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Children's initial responses and beyond:

Effects of niceness and similarity on preference, giving, and memory

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Abstract

The current study assessed children's preference, giving, and memory to investigate the impact of social information over time. We compared five- and six-year-olds' (N=144) immediate or delayed responses to an individual who does or does not share their toy preference (similar vs. dissimilar) or an individual who treats others kindly or poorly (nice vs. mean). Immediately, children all preferred the similar or nice characters, but gave more stickers to the similar character. This strong initial effect of similarity was not evident after one week; children's preference, giving, and memory reflected a greater long-term impact of niceness than similarity. These findings highlight the importance of using multiple features and measures to elucidate children's evolving views about others.

Keywords: social preference; social cognition; memory; cognitive development; morality

In recent years, social cognitive development has received increasing attention in psychological science (Banaji & Gelman, 2013; Dunham & Olson, 2008; Olson & Dweck, 2008). An area of especially active research and debate concerns the question of the origins and development of social preferences (for reviews, see Bloom, 2013; Hamlin, 2013; Kinzler, Shutts, & Corell, 2013). Notably, this work has largely focused on children's initial responses towards others, so it remains unclear what impact information prompting such evaluations has over time. Indeed, our subjective experiences—our judgments, memories, and beliefs—are subject to change (Johnson, Hashtroudi, & Lindsay, 1993), so examining the impact of social information at different time points should help illuminate the factors underlying children's evolving social views.

Our work builds on previous observations suggesting that children's initial views may not forecast their later ones. For example, when asked to evaluate others in the moment, children appear to see the world through “rose-colored glasses” (Boseovski, 2010). Five- and six-year-olds positively evaluate an individual after learning that they committed a single good action in addition to many bad ones (Rholes & Ruble, 1984). At this age, children from different cultures also believe that an individual's negative qualities will become positive as they grow (Lockhart, Chang, & Story, 2002; Lockhart et al., 2009). However, when asked to report another child's behavior after a delay, children misremember them as having behaved worse than they actually did (Tasimi & Johnson, 2015). Whether it was a week or even a day after learning another child took stickers, children exaggerated the amount that another child took. These findings—in combination with other work showing that children at this age are more likely to give resources to disadvantaged over advantaged recipients in the moment, but advantaged over disadvantaged recipients after a delay (Li, Spitzer, & Olson, 2014)—invite questions about the impact of social

information over time among five- and six-year-olds. For this reason, we recruited these ages for the current study.

Here, we focused on two social characteristics that have previously been shown to guide children's responses: niceness and similarity. Although there are innumerable ways that children may consider themselves as similar to others (for review, see Liberman, Woodward, & Kinzler, 2017; and see Discussion for more on this issue), we conveyed similarity based on shared preferences given past research suggesting that this dimension of similarity is recognized and appreciated in similar ways to the dimension of niceness. For example, before they celebrate their first birthday, infants prefer nice individuals (Buon et al., 2014; Hamlin & Wynn, 2011; Hamlin, Wynn, & Bloom, 2007; Scola et al., 2015), and individuals who are helpful toward nice individuals (Hamlin et al., 2011). At these same ages, infants also prefer individuals who share their own preferences (Mahajan & Wynn, 2011), and individuals who are helpful toward similar individuals (Hamlin et al., 2013). Beyond infancy, it is well documented that people are attracted to individuals who share their preferences (e.g., Byrne, London, & Reeves, 1968; Fawcett & Markson, 2010, Wynn, 2016) and individuals who treat others well (e.g., Hamlin, 2013; Hardy & Van Vugt, 2006; Parkhurst & Asher, 1992), indicating that these two social characteristics are important at various ages.

