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The influence of entertainment and brand characters on children's object preferences and monetary judgments

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Companies often use images of popular characters from children's media on their products. The current study investigated how different types of popular characters (i.e., entertainment or brand) influence children's trust, preference for, and monetary judgments of objects. Additionally, we explored whether children's own parasocial relationships with such characters influence their preferences and judgments. Participants included 66 four- and five-year-olds ($M_{\text{age}} = 5.06$; $SD = 0.48$; 34 boys; 32 girls). First, children completed a selective trust task measuring their preference for information from a familiar or unfamiliar character. Then children asked which object (i.e., damaged with a familiar character image or undamaged without a familiar character image) they would want and which people would pay more money for. Results indicated regardless of character type (i.e., entertainment or brand), children did not trust (i.e., seek out new information or endorse specific testimony) the familiar marketing character more than an unfamiliar character. Children across all character conditions did not display a preference for either object, however they were more likely to rate the undamaged object as more valuable than the damaged object featuring the familiar character. Parasocial relationships for all types of characters were high and did not relate to children's preferences or judgments. These findings expand on previous research suggesting that although the presence of familiar media characters can influence children's preferences for individual objects, children can also weigh more relevant features of an object, such as potential flaws in the design, when making other decisions (e.g., value).

KEYWORDS

familiar characters, selective trust, object preference, monetary judgment, parasocial relationship

Introduction

In 2023, licensed toys (e.g., toys with specific logos, packaging design, graphic images) accounted for over 30% of the total toy market across 12 global markets (Circana, 2024). Of the licensing logos and images, many include popular familiar characters from children's media programs (e.g., Elmo from *Sesame Street*®). These characters are also used in other industries to market to children, such as the food and beverage industry which often feature familiar characters on food packaging, typically for foods of low nutritional value (Harris et al., 2010; Elliott, 2019). Some companies create their own distinct brand characters (e.g., Kellogg's® Tony the Tiger) to feature on children's products. Although

these characters are also familiar to young children (Batada and Borzekowski, 2008), they are used solely to promote a product, rather than to provide entertainment (Phillips, 1996). Research over the past few decades has found that featuring characters on products is an effective marketing strategy and children will be more likely to request or prefer a product if it features a character (Derbaix and Bree, 1997; Neeley and Schumann, 2004; Boyland and Halford, 2013; Hémar-Nicolas et al., 2021). However, it is unclear whether children judge products differently depending on the character type (e.g., entertainment or brand) or their relationship with the character that is used in the marketing strategy.

Previous research has found that popular entertainment characters influence children's judgments about various products. For example, when a popular entertainment character is displayed on food packaging, children judge that the food is more tasty than when judging the same food without the packaging (Roberto et al., 2010; Kotler et al., 2012; Letona et al., 2014). Similarly, when popular entertainment characters are displayed on books, preschoolers are more likely to want to read them (Jacoby and Edlefsen, 2020). This preference for objects depicting popular entertainment characters even extends to damaged objects (Danovitch and Mills, 2014, 2017). When presented with identical pairs of objects where one object is damaged and has a picture of a familiar popular entertainment character and the other object is in perfect condition but does not picture the familiar popular entertainment character, children as young as 4 years old prefer the damaged object depicting the familiar entertainment character more than the object without the character.

Earlier research conducted by John (1999) proposed a conceptual framework for understanding consumer socialization as a series of stages. Following Piaget (1970), he proposed that children aged 3 to 7 years old are in a pre-operational stage in which they are only able to focus on a single, perceptually salient attribute of an object (e.g., its color) when making decisions. However, more recent research by Vanderbilt and Andreason (2023) suggests that young children can weigh several characteristics of the same object and can assign differential importance to each characteristic depending on the task at hand. To assess this hypothesis, Vanderbilt and Andreason (2023) presented children with damaged objects with a character or undamaged objects without a familiar character (similar to Danovitch and Mills, 2014, 2017) and asked children which object they would want to take home, as well as which object they would prefer to use to complete a functional task (e.g., needing to moving objects across the room). The results indicated that 3- and 4-year-olds prefer to take home objects depicting a familiar popular entertainment character more than objects without the characters—even if those objects are damaged. However, when asked which object children would need to complete a functional task, children prioritized object functionality over the presence of a character. These findings suggest that although popular entertainment character have a strong influence on children's preferences, children are able to weigh other factors (e.g., functionality), depending on the type of judgment.

As consumers, individuals not only take into account their preference for an object or its functionality, but also its worth. The mechanisms through which young children make monetary value assessments of objects have clear implications for the

persuasive marketing of products (Gelman and Echelbarger, 2019). Research suggests that children grasp the concept of value from a young age and can assign specific dollar amounts which reflect relative worth (Frazier and Gelman, 2009). Previous research invited 4- to 12-year-old children to provide monetary evaluations across a variety of objects (Gelman et al., 2015). Across all ages, children consistently assigned the highest monetary value to objects that they were told "belonged" to familiar entertainment characters (e.g., Ernie's rubber ducky), suggesting that children's monetary assessment of objects is strongly influenced by the association of an object with a familiar entertainment character. However, to our knowledge no research has explored how children would monetarily evaluate damaged objects which feature, rather than are associated with, familiar characters.

