attitudinal questions used in Studies 1 and 3 (e.g., "How much do you like this person?"). Departing from the procedure of Studies 1 and 3, we did not describe any individuals in this block as being punished in any way. The purpose of including a "no punishment" condition was to examine whether the results of Studies 1 and 3 were primarily driven by information embedded within explanations for punishment or whether information embedded within descriptions alone, in the absence of punishment, would be sufficient to observe the same pattern of results. If the former possibility is

the case, children may respond differently in the two punishment conditions (the "incarceration" and "in trouble" conditions) than they do in the "no punishment" condition. If the latter possibility is the case, children may respond similarly in all three conditions. Thus, Block I served as a control condition in this study.

We adapted the items used in Block I, as well as the items used in all subsequent blocks, from the pool of items used in Study 3. We chose these items based on how representative they were of each information type in Study 3 To determine representativeness, we calculated a mean attitude score for each category based on the three items per category tested in Study 3. We then selected the two items whose average attitude scores were closest to the overall mean for inclusion in the present study. The only exception to this procedure was that Study 4 included trials where participants learned about an individual who was described as a "mean person." Study 3 only included one trial where the participants learned about an individual's internal moral character (i.e., "He is in prison because he is a *bad person*"); thus, introducing this new description allowed us to use two descriptions per category.

During Block II, participants learned about 10 different individuals, each of whom was described as being "in trouble" for a different reason (two related to internal moral character, two behavioral, two societal, two internal biological, and two irrelevant). For instance, during one trial, an experimenter said, "Look, here is a person. He is *in trouble* because he didn't have very much money when he was growing up." The purpose of including an "in trouble" condition was to examine whether the results of Studies 1 and 3 were driven by the specific form of punishment tested in those studies (incarceration) or whether punishment in general would elicit similar results. If the former possibility is the case, children may respond differently in the "incarceration" condition (describing a specific punishment) than they do in the "in trouble" condition (describing punishment in general). However, if the latter possibility is the case, children may respond similarly in the "incarceration" and "in trouble" conditions. Thus, the purpose of Block II was to test the extent to which the pattern of results from Study 3 would generalize to a context where punishment is nonspecific.

In Block III, participants learned about 10 different individuals, each of whom was described as being incarcerated for a different reason (two related to internal moral character, two behavioral, two societal, two internal biological, and two irrelevant). The procedure for Block III was identical to Study 3's procedure.

We held block order constant across participants, who responded to all experimental items in one block before moving on to the next. As described above, participants first learned about individuals who had not received punishment, then individuals who got in trouble, and then individuals who were incarcerated. We made this decision because we did not want participants to infer that the individuals described in the first block were being punished for any reason, and we did not want participants to infer that the individuals described in the second block were in a specific type of trouble (being incarcerated). See Table 3 for a complete list of items used across Blocks I-III.

Results

Replication of Study 3

First, we tested whether the results from Study 3 would replicate in a new sample of children. After determining that each set

Table 3
Information Provided in Study 4

Punishment type	Information type	Specific information
No punishment	Internal moral character	"He is a bad person"
		"He is a mean person"
	Internal biological	"He has something in his brain that makes him different from some other people"
		"He was born in a way that makes him who he is"
	Behavioral	"He broke the rules"
		"He did something wrong"
	Societal	"He didn't have very much money when he was growing up"
		"He has this color skin"
	Irrelevant	"He has a younger brother"
		"He had a peanut butter and jelly sandwich for lunch yesterday"
In trouble	Internal moral character	"He is in trouble because he is a bad person"
		"He is in trouble because he is a mean person"
	Internal biological	"He is in trouble because something in his brain makes him different from people who are not in trouble"
		"He is in trouble because of the way he was born"
	Behavioral	"He is in trouble because he broke the rules"
		"He is in trouble because he did something wrong"
	Societal	"He is in trouble because he didn't have very much money when he was growing up"
		"He is in trouble because of the color of his skin"
	Irrelevant	"He is in trouble because he has a younger brother"
		"He is in trouble because he had a peanut butter and jelly sandwich for lunch yesterday"
Incarceration	Internal moral character	"He is in prison because he is a bad person"
		"He is in prison because he is a mean person"
	Internal biological	"He is in prison because something in his brain makes him different from people who are not in prison"
		"He is in prison because of the way he was born"
	Behavioral	"He is in prison because he broke the rules"
		"He is in prison because he did something wrong"
	Societal	"He is in prison because he didn't have very much money when he was growing up"
		"He is in prison because of the color of his skin"
	Irrelevant	"He is in prison because he has a younger brother"
		"He is in prison because he had a peanut butter and jelly sandwich for lunch yesterday"