What is the impact, over time, of children learning that someone is nice or that someone is similar to them? It is possible that a difference (if any) in children's responses to a nice (vs. mean) character and a similar (vs. dissimilar) character are the same after a delay as initially, suggesting that these two qualities persist similarly in their social calculus. However, other patterns are possible. For example, children's attraction to similarity (vs. dissimilarity) may fade over time less than their attraction to niceness (vs. meanness). It has been argued that a

preference for likeminded others guides our social partner preferences (Wynn, 2016), and past research has revealed that children preferentially remember self-referential information (Cunningham et al., 2014). On the other hand, niceness may be more impactful than similarity over time—at least similarity on the basis of shared preferences. Indeed, theorists have suggested that moral concerns are at the core of children's social judgments (Hamlin, 2013), and knowing who is good and bad guides everyday decisions (Baumard, André, & Sperber, 2013; Cosmides & Tooby, 1992).

In the current study, we used three measures to assess the impact of niceness and similarity over time: (1) As commonly used before, asking children to express a preference between a nice vs. mean or a similar vs. dissimilar character provided a binary measure of children's social preferences. (2) The number of stickers children gave to the character they preferred provided a measure of the magnitude of such preferences. This measure also had two other potential benefits. It provided a common metric for comparing evaluations made on two different bases of preference (nice vs. similar). In addition, it addressed the possibility that while explicit memory contributes to social preferences after a delay, affective responses can persist implicitly in the absence of explicit memory (Johnson, Kim, & Risse, 1985). For example, weeks after being introduced to a nice and a mean person, individuals with Korsakoff's amnesia recalled almost nothing about the two people, yet they still preferred the nice character. Importantly, the magnitude of this preference was greater for healthy controls, who were better able to recall the characteristics of the individuals previously encountered. Thus, children's giving holds the potential of revealing implicit effects after a delay in addition to showing whether delayed preferences are related to explicit memory. (3) Finally, in line with the finding that explicit memory contributes to long-term social responses, we also measured children's

recall about nice and similar others. Taken together, these three measures (preference, giving, and memory) provided an examination of the idea that, over time, different types of social information may be differentially impactful.

Participants

The study included 144 children (73 girls; mean age = 6.08 years; range = 5.05-6.99 years) from suburban towns in the northeastern United States. The children tested were 90% White, 6% Black, and 4% Hispanic. Sample size was pre-determined as 36 participants per cell based on past research indicating that this number should be sensitive to changes, with time, in memory by children of this age for the social behaviors of others (Tasimi & Johnson, 2015). Data collection stopped once we reached this pre-determined number. Children were tested individually in a quiet room at their school. Parents provided written informed consent; children provided oral assent. All sessions were audio-recorded and the Human Subjects Committee at our university approved all study procedures.

Method

Children were randomly assigned to either a Nice/Mean or a Similar/Dissimilar scenario. In the Nice/Mean scenario, children were shown photographs of two smiling children, each accompanied by a verbal description (e.g., "This is Nate. Nate is always being nice. The other day, he helped someone on the playground. This is Peter. Peter is always being mean. The other day, he pushed someone on the playground."). In the Similar/Dissimilar scenario, children were asked to choose between two cat puppets, one gray and the other orange; children chose the two cat puppets equally often (49% chose gray; 51% chose orange). After making a choice, children were shown photographs of two smiling children, each accompanied by a verbal description (e.g., "This is Nate. Nate is just like you. The other day, he picked the same kitty you picked.

This is Peter. Peter is not like you. The other day, he picked the other kitty you didn't pick.”). Gender of the characters was matched to the gender of the participant, and the following were counterbalanced across participants: (1) Names assigned to the nice and mean (or similar and dissimilar) characters (Nate/Marcia or Peter/Susan); (2) Order of nice/mean (or similar/dissimilar) descriptions.

Children in the Nice/Mean and Similar/Dissimilar scenarios were randomly assigned to either an Immediate or a Delay Condition. In the Immediate condition, children were immediately asked which of the two characters they liked (“Who do you like?”). After indicating a preference, children were given five stickers and were asked if they wanted to give the character they preferred any of their stickers (“For coming in today, you get five stickers. So the kid you like has no stickers. Would you like to give him/her any of your stickers?”). Children in the Delay condition were asked these two questions one week later.