Although popular entertainment characters (e.g., Elmo) are often used in product advertising for children, companies also create brand characters for the sole purpose of advertising their products (e.g., Kellogg's Tony the Tiger). The featuring of brand and entertainment characters on products targeted at children has undergone considerable scrutiny. Young children are often regarded as cognitively immature (Schor, 2008), potentially lacking the ability to recognize marketing tactics, understand their persuasive purposes, and resist their allure (Hudders et al., 2017). In particular, the use of such strategies within the food industry has prompted ethical concerns. Almost half of UK food and drink products featuring familiar characters are high in fat, saturated fat, sugar and/or salt, with few companies employing such strategies on nutritious products (Action on Sugar, 2019). Such encouragement of the consumption of unhealthy products is associated with public health issues related to childhood obesity (Kraak and Story, 2015). Therefore, it is crucial to explore how the visual appeal of brand characters' images might influence children's product choices and evaluations.

The current study expands on previous research to examine whether children's monetary judgments for damaged objects featuring familiar characters are similar to their preferences for these items, and whether the type of familiar character (i.e., entertainment or brand characters) influences these judgments. We also examined if these judgments and preferences relate to children's trust and parasocial relationships. Several authors (e.g., Danovitch and Mills, 2017; Vanderbilt and Andreason, 2023) have theorized that children's preference for objects featuring familiar characters may be driven by emotion. More specifically, children may have parasocial relationships, or one-sided emotional attachments, with these characters (Schlesinger et al., 2016). Young children often treat familiar characters as realistic and trusted friends (Bond and Calvert, 2014). They are likely to form the strongest parasocial relationships with characters to which they have high exposure in the media (Richards and Calvert, 2017) and who behave in a way which suggests they can interact directly with the audience (e.g., looking directly at the viewer; Auer, 1992). No research has explored potential relations between the strength of children's parasocial relationship with the character and children's preference for damaged objects featuring those characters.

Methods

Participants

Sixty-six 4- and 5-year-olds ($M_{age} = 5.06$; $SD = 0.48$; 34 boys; 32 girls) participated. One caregiver did not provide the date of birth for their child at consent but informed the researcher that the child was 4 years old; therefore, exact age could not be calculated and this participant was not included in the average age reported. An additional 10 participants were excluded from the analysis because they were not familiar with the characters ($M_{age} = 4.93$; $SD = 0.35$). The minimum number of participants ($N = 66$) required was determined by an *a priori* power analysis using G*Power (Faul et al., 2007), employing an effect size of 0.40, at a significance level of 0.05.

Participants were recruited from various locations in the Boston MA area including the park, museums, and local schools. Additional demographic information (i.e., caregiver education level, family household income, and child's race and ethnicity) were optional for the caregiver to report. Thirty-six percent of caregivers did not provide their education level, 4.5% had less than a high school degree, 1.5% had some college, 6% had a Bachelor's degree, 26% had a Master's degree, and 26% had a Professional degree/Doctorate. Forty-eight percent of caregivers did not provide their household income, 1.5% ranged from \$25,000-\$49,999, 4.5% ranged from \$50,000-\$74,999, 3% ranged from \$75,000-\$99,999, 6% ranged from \$100,000-\$149,999, 11% ranged from \$150,000-\$199,999, 4.5% ranged from \$200,000-\$249,999, 4.5% ranged from \$250,000-\$300,000, and 17% ranged >\$300,000. Finally, thirty-nine percent of caregivers did not provide the race and ethnicity of their child, 36% of participants were identified by their caregivers as Caucasian-American, 11% Asian, 3% Middle Eastern, 2% Hispanic/Latino, and 9% were identified as belonging to two or more race and ethnicities.

An additional 16 children ($M_{age} = 4.79$; $SD = 0.44$; 12 boys; 4 girls) from the same community participated in a control condition for the object preference and monetary evaluation trials only. Three additional children were excluded because they failed to pass the monetary judgment training task ($n = 2$), or did not complete the task due to inattention ($n = 1$).

Materials

Three informant type conditions were created *a priori* (i.e., brand characters, entertainment characters with intended high parasocial relationship, or entertainment characters with intended low parasocial relationship) to examine potential differences in children's judgments based on character type. Initially, a web search was conducted to establish characters familiar to pre-school children, and which fit into the following three distinct categories: (1) "strong parasocial" characters featured in popular television shows, which children are likely to be regularly exposed to, and who break the fourth wall (i.e., engage with the audience) (2) "weak parasocial" characters featured in popular movies, which children are likely to be less regularly exposed to and which do not interact with the audience, and (3) "brand" characters featured in popular

branding commercials. The search yielded a set of six characters for each category.

To explore children's familiarity with these characters, we presented them to eleven 3- to 5-year-olds, and invited them to identify either the name of the character or the show/movie/commercial they were from. Children were most familiar with Daniel Tiger (from *Daniel Tiger's Neighborhood*; 100%) and Elmo (from *Sesame Street*; 80%) for the "strong parasocial" category, Moana (from *Moana*; 90%) and Elsa (from *Frozen*; 70%) for the "weak parasocial" category, and Finn (from *Goldfish*; 100%) and Red (from *M&M*; 100%) for the "brand" category. These six characters were included in the study. Each character was presented in a neutral pose, and appeared to be looking at the viewer. Following Danovitch and Mills (2014), we modified the familiar character's image to create an unfamiliar equivalent for each of the six familiar characters. This perceptually-matched image was created by uploading the character's image to the website "Image Color Summarizer" (Krzywinski, 2006), where the color percentage breakdown of the original image was analyzed. This information was then used to create a new image of the same dimensions as the original.

