

Children's Brand Symbolism Understanding: Links to Theory of Mind and Executive Functioning

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ABSTRACT

Against a background of research suggesting that brand symbolism understanding does not develop until 7 to 11 years of age, two studies investigate various aspects of preschool children's brand knowledge. While children's recognition of child-oriented brands is found to be significantly greater than their recognition of brands that are marketed primarily to teens and adults, these young children do recognize brands. In a second study, children's ability to form mental representations of brands is assessed, along with their understanding of brands as social symbols. Cognitive ability, theory of mind, and executive functioning are assessed as predictors of these brand-related outcomes. Theory of mind and executive functioning are both significant predictors of the ability to form mental representations of brands. Children's brand symbolism understanding shows a significant link with theory of mind. It is concluded that 3- to 5-year-olds have emerging knowledge of brands that are relevant in their lives. The impact of individual differences in theory of mind and executive functioning on children's brand knowledge aligns with current theories of child development. Methodological contributions and societal implications are discussed. © 2010 Wiley Periodicals, Inc.

The present research is designed to bridge between the disciplines of marketing and psychology. When marketing researchers consider children's development as consumers, they frequently rely on Piaget's (1970) theory of cognitive development to explain observed patterns of behavior (see John, 1999). Piaget's theory is, however, considered somewhat outdated among psychology researchers, who, since the 1980s, have investigated individual differences in a variety of developmental variables to explain behavioral outcomes (McAlister & Peterson, 2006; Zelazo & Reznick, 1991). Given modern understanding, developmental psychology researchers recognize the need to assess individual differences in children's social development (by measuring a variable termed "theory of mind") and higher-order cognitive ability (assessed using measures of executive functioning).

Researchers have suggested the need for marketing studies to adopt the practice of examining individual differences in theory of mind and executive functioning to explain consumer behavior among young children (e.g., Moses & Baldwin, 2005). To date, though, such an endeavor has not been undertaken. Thus, the present research describes theory of mind and executive functioning for an audience perhaps unfamiliar with the developmental literature, and demonstrates the appropriateness of testing individual differences in these variables. The consumer behavior variables of interest are children's brand recognition and their brand symbolism understanding. The following literature review first describes how researchers have traditionally applied Piaget's theory of cognitive development to the study of children's consumer behavior. Following the first brief study, the introduction to the second study moves on to explain the relevance of testing variables such as theory of mind and executive functioning.

For the purpose of this research, brand symbolism understanding is defined as an understanding of the meaning attributed to a brand name. It includes an appreciation of the ways in which a brand name symbolizes user qualities (e.g., popularity, user image) as well as information about the products or services encompassed by the brand (e.g., perceptions of brand use). Past research suggests that sophisticated symbolism understanding is absent until somewhere between 7 and 11 years of age (John, 1999). Findings of this type are consistent with the traditional theory of cognitive development (Piaget, 1970), which asserts that children younger than 7 years of age are incapable of thinking about abstractions such as symbols. Piaget's theory proposes that children's development can be defined in four stages. In the sensorimotor stage (birth to 2 years), achievements include coordination of sensory perceptions and basic motor behaviors. Infants gradually become aware of the presence of an external world, with which they start to deliberately interact. In the preoperational stage (3 to 7 years), children use words and gestures to represent reality; however, this representation is somewhat egocentric as children still fail to distinguish the points of view of others from their own. The concrete operation stage (7 to 11 years) is the time when children first engage in mental operations that allow them to order, combine, separate, and transform actions and objects. The fourth and final stage is the formal operational stage (11 to 19 years), when adolescents can think methodically and analytically about the logical relations within a problem. Adolescents are interested in abstract ideas and are capable of metacognition.