After answering these two questions, children in the Delay condition were asked to recall what they remembered about the two targets (e.g., “What do you remember about Nate? What do you remember about Peter?”). Children in the Immediate Condition also returned after one week (three children in the Similar/Dissimilar scenario and two children in the Nice/Mean scenario were absent on this day), in which they chose again between the two targets and were then asked to recall what they remembered about them.

Recall responses were coded as belonging to one of five categories: (1) *Morality* (e.g., “She’s nice”; “Peter was being mean to people”; “She, like, always pushes people or gets mad”); (2) *Similarity/Preferences* (e.g., “He is just like me”; “He liked the same cat as me”; “I liked the cat with the gray and then Marcia liked the one with the yellow”); (3) *Resources* (e.g., “I gave him, I think, three of my stars”; “He got five stars”; “She has a lot of stars”); (4) *Other* (e.g.,

“Marcia has braids”; “He likes to wear socks”; “Susan has, like, this kind of hair”); (5) *Nothing* (e.g., “I don’t know”). The first author and a coder blind to condition and the study’s hypotheses independently coded children’s responses along these five categories; they were in 100% agreement.

Results

Social Preferences: The percentage of children choosing the nice or similar character is shown in Figure 1. In the Immediate condition, children unanimously preferred the nice character to the mean character in the Nice/Mean scenario (36 of 36 children, binomial probability, $p < .001$), and the similar character to the dissimilar character in the Similar/Dissimilar scenario (36 of 36 children, binomial probability, $p < .001$). Children’s preference did not differ between these two scenarios, Fisher’s exact, $p = 1$. By contrast, in the Delay condition, children’s preference differed between the two scenarios, Fisher’s exact, $p = .042$. Whereas children preferred the similar and dissimilar characters at equivalent rates (20 of 36 children chose similar, binomial probability, $p = .62$), they preferred the nice character to the mean one (29 of 36 children chose nice, binomial probability, $p < .001$). Replicating this finding, children in the Immediate condition who were tested again after the week delay (not shown in Figure 1) did not show a preference for the similar character to the dissimilar character (21 of 33 children chose similar, binomial probability, $p = .16$), but showed a preference for the nice character to the mean character (31 of 34 children chose nice, binomial probability, $p < .001$), resulting in a preference difference between these two scenarios, Fisher’s exact, $p = .009$.

Giving: The number of stickers given to the nice and similar characters by the children who chose the nice ($N_{\text{Immediate}}=36$; $N_{\text{Delay}}=29$) and similar ($N_{\text{Immediate}}=36$; $N_{\text{Delay}}=20$) characters, respectively, is shown in Figure 2. An analysis of variance with character (nice vs. similar) and

condition (immediate vs. delay) as between-subjects factors did not yield a main effect of character, $F(1, 117) = .002, p = .96$, or condition, $F(1, 117) = .008, p = .93$. However, there was a significant character x condition interaction, $F(1, 117) = 8.29, p = .005$. Subsequent analyses clarify the significant interaction and support the impression from Figure 2 that the pattern over time differed between the two conditions: children gave significantly more to the nice character ($M = 2.93; SD = 1.41$) after a delay than immediately ($M = 2.14; SD = 1.64$), $t(63) = 2.06, p = .044, d = .52$, whereas they gave significantly less to the similar character after a delay ($M = 2.10; SD = 1.83$) than immediately ($M = 2.94; SD = 1.26$), $t(54) = 2.03, p = .047, d = .53$.

Recall: Children's recall after a week about the nice and similar characters is shown in Table 1. The data in Table 1 and the analyses included only those children who chose the nice and similar characters after a delay. Data from children in the Immediate ($N_{\text{Nice}}=31; N_{\text{Similar}}=21$) and Delay ($N_{\text{Nice}}=29; N_{\text{Similar}}=20$) conditions were combined for analyses because a series of chi-square tests revealed no difference in the pattern of children's recall for the nice and similar targets.