of items within each information type had acceptable reliability in each condition (no punishment: $\alpha_{moral\ character}$ = .70; $\alpha_{behavioral}$ = .75; $\alpha_{biological}$ = .66; $\alpha_{societal}$ = .74; $\alpha_{irrelevant}$ = .76; in trouble: $\alpha_{moral\ character}$ = .86; $\alpha_{behavioral}$ = .90; $\alpha_{biological}$ = .81; $\alpha_{societal}$ = .77; $\alpha_{irrelevant}$ = .78; incarceration: $\alpha_{moral\ character}$ = .75; $\alpha_{behavioral}$ = .83; $\alpha_{biological}$ = .86; $\alpha_{societal}$ = .81; $\alpha_{irrelevant}$ = .71), we collapsed across items measuring the same type of information in the incarceration condition and analyzed these measures using a 5-level (Information Type: internal moral character vs. behavioral vs. internal biological vs. societal vs. irrelevant) repeated measures ANOVA. This analysis revealed a main effect of Information Type, $F(2.44, 94.98)$ = 59.07, $p < .001$, η_p^2 = .60. To better understand this effect, we compared how children viewed individuals after hearing each type of information, for a total of 10 comparisons. After applying a Bonferroni correction, p values needed to be .005 or lower to remain significant.

All but one significant comparison from Study 3 also emerged in Study 4. As in Study 3, children expressed more negativity toward those whose incarceration was attributed to their internal moral character than toward those who were incarcerated for internal biological, behavioral, societal, and irrelevant reasons ($ps \leq$ .002, Cohen's $ds \geq$ .54). Also as in Study 3, children expressed more negative attitudes toward those who were incarcerated for behavioral reasons than those whose incarceration was attributed to internal biological factors, societal inequalities, and irrelevant reasons ($ps <$ .001, Cohen's $ds \geq$ 1.06). No other comparisons reached significance ($ps \geq$ .018, Cohen's $ds \leq$ .39).

Generalizability of Attitudes Across Contexts

Next, we examined the extent to which the pattern of results found in Study 3 generalized to contexts outside of incarceration. To do so, we analyzed participants' attitudes using a 3 (Punishment Type: no punishment vs. in trouble vs. incarceration) x 5 (Information Type: internal moral character vs. behavioral vs. internal biological vs. societal vs. irrelevant) repeated measures ANOVA (Figure 5). This analysis revealed a main effect of Information Type, $F(2.83, 110.16)$ = 134.86, $p < .001$, η_p^2 = .78, and a Punishment type x Information type interaction, $F(5.87, 228.73)$ = 3.22, p = .005, η_p^2 = .08. The effect of Punishment type did not reach significance (p = .257).

To better understand the Punishment type x Information type interaction, we conducted two sets of tests. First, we compared each type of information with each other type of information separately in the "no punishment," "in trouble," and "incarceration" conditions. This approach resulted in a total of 30 comparisons. Therefore, after applying a Bonferroni correction, p values needed to be .002 or lower to remain significant. In each of the three conditions, children reported more negativity toward individuals after hearing information about their internal moral character than after hearing information about their behaviors, societal inequalities, internal biological factors, or irrelevant factors ($ps \leq$ .002; Cohen's $ds \geq$ .54). Moreover, in each of the three conditions, children reported more negative attitudes after hearing information about individuals' behaviors than after hearing information about societal inequalities, internal biological factors, or irrelevant factors