When used to explain children's development of brand symbolism understanding, the most relevant stages of Piaget's theory are the preoperational and concrete operational stages. John's (1999) review of research investigating children's brand symbolism understanding argues strongly that the immature

cognitive capacity of preoperational children limits them to processing only individual elements of brand information and that their egocentric orientation to the world restricts any understanding of the intentions of others who might use brands for purposes of self-expression. John concludes that, because advanced processing skills and perspective-taking abilities emerge during the concrete operational stage, children aged 7 to 11 years are better equipped to understand complex brand information.

Because the studies reviewed by John (1999) were conceptualized using the Piagetian stages, which encompass broad age groupings, it was easy to match observed performance to the wide age brackets. In the absence of measurement, however, little is known about the effects of individual differences on performance outcomes within the theorized age stages. For a thorough discussion of the need to measure individual differences in children's development, as opposed to adhering to Piagetian doctrine, the reader is referred to Macklin (1987) and Young (1990). Given a recent call for research considering individual differences (Moses & Baldwin, 2005) and given the shortcomings of past research mentioned as follows, the present research is designed to measure brand symbolism understanding in children aged 3 to 5 years.

At first glance, John's (1999) conclusion regarding the limited brand understanding of young children and the emerging understanding evidenced in "tweens" appears convincing; however, closer inspection of the supporting evidence raises questions. The youngest children assessed in the brand symbolism studies reviewed by John were second grade students; therefore, the studies contain no data from which to draw conclusions about preschool children's brand symbolism understanding. Further, the findings that the youngest children in these studies showed little understanding of the social symbolism of brand names may be confounded. In Achenreiner's (1995) study, participants were required to make judgments about the users of fashion brands. Second grade students failed to make differential judgments of users on the basis of their clothing; however, sixth grade and high school students showed awareness of the social significance of the clothing brands. The use of stimulus brands from only one category may simply indicate that young children are not yet interested in fashion.

From an evolutionary perspective, it could be argued that fashion symbolism is only relevant to the definition of self-image around the onset of puberty, when clothing and fashion accessories become important tools for attracting members of the opposite sex (see Daly & Wilson, 1982). This may explain why prior research has found that "tweens" are the youngest children able to understand the symbolism behind brands. It may be the case, however, that very young children are capable of understanding the symbolism of brands from product categories that are important to their self-image at their age. For young children, a "cool" or "fun" image may be achieved by owning popular brands of toys, having particular lunchtime foods, or trading sought-after collectable cards. It may also be the case that products from such categories are recognizable because they are relevant and salient in the lives of young children. Brand recognition is likely to play an important role in children's brand symbolism understanding, since it does not make sense that a child could understand the social symbolism of a brand they cannot recognize.

The research agenda is, therefore, twofold, as both brand recognition and brand symbolism understanding are assessed. The undertaking commences with a study of brand recognition. The findings of the brand recognition study

are then used to determine a set of age-appropriate brands (i.e., brands that are recognized by a majority of 3- to 5-year-old children) for use as stimuli in the second study in which children's brand symbolism understanding is assessed and individual differences in a variety of developmental variables are measured.

BRAND RECOGNITION STUDY

The aim of this first study is to assess levels of brand recognition in children aged 3 to 5 years. Past research has shown that preschool children are capable of recognizing brands, and it has been suggested that 3- and 4-year-olds can readily name brands such as McDonald's, M&M's, and Oreos (e.g., Derscheid, Kwon, & Fang, 1996; Haynes et al., 1993). Note that these brands all belong to similar product categories (fast food and snacks). As an extension of past research into children's levels of brand recognition, the present research is used to investigate whether children aged 3 to 5 years are capable of recognizing brands from a wider variety of product categories beyond those previously studied.

There are many possible explanations as to why certain brands might be more readily recognized by young children while other brands seem to escape their attention. Certain brands of food or toys might be recognized because they are consumed frequently or because they are associated with reward when used as treats. Brands might also be readily recognized if they are marketed directly to children. The present study is used to investigate whether 3- to 5-year-old children are better able to recognize brands for which they form part of the target segment (herein referred to as children's brands) than brands that are targeted primarily to adolescents and adults (herein referred to as 12+ brands since age 12 has historically been viewed by Piaget and others as the age that separates adolescents and adults from children). This proposition is basic, but it is tested to substantiate the argument against prior studies having used only fashion brands in research with prepubescent children.