Following the same object designs as used in Danovitch and Mills (2014, 2017), five pairs of identical objects were used in both the object preference task and monetary value task: a bucket, a binder, a mask, a bag of candy, and a bag of crackers. The first three objects were selected randomly but the other two were selected based on their relevance to the brand characters (i.e., a candy bag for *M&M's* Red and a cracker bag for *Goldfish's* Finn). Within each pair, one object was "damaged" (e.g., parts of the bucket were ripped off, the cover of the binder was torn and bent), and the other object was in perfect condition (see Figure 1). On the damaged object, a printed cut-out of each familiar character was displayed in a central location. On the undamaged objects, a printed cut-out of a perceptually-matched image (an image of the same size and color as the familiar character's image) was placed in a central location. Individual photos were taken of each of the damaged and undamaged objects. The order that the object pairs were presented was determined by a 5×5 Latin square design. For half of these orders, the damaged object was on the left side of the screen, and for the other, half the damaged object was on the right side of the screen.

Parasocial interaction measure

The Parasocial Interaction Measure was adapted from Richards and Calvert (2017), and included 17 questions delivered in a fixed order, measuring children's level of parasocial relationship with each familiar character (see Appendix).

Monetary evaluation introduction and training

The monetary evaluation training task was adapted from Gelman et al. (2015). The items in the monetary evaluation introduction consisted of pictures of money, a painting, a crumpled piece of paper, roller skates, dirty socks, pack of gum, a drum set, a toy boat, and a cup. The items used

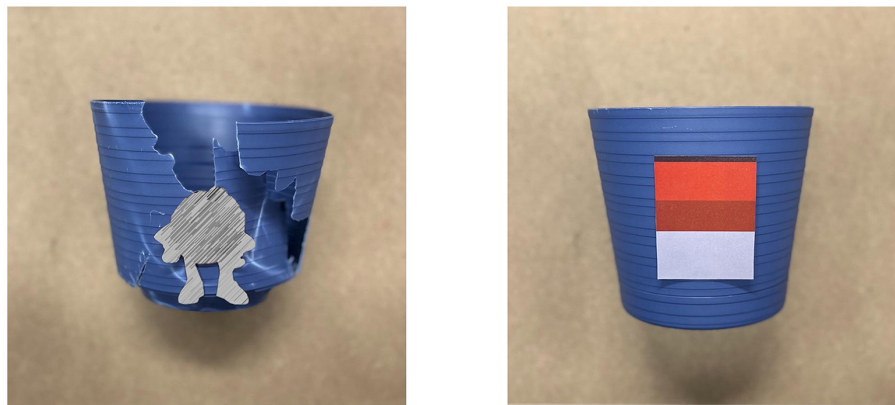


FIGURE 1

Example of a damaged and perfect object pair from the brand character condition as presented on screen in PowerPoint. Silhouette indicates the location of the character image that cannot be reprinted here due to copyright law.

in the training trials were a box of crayons, a single crayon, a fancy toy train, a plain toy train, a fancy pen, a plain pen, a whole cookie, a partially eaten one, clean shoes, and dirty shoes.

Procedure

Character selection

Children were randomized into one of three conditions: “Strong Parasocial”, “Weak Parasocial”, and “Brand.” To begin, they were presented with the two characters relevant to their condition (e.g., Elsa and Moana for the “Weak Parasocial” condition) and invited to choose their favorite. To confirm their familiarity with their chosen favorite, children were asked two questions: “What is [character’s] name?” and “What movie/show/commercial are they from?” This character was shown to them in the following tasks. If the child was unfamiliar with their initial favorite, the researcher asked about their familiarity with the other character presented. If the children displayed familiarity with the other character within the condition, that character was instead used in the following tasks. Children that were unfamiliar with both characters were excluded.

Unfamiliar character introduction

Next, children were shown the unfamiliar, but perceptually similar, character. The experimenter said, “Now I am going to show you a new character. Their name is Jesse. Jesse is from a brand new movie/show/commercial that no one has watched yet.” To make sure children were unfamiliar with this character, children were asked, “Have you ever seen Jesse before?” Four child claimed to be familiar with Jesse, and were reminded that Jesse was a new character from a new movie/show/commercial no one had seen before.

Selective trust trials

Children then completed two selective trust tasks: ask and endorse (modified from [Danovitch and Mills, 2014](#)).

Ask trial

Children were shown the familiar and the unfamiliar character and asked, “Which character would you ask to find the answer to this question: What season is best for Flurping?”. Children could respond by saying the name of the character or pointing to their choice on the screen.

Endorse trials

Across three trials, a speech bubble for each character appeared on the screen displaying conflicting statements (e.g., “Hoon flowers smell good/bad”). The experimenter read each statement aloud, and then invited the child to endorse one of the two statements. For example, the experimenter might say, “Red says Hoon flowers smell good and Jesse says Hoon flowers smell bad. What do you think? Do Hoon flowers smell good like Red says, or bad like Jesse says?” Children could respond by repeating the statement or pointing to the character whose statement they were endorsing. Eight different orders were created to control for the character-statement match, as well as the side of the screen on which each character was displayed.

Object preference trials

Next, children completed the object preference task (adapted from [Danovitch and Mills, 2014](#)). Children were presented with five pairs of identical objects (one damaged and one undamaged). For each pair, they were invited to consider the object they would choose if they were shown them in a store.

Parasocial relationship

Children then saw the familiar character on the screen and answered the Parasocial Relationship Measure. Children could respond to each question with “yes”, “maybe”, or “no”. “Yes” responses were scored as 1, “maybe” responses were scored as 0.5,

and “no” responses were scored as “0”. Averages across the 17 questions were calculated for the Parasocial Relationship Measure.