Figure 5
Average Attitudes Toward Individuals Who Were Described in Different Ways, Study 4
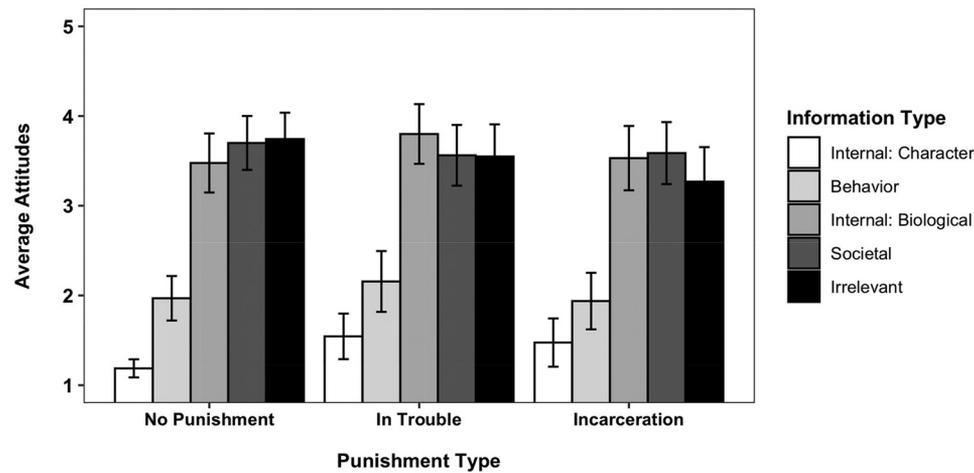
Note. Higher values reflect more positive attitudes. Error bars represent 95% confidence intervals.

(ps < .001; Cohen's ds ≥ 1.06). No other comparisons reached significance (ps ≥ .018; Cohen's ds ≤ .39).

Second, we compared children's attitudes after hearing each type of information within a given condition with their attitudes after hearing that same type of information in each of the other conditions. For example, we compared children's attitudes toward individuals who were simply described as doing something bad ("no punishment" condition) to their attitudes toward individuals who were described as being in trouble because they did something bad ("in trouble" condition) and, separately, to their attitudes toward individuals who were described as being in prison because they did something bad ("incarceration" condition). This resulted in a total of 15 comparisons. Therefore, p values needed to be .003 or lower to pass the Bonferroni-corrected significance threshold, and none did so (ps ≥ .005; Cohen's ds ≤ .47).

Discussion

Study 4 replicated and extended the results from Study 3. As in Study 3, children expressed more negative attitudes toward people whose incarceration was attributed to their internal moral character than toward those who were incarcerated for internal biological, behavioral, societal, and irrelevant reasons. Children also reported more negative attitudes toward those who were incarcerated for behavioral reasons than toward those whose incarceration was attributed to internal biological factors, societal inequalities, and irrelevant reasons. Additionally, Study 4 extended the results of Study 3 by examining whether the pattern of results from Study 3 generalized to contexts other than incarceration. A similar pattern of results emerged within each of the three conditions (no punishment, getting in trouble, incarceration). Children responded similarly after learning different explanations for why people received punishment (getting in trouble condition, incarceration condition) and after learning about different descriptions of individuals (no punishment condition). For example, children's attitudes toward those who were *incarcerated* for a behavioral reason (e.g., doing something wrong) did not differ from their attitudes toward people

who were simply described as doing something wrong. Because children did not respond differently after learning different *explanations* for why people received punishments and after learning about different *descriptions*, these results suggest that the descriptive context embedded within explanations may serve as the primary mechanism by which explanations shape children's attitudes in certain domains (see Directions for Future Research in the General Discussion for elaboration on this point).

General Discussion

The current work examined how different types of information about why a specific outcome (incarceration) occurs shape children's attitudes toward individuals experiencing such an outcome. Several main findings emerged. In Study 1, children reported the most positivity after learning that an individual was incarcerated for a societal reason and the least positivity after learning that an individual was incarcerated for their internal moral character; learning that an individual was incarcerated for a behavioral reason led children to report attitudes that fell between these extremes. Studies 2a–2b suggested that the results from Study 1 could not be wholly explained by divergent inferences about incarcerated individuals. Study 3 replicated and extended Study 1's results by showing that referencing internal moral character led to more negativity than referencing internal biological factors. In Study 4, the pattern of results in Studies 1 and 3 generalized to a context highlighting a nonspecific type of punishment (getting in trouble) and, separately, a context devoid of punishment. Study 4 also showed that the pattern of results in Studies 1 and 3 emerged regardless of whether information was conveyed via explanation or description.