Children differentially recalled the nice versus similar targets, chi-square test, $p < .001$. Whereas children referred to morality when recalling the nice character ($M = 87\%$), they referred to similarity/preferences when recalling the similar character ($M = 57\%$). An additional analysis categorizing participants as either "rememberers" or "forgetters" revealed that children were more likely to recall no information about the similar character ($M = 29\%$) compared to the nice character ($M = 7\%$), Fisher's exact, $p = .004$.

To explore the potential relation between changes in children's giving after a delay and explicit memory, we also analyzed children's giving based on whether they remembered the similar character in terms of similarity ($N=10$; "similarity rememberers") or nothing ($N=7$;

“similarity forgetters”). We were unable to conduct a comparable analysis for the Nice/Mean scenario because only 2 of the 29 children choosing the nice character in the Delay condition remembered nothing. As previously noted, children gave an average of 2.94 ($SD = 1.26$) stickers to the similar character in the Immediate condition. Similarity rememberers in the Delay condition ($M = 2.30$; $SD = 1.95$) did not differ in the amount that they gave to the similar character from children in the Immediate condition, $t(44) = 1.26$, $p = .21$, $d = .39$. In contrast, similarity forgetters ($M = 1.14$; $SD = 1.57$) gave less to the similar character than children in the Immediate condition, $t(41) = 3.32$, $p = .002$, $d = 1.26$. However, the difference in giving between the similarity rememberers and the similarity forgetters in the Delay condition was not significant, $t(15) = 1.30$, $p = .21$, $d = .65$.

Discussion

The current work highlights the importance of using multiple measures to understand the potentially changing impact of social information over time. Initially, children were equally likely to prefer a nice character (vs. a mean one) and a similar character (vs. a dissimilar one), but they were more generous toward the similar character, suggesting a stronger immediate impact of similarity compared to niceness. However, when tested after one week, children showed a preference for a nice character to a mean one, but they did not prefer a similar character to a dissimilar one. Moreover, children gave more to a nice character after a delay than immediately, but they gave less to a similar character after a delay than immediately, further indicating that niceness, in this case, had a greater long-term impact than similarity. Consistent with this point, children were more likely to explicitly remember that a character was nice than that a character was similar. Below we discuss possible explanations for these findings and note limitations of our study, which suggest fruitful directions for future research.

Children's immediate preferences in this study are consistent with other developmental work demonstrating that children prefer nice (Buon et al., 2014; Hamlin & Wynn, 2011; Hamlin et al., 2007; Scola et al., 2015) and similar (Mahajan & Wynn, 2011) others. Importantly, the current findings extend this work by showing that, under some conditions, similarity may speak louder than niceness in the moment, as evidenced by children's greater giving to the similar character compared to the nice character. One possibility is that the "sameness" highlighted here invites children to think of themselves as being personally connected to the similar character (e.g., "Nate is just like you"), a connection that may not be formed to the nice character (e.g., "Nate is always being nice"). Since self-relevant information is evaluated more positively than other-relevant information in a variety of contexts (Belk, 1988; Feys, 1991; Kahneman, Knetsch, & Thaler, 1991; Kim & Johnson, 2014), it may be that implicating the self elicits a strong affective response, which in turn increases children's giving in the moment. An interesting future direction would be to manipulate the level of self-relevance for different social characteristics when investigating children's responses towards others.

Although children gave significantly more to a similar character than to a nice character initially, this should not be interpreted as similarity is "stronger" than niceness. After a week, children continued to prefer a nice character versus a mean one, but they did not show a preference for a similar character versus a dissimilar one. In addition, the number of stickers given to the similar character significantly decreased. This decrease in children's giving toward the similar character may reflect a decrease in explicit memory about which character was similar to them. Consistent with this interpretation, giving to the similar character was lower in the Delay condition than in the Immediate condition, but only for those children who remembered nothing. These results suggest that a strong preference for a character in the

moment based on a characteristic (e.g., similarity) does not necessarily lead to an explicit preference (or memory) after a delay, nor does it necessarily have lasting implicit effects (e.g., on children's giving). These findings encourage future work adapting the multi-measure approach used here to investigate the relation among explicit memory, implicit memory, preference, and giving as indices of the changing impact of similarity, niceness, and other characteristics over time.

