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How familiar characters influence children's judgments about information and products



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ABSTRACT

Children are exposed to advertisements and products that incorporate familiar characters, such as Dora the Explorer and Bob the Builder, virtually from birth. How does the presence of these characters influence children's judgments about information and products? Three experiments ($N = 125$) explored how 4-year-olds evaluate messages from familiar characters and how their trust in a familiar character's testimony relates to their product preferences. Children endorsed objective and subjective claims made by a familiar character more often than those made by a perceptually similar but unfamiliar character even in situations where they had evidence that the familiar character was unreliable. Children also preferred low-quality products bearing a familiar character's image over high-quality products without a character image up to 74% of the time (whereas control groups preferred the low-quality products less than 6% of the time when they did not include a character image). These findings suggest that young children are powerfully influenced by familiar characters encountered in the media, leaving them vulnerable to advertising messages and clouding their judgments about products.

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Introduction

Over the past few decades, children have come to wield unprecedented purchasing power. Companies spend billions of dollars annually on advertising directed specifically toward children (Campaign

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for a Commercial-Free Childhood, n.d.). These advertisements often incorporate characters from popular children's television shows and movies or novel characters created for marketing purposes (Connor, 2006). Characters in advertisements are intended to capture children's attention, induce positive affect, and provide memory cues for products (Neeley & Schumann, 2004). This strategy appears to be effective; children show excellent recall and recognition of characters that appear in advertisements even when the characters have only been encountered in the context of advertising (e.g., Toucan Sam and other characters associated with cereal brands; Batada & Borzekowski, 2008) or the characters promote products intended for adults (e.g., the Budweiser Frogs; Lieber, 1996).

In addition to their presence in advertisements, familiar characters sometimes appear on the actual products for sale. Brand licensed products—including toys, food, and clothing—that incorporate images from children's media programs accounted for more than \$5 billion in sales in 2011 (NPD Group, 2012). Food packages incorporating characters from children's media are common in American supermarkets, and the foods they contain are often of low nutritional value (Harris, Schwartz, & Brownell, 2009). Furthermore, the presence of a licensed character on food packaging influences children's evaluations of the product's taste and desirability. Children ages 4 to 6 years prefer food products with a licensed character on the package and rate foods that come out of a package with a character on it as tasting better than identical foods from a package without a character on it (Lapierre, Vaala, & Linebarger, 2011; Roberto, Baik, Harris, & Brownell, 2010).

Despite the widespread use of characters to market products to children, little is known about how the presence of a familiar character influences children's evaluations of advertising messages. In particular, to what extent do children trust what a familiar character says? Recent research has demonstrated that by 4 years of age children consider a number of factors, including prior accuracy (Birch, Vauthier, & Bloom, 2008; Koenig, Clément, & Harris, 2004; Pasquini, Corriveau, Koenig, & Harris, 2007) and confidence (Birch, Akmal, & Frampton, 2010; Sabbagh & Baldwin, 2001), when deciding whether to trust another's testimony (for reviews, see Mills, 2013; Sobel & Kushnir, 2013). Familiarity can also strongly influence children's trust in an individual's statements. When seeking out information about a novel object, for instance, children are more likely to consult their mother than an unfamiliar woman and show more trust in their mother's responses (Corriveau et al., 2009). Children ages 3 to 5 years also prefer learning the name or function of novel objects from a familiar source (their teacher) over an unfamiliar source with similar characteristics (a teacher from a different school), at least when they have no other information to use to make their decisions. If children later hear a familiar teacher making statements that the children recognize as inaccurate (e.g., calling a spoon a duck; Corriveau & Harris, 2009), developmental differences emerge in how they respond to that new information. Whereas 3-year-olds continue to trust the familiar teacher over an accurate yet unfamiliar teacher, 4-year-olds begin to moderate their trust in a familiar individual based on the individual's history of accuracy. If the familiar teacher is 100% accurate, 4-year-olds show increased trust in the teacher's statements, but if the teacher is 100% inaccurate, their trust weakens (although they do not necessarily shift to trusting an accurate unfamiliar source). Thus, there is evidence that at 4 years of age, familiarity with an informant is an important factor in children's trust in testimony, yet children take an informant's prior accuracy into account as well.

The current experiments build on this research to examine how familiar characters influence children's trust and consumer choices, with three specific goals. Our first goal was to understand whether 4-year-olds prefer to seek out information from a familiar cartoon character and whether children take into account a familiar character's history of accuracy when deciding whether to trust the character's statements. By 4 years of age, children show increased trust in adults with whom they have a close relationship (Corriveau & Harris, 2009; Corriveau et al., 2009). But crucially, our study involves characters that, although they may be quite familiar to children, have had no meaningful interactions with the children (e.g., even if a child has encountered a life-size costumed version of the character, this was unlikely to have been a meaningful social interaction). The absence of a reciprocal social relationship with familiar characters may allow 4-year-olds to prioritize accuracy over familiarity, whereas for familiar people such as mothers and teachers children may need to take into account the potential repercussions of distrust for their relationships.

In addition, 4-year-olds understand that most fictional characters encountered in the media are not real and that they cannot act in the real world (Corriveau, Kim, Schwalen, & Harris, 2009; Skolnick &

Bloom, 2006). Children are also less likely to apply information learned from a fantasy character than from a real person to a real-world problem (Richert, Shawbert, Hoffman, & Taylor, 2009; Richert & Smith, 2011). Thus, another possibility is that when an informant is not real, children find it more difficult to evaluate the accuracy of the informant's statements or have different expectations for the informant's behavior. For instance, children may believe that prior examples of inaccuracy are less predictive of whether a character will be accurate in the future because fantasy characters do not necessarily have the same abilities or limitations as humans (Lane, Wellman, & Evans, 2010; Sharon & Woolley, 2004). Likewise, children who are very fond of a particular character may be reluctant to discount that character's statements even when the character is revealed to be inaccurate. This case would parallel situations where young children persist in trusting a familiar person, such as their mother or teacher, who makes inaccurate statements relative to a reliable unfamiliar person (Corriveau & Harris, 2009). Of course, a third possibility is that children will have no clear preference for familiar versus accurate characters, perhaps because other characteristics of the characters besides familiarity or accuracy determine their trust (e.g., perceived benevolence: Landrum, Mills, & Johnston, 2013; in-group affiliations: MacDonald, Schug, Chase, & Barth, 2013).

Our second goal was to examine whether the nature of a familiar character's message influences children's trust. Prior work on trust in familiar individuals has focused on children's acceptance of objective information such as object labels and functions (e.g., Corriveau & Harris, 2009). Given that the messages relayed by characters in advertisements can be either objective or subjective in nature, we examined whether children respond differently to a familiar character's testimony based on whether the character's statements involve objective or subjective information. The majority of research on children's trust in testimony has involved information about object names, functions, or properties (e.g., Birch et al., 2008; Clément, Koenig, & Harris, 2004; Koenig & Harris, 2005), yet there is emerging evidence that preschoolers trust informants' judgments about subjective matters as well (e.g., the taste of novel foods; Nguyen, 2012). However, no research has examined whether children weight subjective information differently than objective information when determining who to trust.

Children as young as 4 years are sensitive to an informant's degree of inaccuracy when evaluating claims (Einav & Robinson, 2010; Pasquini et al., 2007), and they excuse some errors more often than others (e.g., errors resulting from a lack of access to information; Nurmsoo & Robinson, 2009). This suggests that children's trust in an unreliable familiar character may depend on how children interpret the character's errors. One possibility is that children are equally skeptical about individuals who make claims that disagree with their prior knowledge or opinions and that the subjective or objective nature of an individual's statements does not play a major role in children's subsequent decisions about trust. A second possibility is that children may be more forgiving of strange claims about subjective information (e.g., what food tastes best) than of incorrect claims about objective information (e.g., the shape of a wheel) given that even toddlers recognize that people can have different tastes (Repacholi & Gopnik, 1997). Therefore, children may be more likely to keep trusting a familiar character's testimony after observing the character express unusual subjective opinions than after observing the character make unequivocally false statements. Children may also construe a few examples of differences in opinion to be more fleeting than differences in answers to objective questions given that they generally like the familiar character and continue trusting that character. A third possibility is that young children will pay more attention and react more negatively when a familiar character makes subjective statements that contradict general public consensus (e.g., birthday parties are fun) than when the character makes incorrect statements about objective facts. Children may then develop a more negative view of the familiar character and be more likely to reject other subjective information provided by that character. The current study was intended to clarify which of these three possibilities most accurately describes children's behavior when faced with a familiar character that makes unreliable objective or subjective statements.