Theoretical and Practical Implications of the Current Research

The current work extends prior research in several ways. First, the current findings clarify how several different types of information shape social cognition. Prior research has typically compared

only two types of information (e.g., information focusing on internal vs. societal causes, Heiphetz, 2019; Levy & Dweck, 1999; Potter & Roberts, 1984). Less work has compared multiple types of information within the same experimental paradigm. Thus, the relation among various types of information was initially unclear. We addressed this theoretical gap by probing the social ramifications of several different types of information within the same paradigm. Across Studies 1, 3, and 4, children consistently reported more positive attitudes toward incarcerated individuals after hearing societal, rather than internal or behavioral, attributions for incarceration. Children also distinguished between internal and behavioral attributions, reporting more positive attitudes in the latter case. These findings add nuance to prior work highlighting the negative ramifications of information emphasizing individual-level causes (e.g., Cozzarelli et al., 2001; Kluegel & Smith, 1986) by highlighting differences between different types of individual-level attributions.

Second, the current work highlights the durability of positivity associated with information about societal causes of stigmatized characteristics. As mentioned above, linking stigmatized characteristics with societal, versus individual-level, factors typically predict more positivity toward people with such characteristics (e.g., Cozzarelli et al., 2001). Because this effect has emerged in several domains, it was possible that a similar pattern would emerge within the criminal legal context. Alternatively, it was possible that elementary schoolers in the current work would report similar levels of negativity toward those who were incarcerated for societal, versus individual-level, causes. Children report a great deal of negativity when thinking about people who have come in contact with the criminal legal system (Dunlea & Heiphetz, 2020). Because children more readily attend to negative over positive information (e.g., Kinzler & Shutts, 2008), it was possible that children's negativity toward incarcerated individuals would overpower the positivity typically associated with societal information. The results of the current work support the former possibility, suggesting that the positivity linked with societal information may be so strong that it overpowers elementary schoolers' negativity toward people who have had contact with the criminal legal system. While the current work underscores the strength of societal information, it is important to note that such information confers *relative*—as opposed to *absolute*—positivity toward members of stigmatized social groups. Namely, the attitudes linked with societal information hovered near or slightly above the midpoint of the scale across Studies 1, 2a, 3, and 4 (indicating only somewhat positive attitudes), whereas the attitudes linked with individual-level (internal moral character, behavioral) factors were closer to the scale floor. Nonetheless, the fact that children reported even somewhat positive views toward those whose incarceration was attributed to societal factors is noteworthy given that children's a priori attitudes toward those implicated in the legal system are quite negative.

Third, the present findings elucidate the degree to which the information presented within an explanation, versus the context in which that information is communicated, influences children's attitudes. Study 4 most directly addressed this topic by examining the extent to which the pattern of results from Studies 1 and 3 generalized to a context highlighting a nonspecific type of punishment (getting in trouble) and, separately, a context completely devoid of punishment. The pattern of results in the "in trouble" and "no punishment" conditions mirrored the pattern of results in the

"incarceration" condition. Moreover, differences in attitudes toward individuals described in similar ways across contexts (e.g., individuals who were simply described as doing something bad and, separately, individuals who were described as being in trouble because they did something bad) did not emerge.

It is particularly surprising not to find differences across the "no punishment," "in trouble," and "incarceration" conditions in Study 4. Children readily make negative inferences about people after learning that they have previously received punishment (e.g., Bregant et al., 2016; Dunlea & Heiphetz, 2020). Because children often attend to negative information over positive or neutral information (e.g., Baltazar et al., 2012), it was possible that the negativity associated with punitive contexts would decrease any positivity associated with information couched within a given explanation. In other words, the likely differences in children's baseline views across conditions could have led participants to view a person described in a certain way in the "no punishment" condition more positively than a person whose punishment was explained in a similar way. For instance, children's views of a person described as doing something wrong ("no punishment" condition) could have been more positive than their views of a person who was incarcerated for doing something wrong because the negativity associated with incarceration *plus* the negativity associated with transgression would be greater than the negativity associated with just transgression. Despite the likely differences in children's baseline views across conditions, children's attitudes surprisingly generalized across different contexts. This pattern of results suggests that the information presented within an explanation plays a greater role in shaping children's attitudes toward others than the context in which that information is communicated. Moreover, this pattern of results may indirectly illuminate the mechanics by which explanations shape children's attitudes in certain domains (see Directions for Future Research section below).