- H1:** Children's recognition of brands will differ as a function of the brand's target segment. Recognition will be higher for children's brands than for 12+ brands.

Method

Participants. The participant sample comprised 38 children (18 boys, 20 girls) aged 3 years 0 months to 4 years 10 months ($M = 4$ years 3 months, $SD = 6$ months). All children were recruited from middle-class preschools in Brisbane, Australia. Following institutional review board approval for the project, center directors at each of two local preschools viewed the testing materials and signed consent forms indicating their willingness for the researchers to contact parents of children in their care. Consent forms were sent to all parents of children aged 3 to 5 years. The rate of return of consent forms following a reminder letter was 76%.

Materials. The stimuli were 50 brands representing 16 product categories (see Table 1 in Results section). Parent brands were chosen instead of product-level brands, since children's experiences with parent brands is likely to be less variable than their experience with sub-brands. To illustrate, a child who has

Table 1. Percentage of Brand Recognition Across Product Categories.

Product Category	Number of Brands	Number of Child Brands	Number of 12+ Brands	<i>M</i> (%)	<i>SD</i> (%)	Min. (%)	Max. (%)
Supermarkets	2	0	2	67.60	16.40	56.00	79.20
Fast food	6	6	0	62.02	26.38	18.20	92.90
Transport (airlines, automobiles)	3	0	3	61.03	22.35	36.40	80.00
Toys	4	4	0	55.13	20.92	33.30	75.00
Bread	2	0	2	53.15	4.45	50.00	56.30
Snack foods	5	4	1	51.28	40.03	0.00	88.90
Entertainment	6	4	2	49.54	29.79	4.50	78.60
Drinks	4	2	2	38.35	44.28	0.00	76.90
Petrol	2	0	2	37.15	22.27	21.40	52.90
Ice cream/donuts	3	1	2	34.23	29.11	6.70	64.70
Batteries	2	0	2	11.75	16.62	0.00	23.50
Electronics	3	1	2	4.60	3.99	0.00	7.10
Clothes	4	2	2	1.48	2.95	0.00	5.90
Hardware	1	0	1	0.00	–	0.00	0.00
Personal care	2	0	2	0.00	0.00	0.00	0.00
Cereal	1	1	0	0.00	–	0.00	0.00
Total	50	25	25	38.78	32.45	0.00	92.90

played with Duplo (a sub-brand of Lego) may have no experience with Clikits (another sub-brand); however, a child who has played with either Duplo or Clikits has had exposure to the parent brand, Lego, and its logo. Parent brands, while readily available to children, are also closer to the conceptual focus of the study, which subsequently discusses concepts such as “What do they make?”

The stimulus brands were chosen on the basis that preschool children could be assumed to have had exposure to them. This assumption was validated in interviews with five parents of preschool children who were not participants in the present study. All parents indicated their child had been exposed to all of the stimulus brands. Further, two graduate students, blind to the purpose of the research, were asked to code each brand as being either targeted to children or targeted primarily to adolescents and adults. These coders were considered “experts” since they were studying marketing at graduate level and each had preschool-aged children. Initial inter-rater reliability was high, at 92%, and eventually reached 100% following discussion. Confirming prior judgment, there were 25 12+ brands and 25 children’s brands (see Appendix A).

Brand logos were each presented on the same size card (3 × 3.5 in.). To ensure logotypes were as comparable as possible, any characters (e.g., the M&M’s guys) or product depictions (e.g., the Coca-Cola contour bottle) that might aid recognition were eliminated from the stimuli. Each presentation consisted of the brand name in its original font and color on a white background. The participants in the present study are not yet able to read; therefore, the children were not expected to read the names. Their recognition of each brand presentation was assessed.