Finally, our third goal was to examine the relationship between children's trust in a familiar character and how children evaluate products bearing that character's image. We were interested in whether children who heard their favorite character make inaccurate statements would be less likely to prefer objects bearing that character's image and, similarly, whether children who showed persistent trust in the character's statements (regardless of prior accuracy) would show a stronger preference for objects bearing the character's image. This question has practical implications for

understanding children's vulnerability to marketing tactics, and it provides an important theoretical test of whether trust in an individual's claims influences judgments in an entirely different domain of behavior—in this case, children's evaluation of a product's desirability. That is, if children do not trust an individual's statements, do unrelated objects associated with that individual become less desirable? To the best of our knowledge, this study is also the first to measure how the presence of a familiar character on a non-edible product influences children's preferences and whether it can compensate for other undesirable characteristics.

To address our primary research questions, we conducted three experiments using the trust in testimony paradigm to determine whether children rely more on familiarity or accuracy when evaluating claims from conflicting sources (Birch et al., 2008; Koenig et al., 2004). In all experiments, children first identified their favorite character from a set of popular characters. Children then witnessed the familiar character that they selected and a similar-looking but unfamiliar character making conflicting claims about novel concepts, and they were asked which statement they endorsed in order to assess their baseline trust in the familiar character. Next, children witnessed the two characters making conflicting claims about familiar concepts. In one condition, the familiar character made statements that were accurate or consistent with the child's opinion and the unfamiliar character did not. In a contrasting condition, the roles were reversed such that the familiar character was inaccurate or expressed uncommon subjective opinions. After endorsing one of the character's statements about the familiar concepts, children observed both characters again providing conflicting perspectives for a different set of novel claims and again needed to endorse one character's statements.

Following the trust in testimony task, children completed an object preference task in which they chose between plain new objects and damaged objects bearing the familiar character's image. The design of the object preference task was based on the assumption that children view an object with a familiar character's image on it as more desirable than a plain object—at least as long as the objects are otherwise identical. Thus, this task involved damaged objects bearing the character's image, and children needed to weigh the value added by the character's image against the value lost by damage to the object. Children who place a higher value on the presence of the character on the object should select the damaged objects more often than children who do not value the presence of the character as much. We hypothesized that children who persisted in trusting the familiar character's statement despite prior inaccuracy or inconsistency with the children's own beliefs would also show a stronger preference for the damaged objects bearing the character's image.

Experiment 1

Experiment 1 explored children's trust in factual statements about novel animals, plants, foods, and activities. This design was chosen to represent a range of messages that could be presented by familiar characters in advertisements rather than focusing on just one type of information (e.g., foods, toys). To compare children's behavior after encountering a familiar character that provides reliable or unreliable information, we used a between-participants design where children were randomly assigned to either the familiar-accurate condition, where the familiar character made accurate statements and an unfamiliar character did not, or the familiar-inaccurate condition, where the unfamiliar character was accurate and the familiar character was not.

Method

Participants

In total, 41 children were randomly assigned to the familiar-accurate condition ($n = 21$, mean age = 4.61 years, range = 4.03–5.08, 8 girls and 13 boys) or the familiar-inaccurate condition ($n = 20$, mean age = 4.62 years, range = 3.96–5.01, 7 girls and 13 boys). Children from a mid-size city in the midwestern United States were recruited at preschools or from a laboratory database and were interviewed individually in a quiet area at their school or in a university laboratory. According to parent reports, 83% of children were non-Hispanic (parents of the other 17% chose not to respond to this question). Approximately 66% of the children were Caucasian American, 17% were Asian American,

5% were African American, and the parents of the other 12% chose not to report their children's ethnicity. An additional 11 children (mean age = 4.43 years, range = 4.13–4.98, 5 girls and 6 boys) from the same community participated in a control condition for the object preference task only.

Materials

We generated a set of four familiar characters by initially conducting a web search for popular television shows and movies aimed toward preschool children and identifying the main characters in each program. We then excluded any live-action characters (e.g., the Wiggles) and any characters known for being silly or naive or for giving poor information (e.g., Patrick Star from *SpongeBob SquarePants*). This yielded a set of 12 animated characters that were pretested for familiarity by asking 10 children ages 3 to 5 years to identify the characters by name. All children correctly identified Dora the Explorer, Nemo (from *Finding Nemo*), and Blue (from *Blue's Clues*), and all but 1 child correctly identified Bob the Builder. Familiar characters were presented in a paradigmatic pose on a white background. To create an unfamiliar counterpart for each of the four familiar characters, we used Adobe Photoshop to modify the familiar character's image. In keeping with methods used in prior studies, the unfamiliar informants were designed to match the familiar informants with respect to gender and overall appearance, yet the colors and style of each unfamiliar character's body and clothing were clearly different from those of the familiar character. For example, Nemo's unfamiliar counterpart was a green fish with a wavy edge on its gills and yellow eyes.

Five sets of identical objects were used in the object preference task: a comb, a notebook, a tennis ball, a marker, and a cup. One object was damaged and soiled (e.g., teeth were broken off of the comb, the spiral binding on the notebook was twisted and the cover was torn), and the other object remained in pristine condition (see Fig. 1). The objects were then photographed with a sticker bearing the image of one of the four familiar characters in a central location on each of the damaged objects. The sticker covered approximately 12% to 28% ($M = 19\%$) of each object's visible surface area and was clearly discernible. To ascertain that the damaged objects were less desirable than the new objects, we showed images of each set of new and damaged objects without any characters on them to 11 4-year-olds who



Fig. 1. Examples of damaged (top) and dysfunctional (bottom) object pairs. Silhouettes indicate locations of character images that cannot be reprinted here due to copyright law.

did not participate in the primary experiment and asked them which object they preferred. In 98.2% of trials, children preferred the new object.

Procedure

Character selection. The experimenter began by showing children a white screen with images of all four familiar characters and asking the children to point to their favorite one. To ascertain familiarity with the selected character, we used Skolnick and Bloom's (2006) criterion that children needed to independently generate the character's name. If children did not spontaneously name the character, the experimenter prompted them to do so. She also asked children to name the character's friends and describe what the character does on their show. The experimenter then displayed a picture of the corresponding unfamiliar character and said, "Now I am going to show you a new cartoon. His/Her name is Pat. Pat is from a brand new show that no one has watched yet." (The unfamiliar character's gender was matched to that of the familiar character.) Children were then asked if they had ever seen Pat before. If they said yes, the experimenter reminded them that Pat was a new character from a "brand new show no one has ever seen before."

After selecting their favorite character and being introduced to the unfamiliar character, all children completed a series of questions measuring their initial preference for and trust in the familiar character (the *ask* and *endorse* trials). This was followed by an *accuracy manipulation* where children observed the familiar character giving either accurate or inaccurate answers to three different questions. Afterward, children completed an *explicit judgment* trial and three *post-accuracy* trials as a measure of their trust in each character's statements. At the end of the session, children completed the object preference task measuring their preference for objects bearing the character's image. Following from standard procedures in the trust in testimony literature, children's responses in all trials were dichotomous; children could choose only one character, answer, or object.