Monetary evaluation introduction

To begin, children were reminded that money is used to purchase things and were shown two pairs of objects: (1) a painting and a crumbled ball of paper and (2) roller skates and dirty socks. The experimenter explained that people typically pay more for one of the items (i.e., painting and roller skates). Then, children were given examples of items and their cost (e.g., “People would pay \$1 for a pack of gum and \$100 for a drum set”).

Monetary evaluation training trials

Next, children were trained on the two monetary evaluation tasks: *forced choice evaluations* (i.e., “Which object would people pay more money for?”) and *open-ended evaluations* (i.e., “How much would people pay for this object?”). Children completed a total of five trials where one object was considered more valuable than the other. The object pairs used in the training trials were (1) a box of crayons and a single crayon, (2) a plain toy train and a fancy toy train, (3) a plain pen and a fancy pen, (4) a cookie with one bit missing and a whole cookie, and (5) dirty shoes and clean shoes. Following the same procedure as Gelman et al. (2015), feedback was provided after each trial. If the child correctly answered a test trial, they were told that they were right, people would pay more for the object they selected, and they were told why (e.g., “You’re right! People would pay more for this box of crayons because there are more.”) If the child did not correctly answer a test trial, they were told people would pay more money for the other object and why (e.g., “Actually, I think people would pay more for this this box of crayons because there are more”).

Monetary evaluation test trials

Next, children were presented with the same five pairs of objects (one damaged and one undamaged) from the Object Preference Trials. For each pair, they were invited to indicate which object “people would pay more money for” (i.e., *forced choice evaluations*), as well as the amount people would pay for each item (i.e., *open-ended evaluations*).

Results

Character selection

In the Strong Parasocial condition, 14 children selected Daniel Tiger and eight selected Elmo as their favorite character. In the Weak Parasocial condition, four children selected Moana as their favorite, whereas 18 selected Elsa as their favorite character. In the Brand condition, five children selected Finn and 17 selected Red as their favorite character. One child originally selected Finn and one child originally selected Red as their favorite character but could not name the character or the commercial; because they could name the character and commercial of the other character, they continued the study with the character with which they were familiar. Removing

these participants did not change the overall pattern of results, therefore they were included in the analyses. When introduced to Jesse, four children claimed to be familiar with Jesse, and one child refused to answer.

Parasocial relationship

Seven participants did not answer one of the 17 parasocial relationship questions. As such, proportional scores were calculated out of the total number of questions answered. To determine if our assigned conditions differed on their level of parasocial relationships, a one-way ANOVA with character type was conducted. There was a significant difference in the average parasocial relationship score between the three conditions, $F(2, 63) = 3.21, p = 0.047$. A *post hoc* Tukey’s *t*-test indicated that children reported a parasocial relationship that was significantly stronger in the Strong Parasocial Condition ($M = 0.744, SD = 0.141$) than in the Weak Parasocial Condition ($M = 0.611, SD = 0.210$), $t(63) = 2.53, p = 0.036, d = 0.74$. There was no significant difference between Brand ($M = 0.672, SD = 0.164$) and Strong or Weak Conditions, $ps > 0.369$.

Selective trust trials

Ask trial

There was no difference in the distribution of responses between children in the three conditions, $\chi^2(2, N = 66) = 2.57, p = 0.277$. Collapsed across conditions, 36 of 66 total children indicated that they would ask the familiar character for the answer to a novel question, whereas 30 indicated they would ask the novel character, $\chi^2(1, N = 66) = 0.55, p = 0.460$.

Endorse trials

Two participants in the Brand condition were missing values for one of the endorse trials. Removing these participants did not change the overall pattern of results, therefore they were included in the following analysis. Children endorsed the familiar character’s testimony 51% of the time in the Strong Parasocial condition, 55% of the time in the Weak Parasocial condition, and 55% of the time in the Brand condition.

To examine the effects of condition and parasocial relationship on children’s endorsement of the familiar character’s testimony, we developed a Generalized Mixed Model in Jamovi Version 2.3 (The Jamovi Project, 2022). Preliminary analyses revealed no significant main effects of Age (measured continuously) or Gender, and no significant interactions. Thus, Age and Gender were not included in our primary analyses. The fixed effect in the final model was Condition, and child’s Parasocial Relationship score was included as a continuous predictor. The model also included a random effect for the Child. The generalized mixed effects model revealed no significant main effect of Condition or Parasocial Relationship score or interactions, $ps > 0.373$.

Additionally, to determine if all children (i.e., collapsed across condition) endorsed the familiar character’s testimony at rates

higher than the unfamiliar character's testimony, a χ^2 Goodness of Fit test was conducted across all the trials ($N = 196$). Children did not show any significant difference in their endorsement of the familiar character's testimony (56% of the trials) than the unfamiliar character's testimony (44% of the trials), $\chi^2(1, N = 196) = 2.94, p = 0.086$.

Exploratory analysis: the role of valence

To further understand the null result for the Endorse Trials, an exploratory analysis of children's endorsement by valence was conducted. Recall that the characters provided testimony that varied in valence (i.e., positive or negative; e.g., flowers smell good/bad). Previous selective trust research with familiar characters (e.g., Williams and Danovitch, 2019) suggests that children attend to the valence of the testimony when making an inference about the credibility of subjective statements. Trial responses were recoded as endorsing the positive or negative testimony, regardless of character type. To determine if all children (i.e., collapsed across condition) endorsed the positive testimony at rates higher than the negative character's testimony, a χ^2 Goodness of Fit test was conducted across all trials ($N = 196$). Children were more likely to endorse the positive testimony (80% of the trials) over the negative testimony (20% of the trials), $\chi^2(1, N = 196) = 71.0, p < 0.001$.