Procedure. In individual sessions, brand names were shown to the children one at a time and scripted questions were asked: “Have you seen this before?” For brands that were obviously known, children typically named the brand. When children had difficulty naming a brand, prompt questions were asked to determine whether they recognized the logotype: “What types of things do they make?” “Tell me more about the [products].” In most instances children either clearly knew a brand (scored as one) or clearly could not name the brand or describe its products (scored as zero). Inter-rater coding showed high agreement (92% to 100% across the 50 brands).

Results

Table 1 displays children’s average brand recognition rates. Among individual brands, the most frequently recognized was a fast food brand (92.90%). Across product categories, average brand recognition ranged from 0% (cereals, toiletries, and hardware) to 67.60% (grocery store brands). Note, however, that some categories contained an uneven number of children’s and 12+ brands. There was no intention to compare recognition levels across product categories. The information is displayed in this manner purely to indicate the variety of brands represented in the stimulus set.

Recognition is higher for children’s brands ($n = 25$, $M = 53.91$, $SD = 30.02$) than for 12+ brands [$n = 25$, $M = 23.65$, $SD = 27.78$; $t(48) = 3.70$, $p < 0.01$]. H1 is supported.

Discussion

It is worth noting that children were at floor in their recognition of cereal brands. Prior research has suggested that cereal brands are among the brands that are most familiar to children, given their daily exposure at breakfast time (Rossiter, 1976). The zero-level recognition in the present research is attributed the use of parent brands as stimuli. As mentioned previously, parent brands were used to reduce variability in brand conceptualization and to better connect to concepts of production and manufacturing. Particularly in relation to cereal, the results suggest that parent brands (e.g., Kellogg’s) may be less readily recognized than sub-brands (e.g., Froot Loops or Frosted Flakes). Nevertheless, the use of parent brands should not have influenced the test of H1, since the groupings of children’s brands and 12+ brands were both comprised of parent brands.

Consistent with H1, preschool children are more successful at recognizing children’s brands than 12+ brands. Moreover, clothing brands show one of the lowest rates of recognition for any product category. These findings support the argument that prior studies have inadvertently restricted the opportunity for young children to demonstrate any understanding of brand symbolism by restricting the range of brands considered. Recognition rates obtained in this first study are now used to determine a set of age-appropriate stimuli for the following study.

BRAND REPRESENTATION AND BRAND SYMBOLISM UNDERSTANDING STUDY

The primary aim of this second study is to determine whether preschool children understand brand symbolism when the stimuli used at test are age-appropriate.

Although it has generally been concluded that preschool children have little if any understanding of brand symbolism (John, 1999), it is anticipated that the use of age-appropriate stimulus brands will allow them to demonstrate emerging understanding. In addition to measuring brand symbolism understanding, brand representation ability is also assessed, since it is considered a prerequisite to brand symbolism understanding. From a theoretical perspective, it has been asserted that children must first be able to form abstract, mental representations of brands before a brand's symbolic function may be assessed (John, 1999). In the present research, brand representation ability is defined as the extent to which a child is capable of holding a schematic mental representation of a brand. Such schemas group together "instances" of a brand, including the brand's products, logo, trade characters, colors, typical sales venues, and so forth.

As a pioneering move, the present study investigates the extent to which variance in each outcome (i.e., brand representation ability and brand symbolism understanding) is explained by individual differences in children's development. It is acknowledged that children's brand representation abilities and brand symbolism understanding may be rudimentary at this early age. As such, few significant relationships are anticipated with the various measures of development.