Ask trial. The experiment began with a preference question where children indicated which character they would ask to find the answer to a novel question: "What season is best for flurping?"

Endorse trials. In three trials, children were instructed to listen to what the familiar character and Pat "think about some things" and to endorse one of their claims. For example, "[Familiar character] says that zazz flowers are small and Pat says that zazz flowers are big. What do you think? Are zazz flowers small or big?" (see [Appendix](#)). No feedback was provided.

Accuracy manipulation. In these three trials, the questions were about facts that preschool-aged children were expected to know (see [Appendix](#)). Each character was described as making a factual statement about an object (e.g., "Grass is blue"), and children were asked to endorse one of the statements (e.g., "What color do you think grass is, green or blue?"). In the familiar-accurate condition, the familiar character made three correct statements and the unfamiliar character made three corresponding incorrect statements. In the familiar-inaccurate condition, this pattern was reversed.

Explicit judgment. Following the accuracy manipulation, children were asked to make an explicit judgment: "Who was better at answering the questions?"

Post-accuracy trials. Children heard three more questions that involved unfamiliar information or preferences (see [Appendix](#)). Questions were structured identically to the endorse trials.

Object preference task. Children were told that they were going to see pictures of different things, and for each set of objects they were asked, "If you saw these two things in a store, which one would you want?" The images on the damaged objects were of the children's previously chosen favorite character. Images were presented on a laptop computer with a 14-inch screen. Images were displayed on the left or right side of the screen, and the locations of the objects on the screen were counterbalanced across participants.

Results

Character selection

In total, 20 children selected Dora the Explorer as their favorite character, 8 chose Nemo, 5 chose Bob the Builder, and 8 chose Blue. All children accurately named the character they chose. When introduced to Pat, 2 children claimed to be familiar with Pat. These children were reminded that Pat was from a new show they had never seen before.

Ask trial

Of the 41 children tested, 31 indicated that they would ask the familiar character for the answer to a novel question, $\chi^2(1, N = 41) = 10.756, p < .001$. There was no difference in the distribution of responses between children in the familiar–accurate and familiar–inaccurate conditions.

Endorse trials

Children received 1 point for each time they endorsed the familiar character's statement, yielding a score of 0 to 3. Children endorsed the statements made by the familiar character at rates well above chance ($M = 2.048, SD = 0.773$), $t(40) = 4.546, p < .001$ (see [Table 1](#)). There was no difference in children's scores across the familiar–accurate and familiar–inaccurate conditions, $t(36.582) = 0.390, p = .699$ (equal variances not assumed due to Levene's test, $F = 7.060, p = .011$). Thus, initially, children showed a strong preference to seek out information from the familiar character and to trust the familiar character's answers to novel questions.

Accuracy manipulation

Children received 1 point for each time they endorsed the accurate character's statement, yielding a score of 0 to 3. Children in both conditions indicated the correct answers on the accuracy manipulation trials almost perfectly (see [Table 1](#)), and there was no difference between conditions, $t(39) = 0.050, p = .960$. This suggests that children recognized the correct answer to each question regardless of which character provided it.

Explicit judgment

All but 2 children (1 child in each condition) answered the explicit judgment question correctly. Previous research using this paradigm has shown that children who cannot explicitly judge an informant's history of accuracy do not show differential trust (e.g., [Koenig et al., 2004](#)), so these two participants were excluded from analyses of the post-accuracy trials and object preference task.¹

Post-accuracy trials

Children received 1 point each time they endorsed the familiar character's statement, yielding a score of 0 to 3. As expected, when the familiar character had a history of making accurate statements, children in the familiar–accurate condition endorsed the familiar character's statements about novel concepts at rates above chance, $t(19) = 4.077, p = .001$ (see [Table 1](#)). Children in the familiar–inaccurate condition endorsed the familiar character's statements at rates that did not significantly differ from chance, $t(18) = 0.321, p = .752$, suggesting that they did not show differential trust in either character (see [Table 1](#)). Children's responses were not bimodal; rather, children seemed uncertain about who to endorse. Children in the familiar–accurate condition were significantly more likely to trust the previously accurate character (the familiar character) than children in the familiar–inaccurate condition, $t(37) = 2.621, p = .013$. For children in the familiar–accurate condition, there was no significant difference between endorsement of the familiar character's statements in the initial endorse trials and the post-accuracy trials, $t(19) = 0.418, p = .681$. Children in the familiar–inaccurate condition showed only a marginally significant decrease in trust in the familiar character, $t(18) = 2.075, p = .053$. Thus, although children in the familiar–inaccurate condition acknowledged that the familiar character

¹ Including the children who failed the explicit judgment question in the analyses did not alter the pattern of results.

Table 1

Mean scores by trial type, experiment, and condition.

	Trust in testimony trials			Object preference trials	
	Endorse	Accuracy/agreement manipulation	Post-accuracy/agreement	Damaged	Dysfunctional
Experiment 1 – Objective information					
Familiar–accurate	2.09** (0.89)	2.90** (0.30)	2.20** (0.77)	3.20 (2.12)	n/a
Familiar–inaccurate	2.00** (0.65)	0.10** (0.31)	1.42 (1.07)	3.47 (1.74)	n/a
Experiment 2 – Subjective information					
Familiar–agreement	2.05** (0.76)	2.75** (0.64)	2.12** (0.86)	2.75 (2.17)	2.15 (2.30)
Familiar–disagreement	1.86* (0.64)	0.73** (0.99)	1.63 (1.19)	2.14 (2.08)	1.27 (1.86)

Note. Standard deviations are in parentheses. For trust in testimony trials, scores represent the mean number of times the familiar character's statement was endorsed (max = 3). Post-accuracy and post-agreement scores include only participants who answered the explicit judgment question correctly. For object preference trials, scores represent the mean number of times the damaged or dysfunctional object bearing the character's image was chosen (max = 5 per category). For trust in testimony trials, one asterisk (*) denotes values significantly different from chance at the $p < 0.05$ level and two asterisks (**) denotes values significantly different from chance at the $p < 0.01$ level.

had been wrong during the explicit judgment trial and showed a decrease in trust in that character, they did not consistently shift their trust to the accurate unfamiliar character.

Object preference

Children chose the damaged objects with the familiar character's image 67% of the time ($M = 3.33$, $SD = 1.99$). This rate is particularly striking when compared with the 1.8% rate at which participants in the control group chose the damaged objects without the character's image, $t(45.913) = 10.002$, $p < .001$ (equal variances not assumed due to Levene's test, $F = 38.011$, $p < .001$). Inter-item reliability on the object preference task was also high, Cronbach's $\alpha = .869$, suggesting that children were making consistent choices across trials. The distribution of children's choices was largely bimodal, with 10 of 39 children preferring the new objects on four or five trials and 23 of 39 children preferring the damaged objects on four or five trials (see Table 2).

An independent samples t test showed that there was no significant difference between the number of damaged objects selected by children in the familiar–accurate and familiar–inaccurate conditions, $t(37) = 0.439$, $p = .663$. Among children in the familiar–inaccurate condition, there was no significant difference between children who persisted in trusting the familiar character during the post-accuracy trials (scoring 2 or 3) and those who did not (scoring 0 or 1), $t(17) = 0.734$, $p = .473$. There was also no significant correlation between the number of times children chose the damaged objects and their scores on the endorse trials ($r = -.046$, $N = 39$, $p = .781$) or the post-accuracy trials ($r = .005$, $N = 39$, $p = .978$). Taken together, these results suggest that children's preference for the damaged objects bearing the familiar character's image was largely independent of the character's history of accuracy or children's trust in the character's statements.

Table 2

Number of participants obtaining each score on object preference trials by condition and object set.