Object preference trials

Children chose the damaged object with the familiar character's image 51% of the time in the Strong Parasocial condition, 55% of the time in the Weak Parasocial condition, and 59% of the time in the Brand condition.

To examine the effect of Condition and Parasocial Relationship on children's preference for damaged objects with familiar character's image, we developed a Generalized Mixed Model in Jamovi Version 2.3 (The Jamovi Project, 2022). Preliminary analyses revealed no significant main effects of Age (measured continuously) or Gender, and no significant interactions. Thus, Age and Gender were not included in our primary analyses. The fixed effects in the model were Condition and child's Parasocial Relationship score was included as a continuous predictor. The model also included random effects for the child and type of object. The Generalized Mixed-effects Model revealed no significant main effect of Condition or Parasocial relationship score or interactions, $ps > 0.090$.

To explore children's overall object preference, we collapsed children's choices across conditions and ran a χ^2 Goodness of Fit test on all 330 trials. The results indicated that children were more likely to select the undamaged objects (57% of the trials) over the damaged object with the image of the character (43% of the trials), $\chi^2(1, N = 330) = 5.87, p = 0.015$.

Exploratory object preference with control condition

To examine the effects of the presence or absence of a character's image on children's preference for damaged objects, we developed an exploratory Generalized Mixed Model in Jamovi

Version 2.3 (The Jamovi Project, 2022). The fixed effect in the model was Control Condition (i.e., control condition or experimental condition). The model also included random effects for the child and type of object. The generalized mixed effects model revealed a significant main effect of Control Condition, $B = -4.14, SE = 1.05, 95\% CI [0.002, 0.12], p < 0.001$, such that children in the Control Condition were less likely to select the damaged object than children in one of the three experimental conditions.

Monetary evaluations training trials

Forced choice evaluations

When invited to select which of two choices people would pay more money for, all but one participant correctly identified the more valuable of two objects 60% of the time or more. One participant scored lower than 50% in this task. However, excluding this participant did not change the overall pattern of results, therefore, they were included in the subsequent analysis.

Monetary evaluations test trials

Forced choice evaluations

One participant in the Weak Parasocial condition did not complete this task and was excluded from the following analysis. Children indicated that the damaged object with an image of the familiar character was more costly 19% of the time in the Strong Parasocial condition, 24% of the time in the Weak Parasocial condition, and 24% of the time in the Brand condition.

To examine the effects of Condition and Parasocial Relationship on children's monetary value of damaged objects with images of familiar characters, we developed a Generalized Mixed Model in Jamovi Version 2.3 (The Jamovi Project, 2022). Preliminary analyses revealed no significant main effects of Age (measured continuously) or Gender, and no significant interactions. Thus, Age and Gender were not included in our primary analyses. The fixed effect in the model was Condition and child's Parasocial Relationship score was included as a continuous predictor. The model also included random effects for the child and type of object. The generalized mixed effects model revealed no significant main effect of condition or parasocial relationship score or interactions, $ps > 0.443$.

Additionally, to determine if all children (i.e., collapsed across condition) endorsed the familiar character's testimony at rates higher than the unfamiliar character's testimony, a χ^2 Goodness of Fit test was conducted across all trials ($N = 325$). Children were more likely to view the undamaged objects (77% of the trials) as more valuable than the damaged object with the image of the character (23% of the trials), $\chi^2(1, N = 325) = 94.2, p < 0.001$.

Exploratory monetary value with control condition

To examine the effects of the presence or absence of a character's image on children's preference for damaged objects, we developed an exploratory Generalized Mixed Model in Jamovi

Version 2.3 (The Jamovi Project, 2022). The fixed effect in the model was Control Condition (i.e., control condition or experimental condition). The model also included random effects for the child and type of object. The generalized mixed effects model revealed no significant main effect of Control condition, $p = 0.263$, such that children in the Control Condition did not value the undamaged object more or less than children not in the control condition.

Discussion

This research investigated how different types of marketing characters (i.e., entertainment or brand) influence children's trust in, preference for, and monetary judgments of objects. Additionally, we explored whether children's own parasocial relationships with such characters influence their judgments. Across all tasks, the type of character (i.e., brand or entertainment) did not influence children's judgments. One explanation for this finding could be that although children in the Strong Parasocial vs. Weak Parasocial conditions had different parasocial relationship scores, the parasocial scores of the Brand characters were not significantly different than either of the other two groups. Overall, children had high parasocial relationship scores suggesting that brand characters have comparable—and as strong of—levels of influence on children's judgment as do entertainment characters. This is surprising, given that children only encounter brand characters in advertisements and on products, which likely evoke less emotional engagement than observing entertainment characters in movies or TV shows (Dessart and Pitardi, 2019). These findings indicate that companies can build effective marketing strategies using brand characters as well as entertainment characters.

Contrary to previous findings (e.g., Danovitch and Mills, 2014), children across all conditions did not trust (i.e., seek out new information or endorse specific testimony) the familiar marketing character more than the unfamiliar, but perceptually similar, character. It is plausible that, although children indicated strong parasocial relationships with the familiar characters, they had no information about either of the characters' credibility prior to making judgments about from whom to learn, further highlighting the proposed separation between emotional trust and epistemic trust (Jaswal and Kondrad, 2016). Indeed, previous research exploring children's selective learning from characters allowed children to hear a statement during a familiarization phase prior to making judgments about brand characters (Danovitch and Mills, 2014). Using this paradigm, children were more likely to trust the familiar character's subjective statements when the character's previous statement history aligned with children's own beliefs (e.g., "Birthday parties are fun"). Taken together, the results from our study and the findings from Danovitch and Mills (2014) indicate that children do not blindly trust statements from familiar marketing characters and instead rely on previous information to make decisions about from whom to seek out and endorse information. Rather, these findings suggest that children consider both characteristics of the informant, and characteristics about the claim when making decisions about from whom to learn.