Importantly, our findings do not suggest that similarity is typically poorly remembered or a fleeting basis of evaluation. The similarity used here (shared puppet preference) was unimportant over time despite evidently triggering positive self-referential affect in the moment. This finding raises questions about the set of similarity features to which our results do and do not generalize. Of course, how children respond to similar others will depend very much on the dimension of similarity. For example, children consider themselves as similar to others along many dimensions (Lieberman, Woodward, & Kinzler, 2017), including language (e.g., Kinzler, Dupoux, & Spelke, 2007; Kinzler, Shutts, DeJesus, & Spelke, 2009) and race (e.g., Aboud, 1988; Baron & Banaji, 2006; Kinzler & Spelke, 2011). Studying children's responses towards—and explicit memory about—nice and similar others along these other dimensions of similarity (as well as various dimensions of “niceness”) should reveal informative patterns in the relative impact of niceness and similarity over time, helping explicate fundamental factors contributing to the development of social views.

There are also intriguing questions about the underlying cognitive and emotional processes that contribute to the importance of certain features in children's social calculus. For example, theorists have argued that knowing who is good and bad guides how we navigate the everyday social world (Baumard, André, & Sperber, 2013; Cosmides & Tooby, 1992).

Following this idea, knowing that someone shares your toy preference may not be viewed as a proxy for cooperative behavior unlike similarity along other dimensions, such as the ones noted above (e.g., children expect members of the same group to be intrinsically obligated to each other; see Chalik & Rhodes, 2014; Rhodes & Chalik, 2013). In contrast, knowing how people treat others generally serves as a strong proxy of how they will treat you, so this type of behavior may be important later on. The current findings indicate that children's attraction toward a nice character increased with time, a result that is consistent with studies of adults suggesting that memory associated with preferences is sometimes distorted in ways that support initial impressions (Mather, Shafir, & Johnson, 2000; Norton, Vandello, & Darley, 2004). One potential mechanism for the maintenance or increase in attraction over time is that behavior thought to be more diagnostic of future personal benefit may receive more post-event reflective attention such as refreshing (Johnson, Reeder, Raye & Mitchell, 2002), rehearsing (Rundus, 1971), and reactivating or retrieving (Roediger & Karpicke, 2006) than behavior that seems less relevant to future personal benefit. Children's increased giving toward the nice character after a delay—and recall of nice information—is consistent with this possibility.

More generally, studying what children explicitly remember should be informative in understanding children's social views. Previous work has suggested that judgments and explicit memory are not always linked (Hastie & Park, 1986), and this dissociation can take several forms. In some situations, people maintain their social evaluations even after forgetting what drove them (Johnson, Kim, & Risse, 1985; Somerville, Wig, Whalen, & Kelley, 2006; Todorov & Olson, 2008). Notably, other research exploring the relationship between immediate and delayed judgments suggests that they can reverse with time (Li, Spitzer, & Olson, 2014; Olson et al., 2013). In our study, some children's understanding of the characters appeared to change after

a delay. A few children in the Similar/Dissimilar scenario remembered the similar character in terms of morality even though moral behavior was not referenced whatsoever in the initial descriptions. Thus, children may prefer an individual in the moment for one reason (e.g., because they are like me), but with time, prefer them for a different reason (e.g., because they are nice), even though it is not necessarily accurate. Understanding the circumstances under which such distortions in recall are likely to happen presents many open and interesting questions.