	<i>n</i>	Damaged objects						Dysfunctional objects					
		0	1	2	3	4	5	0	1	2	3	4	5
Experiment 1													
Familiar–accurate	21	3	4	1	0	2	11						
Familiar–inaccurate	20	3	1	2	3	3	8						
Total	41	6	5	3	3	5	19						
Experiment 2													
Familiar–agreement	20	5	3	1	2	1	8	9	1	2	1	0	7
Familiar–disagreement	22	7	5	1	1	3	5	12	4	1	1	1	3
Total	42	12	8	2	3	4	13	21	5	3	2	1	10

Note. Scores represent the total number of trials (max = 5) where each child chose the damaged objects in Experiments 1 and 2 or the dysfunctional objects in Experiment 2.

Discussion

In general, children preferred to consult a familiar character to answer questions and endorsed statements made by a familiar character over statements made by an unfamiliar character that was similar in appearance. Although children's trust in the familiar character was somewhat attenuated when that character made inaccurate statements, children's preference did not shift to the accurate unfamiliar character. These findings parallel recent findings suggesting that preschool children do not show complete distrust of familiar teachers (Corriveau & Harris, 2009) or in-group members (Elashi & Mills, 2014) when they have been inaccurate. Children also showed a surprising preference for damaged objects bearing their favorite character's image over new objects without a character image. Experiment 2 further explored whether the nature of the statements made by each of the characters played a role in children's trust and product preferences.

Experiment 2

The informants' statements in Experiment 1 involved objective information, such as the size of a flower or the number of legs on an animal, but the characters children view in advertisements frequently present subjective information (e.g., this cereal is delicious, this toy is fun). To more closely parallel children's experiences with advertising messages that aim to influence public perceptions and opinions, Experiment 2 examined children's trust in a familiar character after hearing the character make subjective judgments with which the children agree or disagree.

Experiment 2 was also designed to further explore the surprising finding that children preferred the damaged objects in the object preference task more often than not. Perhaps some children preferred the low-quality objects because they believed that although the objects were damaged, they could be cleaned or repaired or they could still be used for their intended purpose (e.g., it is possible to write in a notebook with a torn cover or to draw with a marker with a broken cap). To test this possibility, a new set of five objects was created to include damaged objects that were clearly unable to serve their intended purpose and could not be easily repaired. For instance, these objects included a bucket with a large gash in its side and a tennis racquet with a broken frame and large gaps in the net (see Fig. 1).

Method

Participants

In total, 42 preschool-aged children were interviewed individually in a quiet area at their school or in a university laboratory. Of this sample, 20 children (mean age = 4.49 years, range = 4.03–4.98, 8 girls and 12 boys) were randomly assigned to the familiar-agreement condition and 22 children (mean age = 4.52 years, range = 4.09–4.86, 9 girls and 13 boys) were assigned to the familiar-disagreement condition. An additional participant was excluded for failure to recognize any of the characters. Children were recruited at preschools or from a laboratory database in the same location as Experiment 1. Approximately 2% of participants were identified as Hispanic and 91% as non-Hispanic, with 7% of parents choosing not to respond to that question. Approximately 66% of participants were identified as Caucasian American, 14% as Asian American, 7% as native Hawaiian or other Pacific Islander, and 2% as African American, with 10% of parents declining to identify their children's ethnicity.

Materials

The materials were identical to those in Experiment 1, with the addition of five new pairs of objects in the object preference task. The damaged objects bearing the character image in these sets were designed to be fully dysfunctional. They consisted of a flip-flop shoe with the plastic strap cut in half, a toy car missing its front wheels, a tennis racquet with a large hole in the net and a broken frame, a bucket with a large section cut out from its side, and a shovel missing a large piece of the blade. The same group of 4-year-olds who completed the control condition in Experiment 1 also judged the new set of dysfunctional items.

Procedure

The testing procedure was identical to that in Experiment 1. The only difference was that each of the statements in the *endorse*, *accuracy*, and *post-accuracy* trials was about subjective information; therefore, it is more appropriate to describe them here in terms of agreement rather than accuracy (see [Appendix](#)). In the *endorse* and *post-agreement* trials, these were statements about novel concepts (e.g., whether hoon flowers smell good or bad). The *agreement manipulation* involved subjective claims about familiar concepts where the familiar character's beliefs either aligned with common subjective opinions in the familiar–agreement condition (e.g., birthday parties are fun) or did not in the familiar–disagreement condition (e.g., birthday parties are boring).

The object preference task consisted of 10 trials. The first five trials were identical to those in Experiment 1, and the last five trials involved the new set of dysfunctional objects. The instructions and presentation method were otherwise identical to those in Experiment 1.

Results

Character selection

In total, 17 children selected Nemo as their favorite character, 13 chose Dora, 6 chose Bob the Builder, and 6 chose Blue. All children accurately named the character they chose. Among the sample, 6 children (4 in the familiar–agreement condition and 2 in the familiar–disagreement condition) claimed to be familiar with Pat and were reminded that Pat was from a new show.

Ask trial

Of the sample of 42 children, 28 indicated that they would ask the familiar character to answer the novel question, a frequency significantly different from chance, $\chi^2(1, N = 42) = 4.667, p = .031$. There was no significant difference in the distribution of responses across conditions.

Endorse trials

When asked to endorse conflicting subjective statements about novel objects, children endorsed the statements made by the familiar character at rates above chance ($M = 1.95, SD = 0.697$), $t(41) = 4.208, p < .001$, suggesting that they showed greater trust in the familiar character's testimony. There was no difference in endorsement rates across the two conditions, $t(40) = 0.863, p = .393$ (see [Table 1](#)).

Agreement manipulation

After listening to each character's beliefs about subjective topics, children in both conditions indicated their agreement with the informant whose answer matched popular subjective opinions at rates well above chance ($M = 2.50, SD = 0.862$), $t(41) = 7.514, p < .001$. The difference between conditions was marginally significant, $t(36.332) = 1.880, p = .068$ (equal variances not assumed due to Levene's test, $F = 9.591, p = .004$; see [Table 1](#)), suggesting that although children understood the statements and agreed with the informant who made a statement that matched popular opinions overall, children may have had more difficulty in doing so in the familiar–disagreement condition. That said, children's rates of endorsing the familiar character in the familiar–disagreement condition were still well below chance responding, indicating that they were aware that the familiar character's statements did not match typical subjective preferences and endorsed the unfamiliar character's statements instead.

Explicit judgment

Three of 20 children (15%) in the familiar–agreement condition and 14 of 22 children (64%) in the familiar–disagreement condition answered the explicit judgment question incorrectly. A majority of children in the familiar–disagreement condition indicated that the familiar character had provided better answers to the questions even though they had not endorsed the familiar character's subjective statements on the agreement manipulation trials moments earlier. The significant difference between conditions, $\chi^2(1, N = 42) = 10.286, p = .001$, suggests that even when children disagreed with the familiar character's subjective judgments, they were reluctant to state that the unfamiliar character was better at answering the questions.

Post-agreement trials

When all participants were included in the analyses (regardless of whether they answered the explicit judgment question correctly), children in the familiar–agreement condition endorsed statements made by the familiar character at rates above chance ($M = 2.00$, $SD = 0.858$), $t(19) = 2.605$, $p = .017$. Children in the familiar–disagreement condition chose the familiar character's statements at rates no different from chance ($M = 1.77$, $SD = 0.922$), $t(21) = 1.387$, $p = .180$ (the distribution of responses was not bimodal). However, when compared directly, there was no significant difference in scores between the two conditions, $t(40) = 0.824$, $p = .415$. In addition, when comparing children's responses in the endorse trials (which can be considered an indicator of their baseline trust in the familiar character) with their responses in the post-agreement trials, the data do not show effects of condition. Children in the familiar–agreement condition did not show any difference between their rates of endorsement of the familiar character's statements in the endorse trials prior to the agreement manipulation ($M = 2.05$, $SD = 0.759$) and the post-agreement trials, $t(19) = 0.326$, $p = .748$. Children in the familiar–disagreement condition also showed no significant difference between scores in the endorse trials ($M = 1.86$, $SD = 0.640$) and post-agreement trials, $t(21) = 0.400$, $p = .693$. Thus, although children in the familiar–disagreement condition did not endorse the familiar character's statements at rates above chance, the data do not provide strong evidence for differences between conditions or between responses on the endorse and post-agreement trials in the familiar–disagreement condition.