We further explored this possibility by including an exploratory analysis of children's endorsement based on statement valence. Specifically, because subjective statements can be either positively or negatively valenced, we explored whether the valence of the characters' statement influenced children's selective trust. Similar to previous selective trust literature involving familiar characters (e.g., Williams and Danovitch, 2019), children in our study were more likely to endorse positively valenced subjective testimony, regardless of the character's familiarity. As mentioned in Williams and Danovitch (2019), young children are prone to a positivity bias (Boseovski and Lee, 2008; Boseovski, 2010) when encountering subjective information and, in those instances, may prioritize what an informant says instead of who the informant is. Future research including subjective testimony should consider including equally valenced (e.g., two conflicting positive or two conflicting negative statements) to further examine the relative contributions of valence to children's selective trust decisions.

When asked which of two objects children would want, children across all character conditions displayed no preference for either the undamaged or damaged object featuring the familiar character. Nevertheless, when examining children's preference for the object in the three experimental conditions including a marketing character against a control condition with no image of a character, children in the control condition displayed an increased preference for the undamaged object than did children in the character conditions. This result replicated previous findings that the presence of characters influence children's product preferences (Roberto et al., 2010; Danovitch and Mills, 2014, 2017; Vanderbilt and Andreason, 2023).

As discussed in the introduction, although the children were familiar with the marketing character, it is unlikely that this character was their ultimate favorite, which, in turn, could have been the reason why no effects of parasocial relationship were found on children's judgments. Parasocial relationships are likely strongest for favorite characters, and thus could have had a greater influence on children's decision-making. Future research should consider including children's favorite entertainment and brand characters to explore how such preferences might modify children's willingness to accept damaged products. Moreover, previous research examining children's beliefs in the existence of novel fantastical beings suggests that increased exposure is related to more belief in their reality status (Woolley et al., 2004). Since brands create their own characters that are initially unfamiliar and market to children to build familiarity, future research should explore children's preferences for an object including a novel brand character over repeated exposure to that character.

Another goal of the current research was to examine children's monetary judgments of objects. Our results suggest that regardless of condition (i.e., all three experimental conditions and the control condition), children were more likely to rate the undamaged object as more valuable than the damaged object featuring the familiar character. These findings indicate that although popular entertainment character have a strong influence on children's object preferences, they do not impact children's monetary judgments. Contrary to Gelman et al. (2015), the characters in

our study did not own/possess the objects and were simply present on the object. Future research should examine the role of ownership through providing explanations to the child about character ownership of the object to determine possible effects on monetary value.

Although we predicted familiarity and parasocial relationships with the familiar media characters would significantly influence children's trust, preference, and monetary value, this was not supported by our results. It is possible that other characteristics such as a history of accuracy (Corriveau et al., 2009), expertise (Sobel and Corriveau, 2010), or reality status (Richert and Smith, 2011) may be necessary in order for media characters to have more of an influence on young children's judgments. Future research should consider creating novel characters with these characteristics to further understand what features, or combination of features, are most influential to children's decision making.

A methodological limitation of the current study is that all participants were from a WEIRD population (i.e., western, educated, industrialized, rich, and democratic; Henrich et al., 2010). Given that SES relates to the amount of digital media children are exposed to (Rideout and Robb, 2020), it is possible that a more diverse sample may show a better understanding of the influence of popular characters on children's trust and judgments of products. Additionally, an individual's culture influences their consumer behaviors and values (e.g., Schwartz, 2007; Nayeem, 2012). It is possible children from non-WEIRD populations might have different consumer behaviors than more capitalist societies such as the United States. Future research should replicate the current study with more diverse populations.

With an increase over the past two decades in marketing directly to children (Buckingham, 2007), it is important for researchers to examine how children make product judgments. This research allows caregivers, policy makers, and marketing companies to better understand children's decisions as active consumers. As our findings suggest, even if children prefer a damaged object featuring a familiar character, they are sensitive to the damage when making other judgments, such as monetary values. These findings add to a growing body of literature addressing popular concerns on marketing strategies used directly for children. Although character images on objects make an object more desirable to children, as young consumers, the images do not fully influence their preferences and have no effect on how they judge an object's value. Caregivers and policy makers should consider providing feedback to children when introducing new products. Asking the child to consider more than just the perceptual features (e.g., what can the object do or how much does the object cost?) may help children recognize a product's worth over their own individual preferences.

References

Action on Sugar (2019). *Call for Ban on Using Cartoon Animations on-pack to Market Unhealthy Products to Children - Action on Sugar*. Available at: https://www.actiononsugar.org/news-centre/press-releases/2019/call-for-ban-on-using-cartoon-animations-on-pack-to-market-unhealthy-products-to-children-.html#_ednref5 (accessed March 6, 2024).

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Boston University Institutional Review Board. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

Author contributions

AW-G: Conceptualization, Formal analysis, Investigation, Methodology, Supervision, Writing – original draft, Writing – review & editing. IH: Conceptualization, Investigation, Methodology, Writing – original draft, Writing – review & editing. KC: Conceptualization, Methodology, Supervision, Writing – original draft, Writing – review & editing.