While the current study focused on who children like, it is worth noting that a number of studies have also investigated who children dislike. Following prior work showing that children reject wrongdoers (Buon et al., 2014; Hamlin et al., 2007, 2010; Scola et al., 2015; Tasimi, Johnson, & Wynn, 2017; Tasimi & Wynn, 2016) and dissimilar individuals (Mahajan & Wynn, 2011; Wynn, 2016), it is unclear whether children in our study liked the nice/similar character, disliked the mean/dissimilar character, or both. For example, previous studies report a memory advantage for wrongdoers (Kinzler & Shutts, 2008) and wrongdoings (Baltazar, Shutts, & Kinzler, 2012). Thus, our finding that children maintained a preference for a nice character over time could reflect that children remembered the mean character and their aversion to the mean character drove their preference for the nice character. This seems unlikely given that the majority of children preferring the nice character after a week remembered them in terms of niceness. Nevertheless, it would be interesting to study preferences and aversions since there is reason to suspect that aversions may decrease less, or become more exaggerated, with time. There is evidence from infancy to adulthood that bad impressions are quicker to form and last longer than good ones (Baumeister et al., 2001; Rozin & Royzman, 2001; Vaish, Grossmann, & Woodward, 2008), so exploring how valence may interact with the impact of social information over time represents an exciting avenue for future research.

Limitations

While our findings prompt many directions for future research, they should be considered in light of their limitations. For example, the majority of children tested in the current study came from largely White communities, raising questions about how our findings generalize to more diverse samples. Indeed, children's responses to similar others is likely to be influenced by their social experiences (Wynn, 2016); for example, empirical work has revealed how reasoning about social categories depends on whether a child is raised in a racially homogenous or heterogeneous environment, and whether their own race represents the racial majority or minority group (Kinzler & Dautel, 2011). Thus, in thinking about future work comparing the impact of similarity to other features such as niceness, it would be interesting to explore whether responsiveness to similarity is greater or less among children that understand and/or expect differences between themselves and others. In short, larger studies that vary the social features manipulated and individual differences in experiences that children bring to the experimental situations presented to them would help identify critical dimensions in the development of social views.

Furthermore, we only tested five- and six year-olds. As noted above, this age range was selected to build on previous studies investigating this age group. However, sampling a larger age range is essential for building a more complete understanding of cognitive and emotional processes underlying social cognition. For example, questions that emerge when considering how social views may change across development include: Do adolescents compared to children and/or adults show relatively better memory for similar others given past work suggesting that similarity in orientation toward peer culture (e.g., music, fashion) is pronounced in adolescence (Berndt, 1982)? Are older adults more likely to respond strongly to niceness initially and/or over

time based on findings indicating a positivity effect in their attention and memory (Mather & Carstensen, 2005)?

It is also important to emphasize that our study does not reflect a comprehensive examination of niceness and similarity. For one, the current findings can only reveal so much about the fate of niceness and similarity given the particular descriptions used for the two characteristics (see p. 12 for more). In addition, it is unclear to what extent children's responses are due to niceness and similarity per se, or due to additional features of the descriptions provided. As previously noted, similarity was conveyed in a self-relevant way whereas niceness was not (see p. 11 for more). Another limitation is that children may have considered niceness to be more stable than similarity based on how the two characters were introduced. For example, the nice character was described as "always being nice" whereas the similar character was described as "just like you." The phrase "just like you" does not make it clear whether the similar character is like the child in all ways all the time, or just when it comes to the single toy choice. Thus, when considering children's responses in the Delay condition, it may be that children prioritize information that is viewed as permanent rather than information that is viewed as fleeting. However, it is important to note that even if similarity in our study was viewed as fleeting, it does not mean that it was not impactful—children gave significantly more to the similar character than the nice character in the moment, illustrating that the dimension was initially meaningful. Overall, addressing these various limitations should offer additional insight into the issues explored here.