Earlier work using the trust in testimony paradigm found that only children who can answer explicit questions about an informant's accuracy correctly show differential trust in previously accurate informants (e.g., Koenig et al., 2004). Because children who failed the explicit judgment question might not have been tracking each character's history, we also analyzed the post-agreement data with the 17 participants who made an incorrect explicit judgment excluded. The results were very similar to the results obtained with the full sample (see Table 1). Children in the familiar–agreement condition ($n = 17$) chose statements made by the familiar character at rates well above chance, $t(16) = 2.970$, $p = .009$. Children in the familiar–disagreement condition ($n = 8$) were no different from chance, $t(7) = 0.298$, $p = .775$. Neither children in the familiar–agreement condition nor children in the familiar–disagreement condition showed any significant difference between endorsement of the familiar character's statements in endorse and post-agreement trials ($ts < 0.696$, $ps > .496$).

Object preference task

A 2 (Condition) \times 2 (Object Set: damaged or dysfunctional) analysis of variance (ANOVA) showed a main effect of the object set, $F(1, 40) = 11.029$, $p = .002$, partial $\eta^2 = .216$, but no significant main effect of condition, $F(1, 40) = 1.490$, $p = .229$, partial $\eta^2 = .036$, and no significant interaction between condition and object set, $F(1, 40) = 0.358$, $p = .553$, partial $\eta^2 = .009$. In the original set of five object pairs from Experiment 1, children chose the damaged objects 49% of the time ($M = 2.43$, $SD = 2.12$), and in the additional set of five object pairs developed for Experiment 2, children chose the dysfunctional objects 32% of the time ($M = 1.69$, $SD = 2.10$). These rates are significantly different from each other, $t(41) = 3.380$, $p = .002$. Although children chose the dysfunctional objects at a lower rate than the damaged ones, this rate was still significantly higher than the 2.7% rate at which participants in the control condition chose the dysfunctional objects when neither object included a character image ($ts \geq 4.059$, $ps \leq .001$; equal variances not assumed due to Levene's test, $F = 26.549$, $p < .001$).

Children's responses across all 10 items in the object preference task showed excellent inter-item reliability, Cronbach's $\alpha = .941$, suggesting that children were consistently choosing the new or damaged objects across trials. Likewise, when children's scores for both parts of the object preference task were summed, the distribution of scores was primarily bimodal (see Table 2). Of the 42 participants, 20 scored 0 to 2, reflecting a consistent preference for the new objects, and 11 scored 8 to 10, reflecting a consistent preference for the damaged objects.

Overall, there was no significant difference in children's preference for the low-quality objects between conditions, $t(40) = 1.271$, $p = .211$. There was also no significant correlation between children's choice of objects and the number of times children chose the familiar character's statement in the endorse trials ($N = 42$, $r = -.015$, $p = .924$) or the post-agreement trials ($N = 42$, $r = .019$, $p = .906$). Thus, there did not appear to be a relationship between children's trust in the familiar character's statements and children's decisions about objects bearing the character's image.

Comparison between Experiments 1 and 2

Comparing across the corresponding conditions (familiar–accurate and familiar–agreement, familiar–inaccurate and familiar–disagreement) in each experiment revealed no differences between experiments in either set of conditions on the endorse task ($ts \leq .685$, $ps \geq .497$). There was also no difference in the familiar–accurate/familiar–agreement responses in the manipulation task, $t(39) = 1.000$, $p = .323$; however, children were significantly more likely to agree with the familiar character when judging subjective statements with which they would be expected to disagree than factual statements where the character was inaccurate, $t(25.432) = 2.839$, $p = .009$ (equal variances not assumed due to Levene's test, $F = 36.762$, $p = .001$). Rates of correct explicit judgments were not statistically different between the two experiments in the familiar–accurate/familiar–agreement conditions, $\chi^2(1, N = 41) = 1.220$, $p = .269$, but children in the familiar–inaccurate condition of Experiment 1 were more likely to answer the explicit judgment question correctly than children in the familiar–disagreement condition of Experiment 2, $\chi^2(1, N = 42) = 15.688$, $p < .001$. There were no differences between experiments in either set of conditions for the post-accuracy/post-agreement task ($ts \leq .438$, $ps \geq .665$).

For the five pairs of items in the object preference task that were used in both experiments, there was no difference in object preferences among participants in the familiar–accurate and familiar–agreement conditions, $t(39) = 0.802$, $p = .427$, and children were marginally more likely to choose the damaged objects in the familiar–inaccurate condition of Experiment 1 than in the familiar–disagreement condition of Experiment 2, $t(40) = 1.902$, $p = .064$.

Discussion

Showing a similar pattern to Experiment 1 involving objective statements, children initially preferred to seek answers from and endorse subjective statements made by a familiar character over those made by an unfamiliar character. During the agreement manipulation trials, children in the familiar–disagreement condition were somewhat less likely to reject the familiar character's atypical subjective statements than children in the familiar–agreement condition. Children in the familiar–disagreement condition also struggled to explicitly acknowledge that the familiar character had not provided superior answers to those provided by the unfamiliar character even though the unfamiliar character made statements consistent with the children's own beliefs. This stands in contrast to children's relative ease in rejecting the familiar character's inaccurate objective statements and identifying the character as inaccurate in the familiar–inaccurate condition in Experiment 1.

As expected, after hearing the familiar character make subjective statements that agreed with popular opinion, children in the familiar–agreement condition continued endorsing the familiar character's subjective statements about novel entities. In addition, after hearing statements that disagreed with popular subjective opinion (e.g., birthday parties are boring), children in the familiar–disagreement condition showed similar levels of trust in the familiar character as they had shown in the earlier endorse trials. That said, notably, children did not shift toward trusting the unfamiliar character over the familiar one; instead, they seemed to have no consistent preference. Even children in Experiment 2 who explicitly acknowledged that the unfamiliar character had been better at answering the questions did not shift their trust to the unfamiliar character that made statements consistent with popular opinion. This finding is elaborated on in the General Discussion.

The results of Experiment 2 parallel those of Experiment 1 in that children indicated a preference for damaged and dysfunctional objects bearing a familiar character's image at remarkably high rates when compared with children in the control condition. Although children did show some sensitivity to the type of damage the object had sustained, suggesting that they valued damaged and dirty objects more than objects that were fully dysfunctional, the presence of a familiar character still appeared to increase that object's desirability to a number of children. In addition, children's object preferences were again independent of their trust in the familiar character's statements.

Experiment 3

Experiment 3 further examined the basis for children's choices of the damaged and dysfunctional objects in Experiments 1 and 2. First, it addressed the possibility that the appeal of the damaged

objects might not have been a function of the character per se but simply that the character's image was colorful and drew children's attention to the damaged objects and that some children may be more vulnerable to this visual effect than others. In Experiment 3, a sticker bearing a perceptually matched image of the same size and color as the familiar character's image was placed on the new objects. The images on these stickers presented the perceptual elements on the character stickers (i.e., pixels of the same color and quantity used to represent each character) but without the meaningful organization that evokes each character. If children are drawn to the low-quality objects based on the presence of a colorful sticker, they should be equally drawn to the new objects bearing a perceptually matched image. Second, Experiment 3 ensured that children understood the task and raised the stakes by instructing children that they would get to take home and keep each of the objects they chose. To further emphasize the real-life nature of the decision and increase the ecological validity of the task, children were presented with pairs of real three-dimensional objects in packaging similar to packages encountered in retail stores (i.e., items were presented in paperboard boxes with transparent windows that allowed viewers to see each box's contents). This packaging served the dual purpose of protecting the objects and increasing the ecological validity of the task.