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Auter, P. J. (1992). Psychometric: TV that talks back: an experimental validation of a parasocial interaction scale. *J. Broadcast. Electron. Media* 36, 173–181. doi: 10.1080/08838159209364165

Batada, A., and Borzekowski, D. (2008). Snap! Crackle! What? *J. Child. Media* 2, 19–36. doi: 10.1080/17482790701733179

- Bond, B. J., and Calvert, S. L. (2014). A model and measure of US parents' perceptions of young children's parasocial relationships. *J. Child. Media* 8, 286–304. doi: 10.1080/17482798.2014.890948
- Boseovski, J. J. (2010). Evidence for “Rose-Colored Glasses”: An examination of the positivity bias in young children's personality judgments. *Child. Dev. Perspect.* 4, 212–218. doi: 10.1111/j.1750-8606.2010.00149.x
- Boseovski, J. J., and Lee, K. (2008). Seeing the world through rose-colored glasses? Neglect of consensus information in young children's personality judgments. *Soc. Dev.* 17, 399–416. doi: 10.1111/j.1467-9507.2007.00431.x
- Boyland, E. J., and Halford, J. C. G. (2013). Television advertising and branding. Effects on eating behaviour and food preferences in children. *Appetite*. 62, 236–241. doi: 10.1016/j.appet.2012.01.032
- Buckingham, D. (2007). Selling childhood? Children and consumer culture. *J. Child. Media* 1, 15–24. doi: 10.1080/17482790601005017
- Circana (2024). *Circana Reports on the 2023 Global Toy Industry Retail Sales Results*. Available at: <https://www.circana.com/intelligence/press-releases/2024/circana-reports-on-the-2023-global-toy-industry-retail-sales-results/> (accessed March 6, 2024).
- Corriveau, K. H., Meints, K., and Harris, P. L. (2009). Early tracking of informant accuracy and inaccuracy. *Br. J. Dev. Psychol.* 27, 331–342. doi: 10.1348/026151008X310229
- Danovitch, J. H., and Mills, C. M. (2014). How familiar characters influence children's judgments about information and products. *J. Exp. Child Psychol.* 128, 1–20. doi: 10.1016/j.jecp.2014.06.001
- Danovitch, J. H., and Mills, C. M. (2017). The influence of familiar characters and other appealing images on young children's preference for low-quality objects. *Br. J. Dev. Psychol.* 35, 476–481. doi: 10.1111/bjdp.12193
- Derbaix, C., and Bree, J. (1997). The impact of children's affective reactions elicited by commercials on attitudes toward the advertisement and the brand. *Int. J. Res. Market.* 14, 207–229. doi: 10.1016/S0167-8116(97)00003-7
- Dessart, L., and Pitardi, V. (2019). How stories generate consumer engagement: An exploratory study. *J. Bus. Res.* 104, 183–195. doi: 10.1016/j.jbusres.2019.06.045
- Elliott, C. (2019). Tracking kids' food: Comparing the nutritional value and marketing appeals of child-targeted supermarket products over time. *Nutrients* 11:1850. doi: 10.3390/nu11081850
- Faul, F., Erdfelder, E., Lang, A.-G., and Buchner, A. (2007). G*Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behav. Res. Methods* 39, 175–191. doi: 10.3758/BF03193146
- Frazier, B. N., and Gelman, S. A. (2009). Developmental changes in judgments of authentic objects. *Cogn. Dev.* 24, 284–292. doi: 10.1016/j.cogdev.2009.06.003
- Gelman, S. A., and Echelbarger, M. E. (2019). Children, object value, and persuasion. *J. Consum. Psychol.* 29, 309–327. doi: 10.1002/jcpsy.1097
- Gelman, S. A., Frazier, B. N., Noles, N. S., Manczak, E. M., and Stilwell, S. M. (2015). How much are Harry Potter's glasses worth? Children's monetary evaluation of authentic objects. *J. Cognit. Dev.* 16, 97–117. doi: 10.1080/15248372.2013.815623
- Harris, J. L., Schwartz, M. B., and Brownell, K. D. (2010). Marketing foods to children and adolescents: licensed characters and other promotions on packaged foods in the supermarket. *Public Health Nutr.* 13, 409–417. doi: 10.1017/S1368980009991339
- Hémar-Nicolas, V., Putri Hapsari, H., Angka, S., and Olsen, A. (2021). How cartoon characters and claims influence children's attitude towards a snack vegetable – an explorative cross-cultural comparison between Indonesia and Denmark. *Food Qual. Prefer.* 87, 104031. doi: 10.1016/j.foodqual.2020.104031
- Henrich, J., Heine, S. J., and Norenzayan, A. (2010). The weirdest people in the world? *Behav. Brain Sci.* 33, 61–83. doi: 10.1017/S0140525X0999152X
- Hudders, L., De Pauw, P., Cauberghe, V., Panic, K., Zarouali, B., and Rozendaal, E. (2017). Shedding new light on how advertising literacy can affect children's processing of embedded advertising formats: A future research agenda. *J. Advert.* 46, 333–349. doi: 10.1080/00913367.2016.1269303
- Jacoby, J. W., and Edlefsen, K. (2020). “I Love Paw Patrol!”: Book selection and the allure of popular media characters among preschoolers. *J. Res. Child. Edu.* 34, 208–222. doi: 10.1080/02568543.2019.1677826
- Jaswal, V. K., and Kondrad, R. L. (2016). Why children are not always epistemically vigilant: cognitive limits and social considerations. *Child Dev. Perspect.* 10, 240–244. doi: 10.1111/cdep.12187
- John, D. (1999). Consumer socialization of children: a retrospective look at twenty-five years of research. *J. Consum. Res.* 26, 183–213. doi: 10.1086/209559
- Kotler, J., Schiffman, J., and Hanson, K. (2012). The influence of media characters on children's food choices. *J. Health Commun.* 17, 886–898. doi: 10.1080/10810730.2011.650822
- Kraak, V. I., and Story, M. (2015). Influence of food companies' brand mascots and entertainment companies' cartoon media characters on children's diet and health: A systematic review and research needs. *Obesity Rev.* 16, 107–126. doi: 10.1111/obr.12237
- Krzywinski, M. (2006). *Image Color Summarizer - RGB and HSV Image Statistics*. Available at: <http://mkweb.bcgsc.ca/color-summarizer/?analyze> (accessed March 6, 2024).
- Letona, P., Chacon, V., Roberto, C., and Barnoya, J. (2014). A qualitative study of children's snack food packaging perceptions and preferences. *BMC Public Health* 14:1274. doi: 10.1186/1471-2458-14-1274
- Nayem, T. (2012). Cultural influences on consumer behaviour. *Int. J. Bus. Manage.* 7, 78–91. doi: 10.5539/ijbm.v7n21p78
- Neeley, S. M., and Schumann, D. W. (2004). Using animated spokes-characters in advertising to young children: does increasing attention to advertising necessarily lead to product preference? *J. Advert.* 33, 7–23. doi: 10.1080/00913367.2004.10639166
- Phillips, B. J. (1996). Defining trade characters and their role in American popular culture. *J. Popular Cult.* 29, 143–158. doi: 10.1111/j.0022-3840.1996.1438797.x
- Piaget, J. (1970). *Science of Education and the Psychology of the Child (Trans. D. Coltman)*. London: Orion.
- Richards, M. N., and Calvert, S. L. (2017). Measuring young U.S. children's parasocial relationships: Toward the creation of a child self-report survey. *J. Child. Media* 11, 229–240. doi: 10.1080/17482798.2017.1304969
- Richert, R. A., and Smith, E. I. (2011). Preschoolers' quarantining of fantasy stories. *Child Dev.* 82, 1106–1119. doi: 10.1111/j.1467-8624.2011.01603.x
- Rideout, V., and Robb, M. V. (2020). *The Common Sense census: Media use by Kids Age Zero to Eight, 2020*. San Francisco, CA: Common Sense Media.
- Roberto, C. A., Baik, J., Harris, J. L., and Brownell, K. D. (2010). Influence of licensed characters on children's taste and snack preferences. *Pediatrics* 126, 88–93. doi: 10.1542/peds.2009-3433
- Schlesinger, M. A., Flynn, R. M., and Richert, R. A. (2016). US preschoolers' trust of and learning from media characters. *J. Child. Media* 10, 321–340. doi: 10.1080/17482798.2016.1162184
- Schor, J. B. (2008). Understanding the child consumer. *J. Am. Acad. Child Adolesc. Psychiat.* 47, 486–490. doi: 10.1097/CHI.0b013e318167660d
- Schwartz, S. H. (2007). Cultural and individual value correlates of capitalism: a comparative analysis. *Psychol. Inq.* 18, 52–57. doi: 10.1080/10478400701388963
- Sobel, D. M., and Corriveau, K. H. (2010). Children monitor individuals' expertise for word learning. *Child Dev.* 81, 669–679. doi: 10.1111/j.1467-8624.2009.01422.x
- The Jamovi Project (2022). *jamovi. (Version 2.3) [Computer Software]*. Available at: <https://www.jamovi.org>
- Vanderbilt, K. E., and Andreason, C. (2023). The influence of popular media characters on children's object choices. *Br. J. Dev. Psychol.* 41, 1–12. doi: 10.1111/bjdp.12434
- Williams, A. J., and Danovitch, J. H. (2019). What does Mickey Mouse know about food? Children's trust in favorite characters versus experts. *J. Exp. Child Psychol.* 187, 104647–104647. doi: 10.1016/j.jecp.2019.05.014
- Woolley, J. D., Boerger, E. A., and Markman, A. B. (2004). A visit from the candy witch: Factors influencing young children's belief in a novel fantastical being. *Dev. Sci.* 7, 456–468. doi: 10.1111/j.1467-7687.2004.00366.x