Study 1 provides additional indirect evidence for the idea that the information presented within an explanation plays a greater role in shaping children's attitudes toward others than the context in which such information is expressed. Here, we did not find differences in children's reported attitudes toward Black versus White incarcerated people. As discussed in the Introduction, the United States criminal legal system disproportionately punishes individuals who are marginalized on the basis of racial group membership (e.g., Alexander, 2012). Moreover, much work in psychological science suggests that children readily attend to race (for a review, see Quinn et al., 2019), with some work suggesting that both White and non-White children show pro-White preferences (Dunham et al., 2008). Based on this prior scholarship, it was reasonable to expect that children in the current work would report different attitudes toward Black versus White individuals. The fact that such differences did not emerge may suggest that the information embedded within explanations is so powerful that it plays a greater role in shaping children's attitudes than does the racial group membership of the individual being discussed. However, it is difficult to draw strong conclusions from null results. Thus, it is possible that children hold different attitudes toward Black and White individuals and that our methodology failed to capture these differences.

Fourth, the current work demonstrates that children readily differentiate between information subtypes. In Studies 3 and 4, information about people's internal biological characteristics was associated with

greater positivity than information about people's internal moral character. This work adds important nuance to prior scholarship documenting the consequences of viewing human characteristics as stemming from internal causes, largely because most research testing children suggests that linking human characteristics with internal factors exacerbates—as opposed to mitigates—bias (for reviews, see Heiphetz, 2020; Rhodes & Mandalaywala, 2017). Thus, the current work extends past scholarship by highlighting the need to study subtypes of internal information (i.e., highlighting information about biological and nonbiological causes), partially because information about internal factors shapes social cognition differently across information subtypes.

Finally, in conjunction with prior work testing adults, the current studies reveal how certain types of information about why a socially relevant outcome occurs might shape social cognition over development. Past work examining the consequences of information about internal biological causes for human characteristics has largely focused on adults (e.g., Boysen, 2011; Dar-Nimrod & Heine, 2011; for an exception with children, see Carvalho et al., 2021; Lui et al., 2019; Martin & Heiphetz, 2021; Monterosso et al., 2005). Moreover, much of this work has yielded mixed results regarding the consequences of such information. Some work suggests that information about internal biological causes for stigmatized characteristics helps reduce negativity toward individuals possessing such characteristics because it reduces judgments of blameworthiness (e.g., Dar-Nimrod et al., 2011; Monterosso et al., 2005). Other work, however, indicates that highlighting information about internal biological factors has negative repercussions, in part because doing so can inflate perceived between-group differences (e.g., Rhodes & Mandalaywala, 2017) and portray members with certain stigmatized characteristics as dangerous (e.g., Boysen, 2011).

The current work extends this previous research by testing the effects of information linking stigmatized characteristics with internal biological causes. In Studies 3 and 4, referencing internal biological factors alleviated children's negativity toward individuals with a given stigmatized characteristic (incarceration status) to a greater extent than did referencing internal moral character or behaviors. In conjunction with past work highlighting the benefits of biological attributions, one interpretation of these findings is that the benefits of providing information about internal biological factors may not depend on extensive amounts of social learning. A second, perhaps more nuanced, interpretation is that the effect of providing information about internal biological factors may become more context-dependent over development. The adult social psychology literature may have yielded mixed results because researchers have tested the consequences of providing information about internal biological factors across slightly different contexts and situations (see Boysen, 2011; Martin & Heiphetz, 2021, for further discussion of this point). In the current work, we did not find that information about internal biological factors shaped children's social cognition differently across different contexts, suggesting that references to internal biological information plays a greater role in shaping children's judgments than the context in which such information is communicated. Thus, it is possible that, over development, people become more sensitive to the context in which information about internal biological factors is presented. This increased sensitivity to context may help explain the heterogeneity in adults' judgments concerning internal biological causes.

Directions for Future Research

The current work examined the consequences of different types of information. In doing so, the present studies made several important theoretical contributions. However, as in all programs of research, additional questions remain open for future investigation.