In addition, Experiment 3 explored whether children's preference for the low-quality objects was influenced by in-group preferences. In the previous experiments, children identified the familiar character as their favorite from the set of four characters minutes before completing the object preference task. This may have prompted children to view the character as a member of their in-group and subsequently increased the appeal of the familiar character and trust in that character's statements. In Experiment 3, children identified the character during a separate session that took place 5 to 10 days before the trust and object preference tasks, and no further mention was made of the character being their favorite or the one they had chosen. In addition, Experiment 3 employed a more stringent explicit judgment question. Rather than asking children to identify which character was better at answering the questions, children identified which character was either right or wrong.

Method

Participants

In total, 20 4-year-olds (mean age = 4.41 years, range = 3.95–4.79, 11 girls and 9 boys) were interviewed individually in a quiet area at their school. All children participated in the familiar-accurate condition. Children were recruited at preschools in the same community as Experiments 1 and 2. According to parent reports, 1 child was identified as Hispanic, 18 children were identified as non-Hispanic, and 1 child's parents chose not to respond to that question. In terms of ethnicity, 18 children were identified as Caucasian American, 1 was identified as African American, and 1 child's parents chose not to respond to that question. Children participated in two sessions that took place an average of 6.8 days apart (range = 5–10). There was no evidence of a relationship between the number of days between sessions and children's responses on any of the tasks.

An additional group of 11 4-year-olds (mean age = 4.46 years, range = 4.15–4.83, 4 girls and 7 boys) from the same community participated in a control condition for the object preference task (see below). No child in either the experimental or control group had participated in the prior experiments.

Materials

Four sets of stimuli (each one corresponding to one of the characters) were created. Each set consisted of 10 pairs of objects where one object was in pristine condition and one object was damaged and dysfunctional (see Fig. 2). The objects were a ping-pong ball, a plastic cup, a small flying disk, a spiral-bound notepad, a sand shovel, a toy car, a pinwheel, a foam glider plane, a bucket, and a gift box. Care was taken to ensure that the damage to the objects in each of the four sets was identical. In each set, the damaged object bore the image of a familiar character (using the same characters and images from Experiments 1 and 2) and the pristine object bore a square or rectangular *perceptual control* image. The perceptual control images covered the same amount of surface area of each color as the character image, but the color was distributed into rectangular spaces roughly corresponding to the primary locations of each color in the character images. With the exception of the gift boxes, the objects in each pair were presented either in white cardboard boxes with transparent windows



Fig. 2. Examples of object pairs used in Experiment 3, as presented to children in paperboard boxes. Silhouettes indicate locations of character images that cannot be reprinted here due to copyright law.

(6 pairs) or in clear cellophane bags (3 pairs: notebooks, pinwheels, and flying disks). The stickers and damage to the objects were clearly visible from eye level for all objects, and objects were presented in the same orientation.

Participants in the control condition were shown the same pairs of damaged and non-damaged objects without character or perceptual control stickers on them.

Procedure

Character selection. During Session 1, children chose their favorite character following the procedure from Experiments 1 and 2.

Trust in testimony tasks. During Session 2, the experimenter introduced the unfamiliar character and followed the same procedure for the ask, endorse, accuracy, explicit judgment, and post-accuracy trials as in the familiar-accurate condition of Experiment 1. The only change was that the phrasing of the explicit judgment question was changed to “Who said the right/wrong answers?” (balanced between participants).

Object preference task. The experimenter removed the computer from the table and said, “I am going to show you two things. I want you to look at them carefully and then tell me which thing you would like to keep. Then, when we are done, you will get to take home each thing that you choose.” The experimenter proceeded to place each pair of objects on the table at children’s eye level. (If children were tall, a small platform was used.) Objects were presented in one of two locations a few inches apart from each other, with an equal number of damaged or new objects appearing in each location. Locations were also counterbalanced between participants. After placing each set of objects on the table, the experimenter asked, “Which one of these would you like to take home and keep?” Following the 10 object preference trials, the experimenter placed each of the last three objects that children chose (consisting of either the new or damaged glider, cup, and gift box) on the table one at a time and asked, “Why did you want this one?” The experimenter then showed children the four character images used in the character selection task and asked, “Who is your favorite character?”

After all children at a study location had completed the study, they each received a bag containing all 10 undamaged objects to take home.

Results

Character selection

In total, 14 children chose Dora as their favorite character, 5 chose Nemo, and 1 chose Bob the Builder. All children accurately named the character they chose. Among the sample, 5 children claimed to be familiar with Pat and were reminded that Pat was from a new show.

Ask trial

Of the 20 children, 17 indicated that they would ask the familiar character to answer the novel question, a frequency significantly different from chance, $\chi^2(1, N = 20) = 9.880, p = .002$.

Endorse trials

Children endorsed the statements made by the familiar character at rates above chance ($M = 2.25, SD = 0.716$), $t(19) = 4.682, p < .001$, suggesting that they trusted the familiar character's testimony.

Accuracy manipulation

Children indicated their agreement with the familiar character's answers at near perfect rates ($M = 2.90, SD = 0.307$), $t(19) = 20.342, p < .001$.

Explicit judgment

All participants answered the explicit judgment question correctly.

Post-accuracy trials

As in the familiar-accurate condition in Experiment 1, children endorsed the familiar character's statements at rates above chance ($M = 2.10, SD = 0.788$), $t(19) = 3.405, p = .003$.

Object preference task

Children chose the damaged objects 74% of the time ($M = 7.40, SD = 3.77$), a rate significantly higher than the 5.5% rate ($M = 0.55, SD = 1.03$) that children in the control condition chose those objects, $t(23.712) = 7.615, p < .001$ (equal variances not assumed due to Levene's test, $F = 14.640, p = .001$).

Inter-item reliability on the object preference task was high, Cronbach's $\alpha = .957$, indicating strong consistency in children's responses. Similar to the previous experiments, the distribution of children's choices was largely bimodal, with 14 of 20 children preferring the damaged objects on eight or more trials and 4 children preferring the new objects on eight or more trials. Fully 11 participants chose the damaged objects on all 10 trials.

Children's explanations for their choice of object in the last three trials (glider, bucket, and gift box) were coded by two raters blind to which object children chose and to children's responses in the rest of the experiment. Raters coded the explanations into one of four categories: (a) explanations citing the character (e.g., "because I like Nemo," "because it had Dora on it"), (b) explanations citing the comparative state of the objects (e.g., "because it's not broken," "because I wanted the clean one"), (c) explanations citing the color of the character or the perceptual control sticker (e.g., "because I like pink"), or (d) explanations citing factors that did not distinguish between the two objects (e.g., "because I like airplanes") or that were vague (e.g., "because I like it") as well as explanations citing irrelevant factors (e.g., "I want it for my mommy") or children who stated, "I don't know." Interrater agreement was 100%. In the 40 explanations generated for trials where children chose the damaged objects, children cited the character 28 times (70% of trials). In the 20 trials where children chose the new objects, children cited the comparative state of the objects on seven trials and the color of the objects on 4 trials. All other explanations for both types of trials cited factors that did not distinguish between the two objects or were vague.

At the end of the experiment, 15 of the 20 participants (75%) indicated that their favorite character continued to be the same as their original choice. Of the 5 children who chose a different character, 1

child could not name the character and 1 child spontaneously stated that she loved both characters. The 5 children who chose a different character did not show significantly different responses from the rest of the sample on any of the tasks.