Appendix

Parasocial Interaction Measure

Does [familiar character's name] get hungry?	Yes	Maybe	No
Does [familiar character's name] get sleepy?	Yes	Maybe	No
Is [familiar character's name] pretend?	Yes	Maybe	No
Does [familiar character's name] have feelings?	Yes	Maybe	No
Do you believe what [familiar character's name] tells you all the time?	Yes	Maybe	No
Does [familiar character's name] make you feel safe when you are scared?	Yes	Maybe	No
Is [familiar character's name] cute?	Yes	Maybe	No
Is what [familiar character's name] tells you true?	Yes	Maybe	No
Is [familiar character's name] real?	Yes	Maybe	No
Do you think [familiar character's name] can feel guilty? (like when you feel bad about having done something)	Yes	Maybe	No
Do you think [familiar character's name] can feel embarrassed? (like when you feel silly about having done something)	Yes	Maybe	No
Do you think [familiar character's name] can feel proud (like when you feel really good about something you have done well)	Yes	Maybe	No
Do you think [familiar character's name] can feel love?	Yes	Maybe	No
Do you think [familiar character's name] can figure out how to do things? (like when you don't know how to do something but you figure it out)	Yes	Maybe	No
Do you think [familiar character's name] can make choices? (like when you choose to do one thing over another thing)	Yes	Maybe	No
Do you think [familiar character's name] can remember things?	Yes	Maybe	No