Conclusions

Taken together, we consider our investigation as a step towards a more complete understanding of social cognitive development. Although existing research has uncovered much

information about the ways in which children respond towards others in the moment, surprisingly little is known about how these responses might change after they are initially expressed. The present study illustrates the potential benefit of comparing different types of social characteristics with multiple measures as a way of exploring children's social views and how they may evolve over time.

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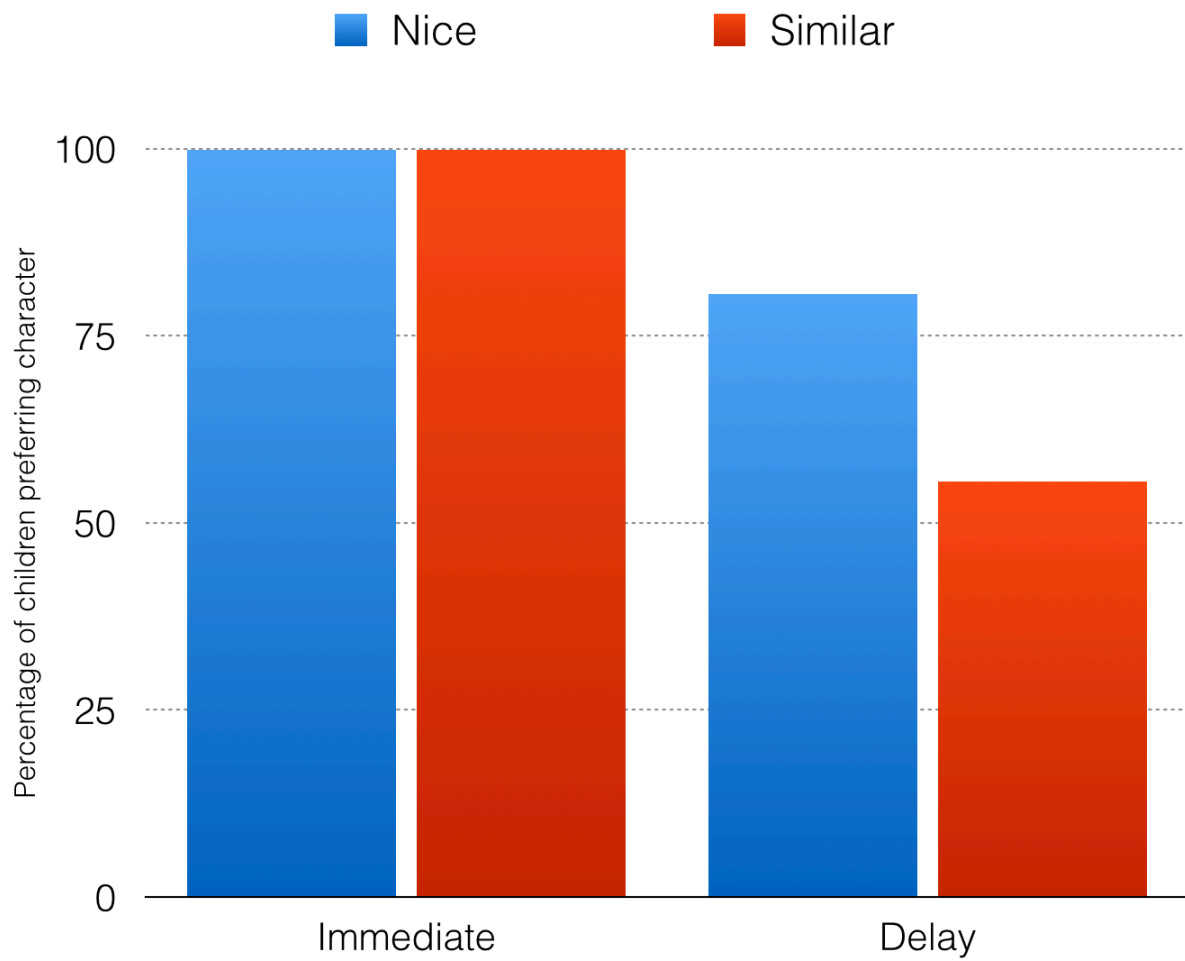


Figure 1. Percentage of children preferring the nice and similar characters in the Immediate and Delay conditions.