Discussion

As in the previous experiments, children trusted a familiar character with a history of accuracy and showed no difficulty in judging which character had been right or wrong. Furthermore, when presented with an object preference task involving three-dimensional objects with images on the new objects that controlled for visual interest, children preferred low-quality objects bearing a familiar character's image at rates even higher than in the previous experiments. This suggests that visual interest does not fully account for children's attraction to the damaged objects and that children do not show equally strong preferences for damaged objects bearing stimuli of the same colors and size as the familiar character. Children's preferences for the damaged objects also persisted despite an emphasis on the fact that they would take home and keep the objects they chose and a deemphasis on in-group affiliation with the familiar character. It seems that what actually drove children's preferences was the salience of the familiar character on the damaged objects. Children who chose the damaged objects frequently cited the presence of the character's image as underlying their choice, whereas children who chose the new objects never mentioned the character. Thus, the results of Experiment 3 confirm that some children view the presence of a familiar character as adding sufficient value to compensate for other negative characteristics of an object.

General discussion

Three experiments examined children's trust in a familiar character and the relationship between trust and object preferences. The first goal of the current study was to examine how children's trust in claims made by a familiar character was influenced by additional information regarding the character's accuracy or agreement with children's opinions. As expected, before receiving any information about reliability, children's initial inclination was to trust a familiar character over an unfamiliar character similar in appearance. When the familiar character made accurate factual statements (Experiments 1 and 3) or expressed subjective opinions with which participants agreed (Experiment 2), children continued to trust the familiar character. When the familiar character made clearly inaccurate factual statements, children showed only a marginally significant decrease in trust, and there was no significant decrease in trust when the familiar character expressed subjective opinions that children did not endorse. Moreover, at most, evidence of the familiar character's ignorance or strange opinions led to children merely being indecisive instead of actively distrusting that character and trusting a more reliable but unfamiliar character. Children's hesitance to shift their trust away from a familiar character is similar to the behavior of 4-year-olds who observe a familiar teacher (Corriveau & Harris, 2009) or an in-group member (Elashi & Mills, 2014) making errors, suggesting that young children apply similar heuristics to evaluating statements by familiar characters as they do to evaluating familiar people. Our findings also suggest that in some cases children have very clear intuitions regarding when to shift their trust to someone more knowledgeable over someone less so, whereas in other cases children seem less certain.

Although children showed similar patterns of responses when evaluating objective and subjective statements, there were two notable differences. First, children were more likely to endorse a familiar character's statements when they went against popular consensus (e.g., stating that garbage smells good) than when they were factually inaccurate (e.g., stating that grass is blue). Second, when the familiar character made subjective statements with which participants did not agree, the majority of children still said that the familiar character had been better than the unfamiliar character at answering the questions. This stands in contrast to the case of objective information where very few children had trouble in acknowledging the familiar character's errors. One explanation for this difference is that children may have interpreted the question of who was "better at answering the questions" in different ways, with some children perhaps focusing on whether they believed each character answered the questions honestly rather than on whether they agreed with the character's statements.

Perhaps because children do not view fictional characters as inhabiting the same world as them (Skolnick & Bloom, 2006), they were more willing to attribute disagreements in subjective judgments to the characters' environment and tastes and did not consider this to be evidence of answering the question poorly. For instance, children may have been more willing to accept that in Dora's world garbage does smell good, or that Dora perceives garbage to smell good, and therefore they believed that Dora was good at answering the questions even though they disagreed with her opinion.

Another goal of the current research was to examine the relationship between children's trust in a familiar character's statements and preference for objects bearing a familiar character's image. Our results suggest that character images powerfully influence children's product choices. Many children consistently preferred damaged and dysfunctional objects bearing their favorite character's image over new items even when the task involved real three-dimensional objects that they would get to keep. This effect is particularly striking given that children almost never chose damaged objects over new ones when there were no character images involved. What explains this difference in preferences? We hypothesized that children's preferences for damaged objects would be related to whether or not they heard the familiar character make inaccurate claims in that hearing the familiar character make inaccurate statements may prompt children to feel less positive about objects showing that familiar character. Our findings do not support this hypothesis. Overall, children's object preferences were not affected by the character's history of accuracy or agreement, and children who distrusted the familiar character were as likely to select the damaged objects as children who trusted the character. Rather, children's preferences appeared to have been driven by the presence of the character itself on the low-quality product. Perhaps the experience of hearing their favorite character make inaccurate statements or express unusual opinions three times in an experimental setting was not sufficient to override children's prior positive associations with the character, or perhaps the visual appeal of the character drew children's attention more so than the damage to the object (although Experiment 3 suggests that visual attention was not the sole factor driving children's choices). It would be useful for future research to explore additional factors such as whether other types of observations of a familiar character's behavior (e.g., the character being nice or mean; see Landrum et al., 2013) would influence children's product choices.

Previous studies indicate that the presence of familiar characters influences children's perceptions of otherwise identical products (e.g., Roberto et al., 2010), yet this is the first study to demonstrate that character images increase the appeal of *low-quality* products that children would otherwise deem undesirable to the point that they are more desirable to some children than *high-quality* new products. In all experiments, children's patterns of responses on the object preference task were largely bimodal, with most children either consistently selecting or rejecting the damaged objects. These response patterns may reflect individual differences that were not measured in these experiments. For instance, although all children had identified the character as their favorite from the initial set, the degree to which each child was familiar with the character and liked the character may have influenced their decisions about the objects. A child who watches *Finding Nemo* every day, loves playing with Nemo toys, and so on may value Nemo's image on an object far more than a child who has seen the movie only once.

Understanding the emotional and visual appeal of a familiar character's image, as well as the influence of functionality on product evaluations, should be a focus of future research. In particular, what is the relative value of appearance versus function? Our results suggest that children are somewhat sensitive to function when judging potential possessions given that they selected the damaged but still functional objects in Experiments 1 and 2 more often than the fully dysfunctional (i.e., unusable in their current state) objects in Experiment 2. However, the fact that children chose damaged and dysfunctional objects over pristine ones—and in some cases (e.g., Experiment 3) did so for the majority of the trials—demonstrates the value added by a familiar character's image. Taken together, the results of the object preference task reveal how challenging it may be for young children to effectively evaluate branded products.

One important consideration in designing the current study was whether to use characters from popular children's programming or to familiarize children with novel characters prior to the experiments. Although novel characters would have allowed us to ensure that all children were equally familiar with the characters and did not have prior associations with the characters, we opted to use characters that children already recognized from the media and that currently appear on food

packages, clothing, and toys in the children's environment. We believe that this approach maximizes the ecological validity of the study in that children were genuinely familiar with the characters and presumably had repeated exposure to them prior to the experiment. It would have been nearly impossible to match that kind of familiarity in an experimental setting.

However, this approach has potential limitations. Although the ability to correctly name a character has been used as evidence of familiarity in prior research (Skolnick & Bloom, 2006), it is possible that some of the children were not very familiar with the character they selected. Perhaps those children responded differently to our manipulation and questions than children who were highly familiar with the character they selected. Likewise, children may have varied in terms of how much they liked the character. In the future, it may be valuable to have children rate the character's likeability or intelligence and measure whether these ratings covary with children's evaluations. Furthermore, the current study included characters from children's media that have been incorporated into advertisements and packages but were not created for those purposes. Additional research is necessary to determine whether children show similar levels of trust and similar preferences for objects when the characters involved have been encountered solely in the context of advertising (e.g., Kellogg's Tony the Tiger character). Because exposure to these characters is likely to be more limited, children may react differently when hearing these characters make inaccurate statements. Similarly, older children who are aware of the persuasive intent of commercials (see American Psychological Association, 2004) may be even more skeptical of what spokes-characters say.

Our findings suggest that children initially show trust in familiar characters encountered in the media over unfamiliar ones for novel objective and subjective claims. Moreover, although this trust is somewhat attenuated after hearing the familiar characters make inaccurate statements, 4-year-olds treat these characters in a similar way as they treat familiar teachers—attenuating their trust but not distrusting them completely or shifting their trust to an accurate unfamiliar individual. Moreover, regardless of their agreement with a character's prior statements, some children value a familiar character's image on an object so much that its presence outweighs negative features such as damage to the object. These findings support popular concerns about the use of familiar characters in marketing products to young children and the difficulties that young children may face in critically evaluating claims made by a familiar character in an advertising context. Because parents and teachers typically provide information that is in children's best interest, such as warning children that eating candy will give them cavities or that watching an R-rated movie will give them nightmares, trusting this information is unlikely to have negative consequences for children even if the information does not always prove to be entirely accurate. However, the messages presented by fictional characters in advertisements are not tempered by prosocial motivations, and they may even promote unhealthy products and behaviors. Thus, understanding the power and limits of the influence of familiar characters on children's trust has important implications for both research and practice.