One potentially fruitful avenue for future research could clarify the mechanism underlying differences in children's attitudes across studies. One possibility is that explanations presented in Studies 1 and 3 changed children's attitudes via their own causal reasoning. Indeed, past work suggests that verbal framing and statistical patterns can shift children's reasoning about the causes of a given outcome (Peretz-Lange & Muentener, 2019; Vasilyeva et al., 2018) and that children readily update their beliefs about an entity's causal structure after learning relevant information (Lucas et al., 2014). Thus, explanations for legal system contact in Studies 1 and 3 may have changed children's beliefs about the causes of such contact; in turn, the degree to which children changed their causal beliefs about legal system contact may have predicted differences in attitudes.

While future work can directly test this possibility, the findings reported in Study 4 offer initial evidence against this possibility. As previously discussed, we did not find that children in Study 4 responded differently after learning information that was conveyed via *explanations* and after learning information that was conveyed via *descriptions*. For example, we did not find that children reported different attitudes after hearing explanations linking incarceration with internal moral character (e.g., "He is in prison because he is a bad person") and after hearing information describing individuals in a similar way (e.g., "He is a bad person"). One interpretation of these findings is that the mechanism underlying the observed pattern of results in Studies 1 and 3 does not involve children's own explanatory reasoning. That is, these findings provide initial evidence that children's attitudes changed as a result of learning a new piece of information about an individual as opposed to updating their causal beliefs about a given characteristic (e.g., incarceration status). This possibility is broadly consistent with prior literature suggesting that children update their global impressions of others after learning new information about them (e.g., Dunlea & Heiphetz, 2021a; Lapan et al., 2016; Ronfard & Lane, 2018).

Another direction for future research concerns the stability of children's attitudes over time. We investigated how different information influenced children's attitudes at a single point in time. Thus, it is unclear what effect, if any, the information would have at a later time point. On the one hand, learning something new about an individual may have an enduring impact on social cognition. On the other hand, subjective experiences, such as attitudes toward others, change over time (e.g., Johnson et al., 1993). Thus, learning a new piece of information about an individual may shape social cognition for a short amount of time. If this is the case, future programs of research can explore how to sustain the palliative effects of societal attributions for certain stigmatized outcomes (e.g., incarceration). Some prior work has found that "booster interventions"—additional treatments following an initial intervention—help maintain or even enhance initial intervention effects (e.g., Lochman, 1992; Tolan et al., 2009). Extending this reasoning to the present study, researchers can provide children with information about how societal factors give rise to stigmatized

characteristics at several time points to sustain the benefits of such information.

Finally, future studies can include a greater variety of dependent measures. Namely, participants in Study 2b indicated their inferences about wrongdoing using a binary measure. We designed Study 2b to answer a categorical question: do participants who learn different information about the reasons for incarceration draw different inferences about whether an individual committed a crime? Future work could investigate more nuanced questions using a continuous measure, such as how likely participants think it is that a given individual committed a crime or how much certainty participants have about their judgments. Moreover, an open-ended measure may reveal qualitative differences regarding the types of crimes committed by individuals incarcerated for different reasons (e.g., participants may report that individuals incarcerated for internal reasons committed more serious crimes than individuals incarcerated for societal reasons). Future work can examine these possibilities.

Conclusion

The current work examined how several different types of information (e.g., internal, behavioral, societal) shape attitudes across diverse contexts. Participants reported the most positivity after learning about people who were incarcerated for societal reasons and the least positivity after learning about people who were incarcerated for their internal moral character, with information highlighting behaviors leading to attitudes between these extremes. Importantly, these results could not be fully explained by participants drawing different inferences about each of the characters. Further, references to internal moral character led to more negativity than references to internal biological factors. Notably, children's attitudes did not differ regardless of whether a given piece of information represented a description of a person, an explanation for nonspecific punishment, or an explanation for incarceration. Thus, descriptive content embedded *within* explanations may be the mechanism by which explanations shape children's attitudes. Taken together, these results demonstrate that—for better or for worse—the way in which we express our beliefs about social phenomena help shape the social realities in which others must live.

Context of the Research

These studies are part of the authors' larger program of research investigating children's and adults' views of people whom they perceive to have transgressed, including individuals who have had contact with the legal system. This project most directly builds from the authors' prior work investigating children's and adults' own inferences about why other people might come in contact with the criminal legal system (Dunlea & Heiphetz, 2020). Given that such inferences can create distinct social realities, the authors examined how different information about why someone might receive one type of punishment—namely, incarceration—might shape children's attitudes toward punished individuals.

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