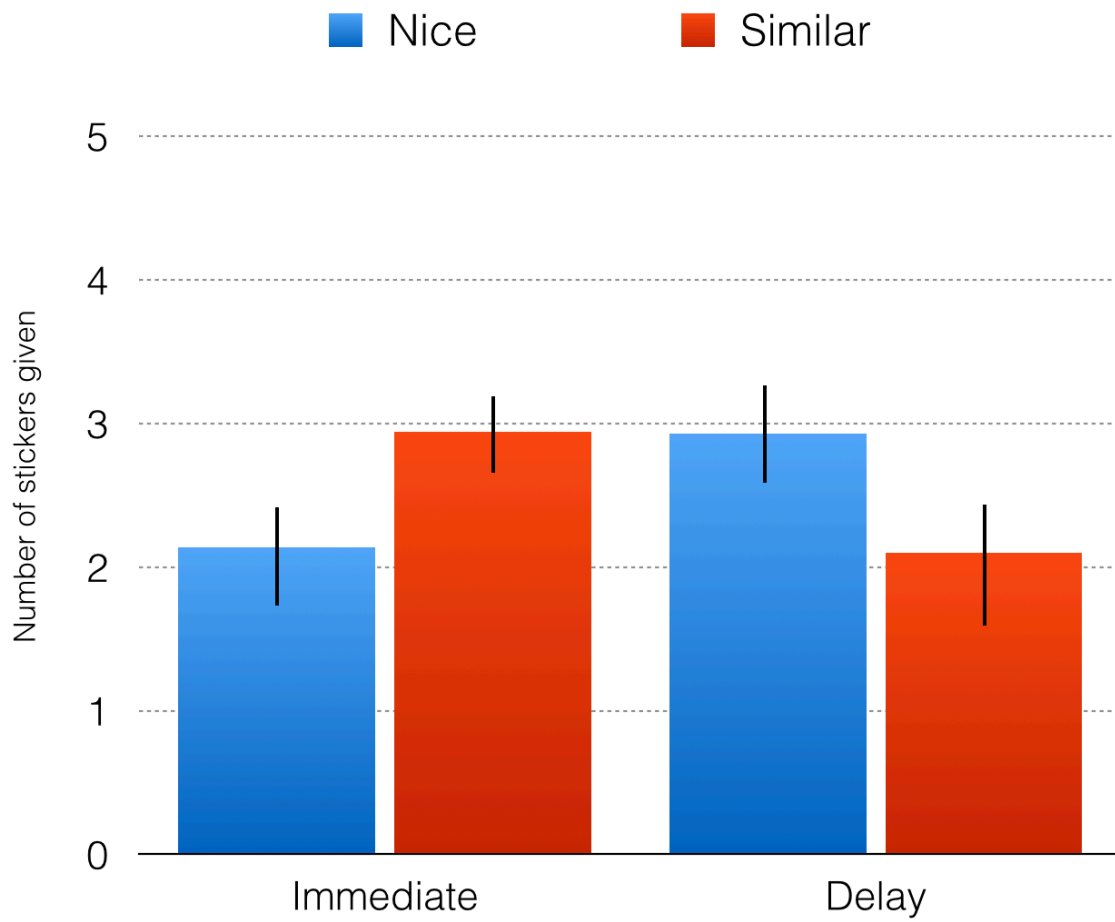


Figure 2. Number of stickers given to the nice and similar characters in the Immediate and Delay conditions. Error bars represent standard errors.

	Morality	Similarity/Preferences	Resources	Other	Nothing
Nice	87%	0%	5%	1%	7%
Similar	10%	57%	2%	2%	29%

Table 1. Percentage of children recalling the nice and similar characters in terms of morality, similarity/preferences, resources, other, or nothing.