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Appendix A. Experiments 1 and 2

Experiment 1

Objective information.

Endorse trials	Accuracy manipulation	Post-accuracy trials
Zazz flowers are (big/small)	A wheel is a (circle/square)	A fotis lives (on land/in the water)
An animal called a snegg is (slow/fast)	Grass is (green/blue)	The game mogo is played (inside/outside)
Nevi fruit has (a pit/seeds)	Rabbits eat (carrots/shoes)	A slod has (2 legs/4 legs)

Experiment 2

Subjective information.

Endorse trials	Agreement manipulation	Post-agreement trials
Hoon flowers smell (good/bad)	Dirt tastes (good/bad)	The food zazz tastes (good/bad)
An animal called a yiff is (ugly/cute)	Going to birthday parties is (fun/boring)	The game mogo is (fun/boring)
Nevi fruit tastes (good/bad)	Garbage smells (good/bad)	An animal called a chab is (ugly/cute)

References

- American Psychological Association. (2004). *Report of task force on advertising and children*. Retrieved from <<http://www.apa.org/pi/cyf/advertisingandchildren.pdf>>.
- Batada, A., & Borzekowski, D. (2008). SNAP! CRACKLE! WHAT? Recognition of cereal advertisements and understanding of commercials' persuasive intent among urban, minority children in the U.S. *Journal of Children and Media*, 2(1), 19–36.
- Birch, S. A. J., Akmal, N., & Frampton, K. L. (2010). Two-year-olds are vigilant of others' nonverbal cues to credibility. *Developmental Science*, 13, 363–369.
- Birch, S. A., Vauthier, S. A., & Bloom, P. (2008). Three- and four-year-olds spontaneously use others' past performance to guide their learning. *Cognition*, 107, 1018–1034.
- Campaign for a Commercial-Free Childhood. (n.d.). *Marketing to children overview*. Retrieved from <<http://www.commercialfreechildhood.org/resource/marketing-children-overview>>.
- Clément, F., Koenig, M., & Harris, P. L. (2004). The ontogenesis of trust. *Mind & Language*, 19, 360–379.
- Connor, S. M. (2006). Food-related advertising on preschool television: Building brand recognition in young viewers. *Pediatrics*, 118, 1478–1485.
- Corriveau, K. H., & Harris, P. L. (2009). Choosing your informant: Weighing familiarity and recent accuracy. *Developmental Science*, 12, 426–437.
- Corriveau, K. H., Harris, P. L., Meins, E., Ferneyhough, C., Arnott, B., Elliott, L., et al (2009). Young children's trust in their mother's claims: Longitudinal links with attachment security in infancy. *Child Development*, 80, 750–761.
- Corriveau, K. H., Kim, A. L., Schwalen, C. E., & Harris, P. L. (2009). Abraham Lincoln and Harry Potter: Children's differentiation between historical and fantasy characters. *Cognition*, 113, 213–225.
- Einav, S., & Robinson, E. J. (2010). Children's sensitivity to error magnitude when evaluating informants. *Cognitive Development*, 25, 218–232.
- Elashi, F., & Mills, C. M. (2014). *Do children trust based on group membership or prior accuracy? The role of group membership in children's trust decisions*. *Journal of Experimental Child Psychology*, The University of Texas at Dallas, 128, 88–104.
- Harris, J. L., Schwartz, M. B., & Brownell, K. D. (2009). Marketing foods to children and adolescents: Licensed characters and other promotions on packaged foods in the supermarket. *Public Health Nutrition*, 13, 409–417.
- Koenig, M. A., Clément, F., & Harris, P. L. (2004). Trust in testimony: Children's use of true and false statements. *Psychological Science*, 15, 694–698.
- Koenig, M., & Harris, P. (2005). Preschoolers mistrust ignorant and inaccurate speakers. *Child Development*, 76, 1261–1277.
- Landrum, A. R., Mills, C. M., & Johnston, A. M. (2013). When do children trust the expert? Benevolence information influences children's trust more than expertise. *Developmental Science*, 16, 622–638.
- Lane, J. D., Wellman, H. M., & Evans, E. M. (2010). Children's understanding of ordinary and extraordinary minds. *Child Development*, 81, 1475–1489.
- Lapierre, M. A., Vaala, S. E., & Linebarger, D. L. (2011). Influence of licensed spokes-characters and health cues on children's ratings of cereal taste. *Archives of Pediatric and Adolescent Medicine*, 165, 229–234.
- Lieber, L. (1996). *Commercial and character slogan recall by children aged 9 to 11 years: Budweiser frogs versus Bugs Bunny*. Berkeley, CA: Center on Alcohol Advertising.
- MacDonald, K., Schug, M., Chase, E., & Barth, H. (2013). My people, right or wrong? Minimal group membership disrupts preschoolers' selective trust. *Cognitive Development*, 28, 247–259.
- Mills, C. M. (2013). Knowing when to doubt: Developing a critical stance when learning from others. *Developmental Psychology*, 49, 404–418.
- Neeley, S. M., & Schumann, D. W. (2004). Using animated spokes-characters in advertising to young children: Does increasing attention to advertising necessarily lead to product preference? *Journal of Advertising*, 33, 7–23.
- Nguyen, S. P. (2012). The role of external sources in the development of children's evaluative categories of food. *Infant and Child Development*, 21, 216–235.
- NPD Group. (2012). *U.S. toy industry retail sales generated \$21.18 billion in 2011*. Retrieved from <https://www.npd.com/wps/portal/npd/us/news/pressreleases/pr_120131a>.
- Nurmsoo, E., & Robinson, E. J. (2009). Children's trust in previously accurate informants who were well or poorly informed: When past errors can be excused. *Child Development*, 80, 23–27.
- Pasquini, E., Corriveau, K. H., Koenig, M. A., & Harris, P. L. (2007). Preschoolers monitor the relative accuracy of informants. *Developmental Psychology*, 43, 1216–1226.
- Repacholi, B. M., & Gopnik, A. (1997). Early reasoning about desires: Evidence from 14- and 18-month-olds. *Developmental Psychology*, 33, 12–21.
- Richert, R. A., Shawbert, A. B., Hoffman, R. E., & Taylor, M. (2009). Learning from fantasy and real characters in preschool and kindergarten. *Journal of Cognition and Development*, 10, 41–66.
- Richert, R. A., & Smith, E. I. (2011). Preschoolers' quarantining of fantasy stories. *Child Development*, 82, 1106–1119.
- Roberto, C. A., Baik, J., Harris, J. L., & Brownell, K. D. (2010). Influence of licensed characters on children's taste and snack preferences. *Pediatrics*, 126, 88–93.

- Sabbagh, M. A., & Baldwin, D. A. (2001). Learning words from knowledgeable versus ignorant speakers: Links between preschoolers' theory of mind and semantic development. *Child Development, 72*, 1054–1070.
- Sharon, T., & Woolley, J. D. (2004). Do monsters dream? Young children's understanding of the fantasy/reality distinction. *British Journal of Developmental Psychology, 22*, 293–310.
- Skolnick, D., & Bloom, P. (2006). What does Batman think about SpongeBob? Children's understanding of the fantasy/fantasy distinction. *Cognition, 101*, B9–B18.
- Sobel, D. M., & Kushnir, T. (2013). Knowledge matters: How children evaluate the reliability of testimony as a process of rational inference. *Psychological Review, 120*, 779–797.