One of the areas of child development assessed here is general cognitive ability. A thorough literature review revealed that only one prior study has investigated the influence of individual differences in children's cognitive ability on brand-related outcomes. Among children aged 3 to 8 years, Henke (1995) found that performance on a battery of Piagetian cognitive tests predicted recognition of brand advertising symbols. (Note that the term "symbol" here refers to an iconic visual brand representation such as a logo or trade character. Henke did not investigate children's understanding of the social symbolism attributed to various brands.) None of the prior studies of brand symbolism understanding has employed a measure of individual differences in children's cognitive ability. Rather, children's performance on brand-related tasks has been measured and cognitive ability has been inferred subsequently from the observed performance (e.g., Achenreiner & John, 2003). The present study is designed to redress this limitation by measuring individual differences in children's cognitive ability as a predictor of young children's brand representation ability and brand symbolism understanding. Consistent with recent research demonstrating the superior predictive power of specific measures of children's development as compared to general cognitive development (see McAlister & Peterson, 2006, 2007), measures of development that are more specifically defined are expected to have stronger relationships to the outcomes.

To date, no consumer behavior study has distinguished between specific measures of children's development; however, there has been a call for such research to be undertaken. In a conceptual paper, Moses and Baldwin (2005) argue for the importance of consumer behavior research that focuses on children's "theory of mind" and "executive functioning" development. Moses and Baldwin's argument is that Piaget's age stages are primarily useful in describing *general* patterns of development across age groups, while a stronger model would account for variance *within* the stages.

"Theory of mind" refers to a form of social development. When a child has a theory of mind, they have the capacity to think about the mental states of others in addition to being able to think about their own mental states (McAlister & Peterson, 2006, 2007; Wellman, Cross, & Watson, 2001). This ability to think

about the intentions, beliefs, and desires of others gives a child the mental perspective-taking skills to theorize about the future behavior of others, hence the somewhat oddly termed construct “theory of mind.” For instance, a child who has acquired a theory of mind will be capable of thoughts such as, “I don’t like drinking iced tea, but Dad likes it. Maybe Dad will want a glass of iced tea after dinner.” A pre-theory of mind child is not capable of predicting that Dad might drink iced tea after dinner, because they have not yet mastered the task of thinking about the father’s thoughts and distinguishing the father’s preference (i.e., “likes iced tea”) from their own preference (i.e., “dislikes iced tea”).

Executive functioning encompasses behavior planning, rule adherence, mental flexibility, and inhibition (Frye, Zelazo, & Palfai, 1995). Compared to general cognitive ability, executive functioning is a more specific measure of higher-order cognitive functioning. Young children who have not yet developed executive functions show an inferior ability to process information about objects or events because they cannot switch attention from one information element to another. In the absence of executive functioning, children attend to only the most prominent information or feature. For instance, in a traditional card sort task where children are presented with picture cards of yellow circles and red squares, children with adequate executive functioning are able to sort the cards by color or by shape, and are able to switch between sorting rules (Frye, Zelazo, & Palfai, 1995). On the other hand, children who have not yet developed executive functioning skills may be able to sort the cards by one rule (e.g., creating “color” piles), but when asked to switch to the second sorting rule (e.g., sorting by shape), they will be unable to switch attention from the initial focus (color) to the new task requirement (sorting by shape). Executive functioning develops between the ages of 3 and 5 years (McAlister & Peterson, 2006).

Given Frye, Zelazo, and Palfai’s (1995) finding that children as young as 3 can sort picture cards according to simple color and shape rules, it is anticipated that children as young as 3 should be able to use simple sorting rules in a marketplace context. For instance, children might be expected to be able to sort between differently branded items on the basis of color (red and white Coca-Cola is different from blue and red Pepsi), trade characters (Ronald McDonald distinguishes McDonald’s from its competitors), and product offerings (KFC sells chicken drumsticks, whereas Burger King does not). The difference between sorting shapes and colors versus distinguishing between instances of different brands is that preschool children can typically be assumed to have knowledge of shapes and colors. If it is possible to validate an assumption that participants have sufficient experience with brands that they can recognize a difference between two competitors, then their level of brand knowledge may be tested by assessing their ability to correctly sort instances of those brands (e.g., products, trade characters, sales venues).

The expectation that children’s executive functioning abilities generalize to a variety of contexts to equip them to form mental representations of categories of items that belong together is further supported by prior research showing that children can sort between items in a domestic context. Using an applied sort task that required children to sort indoor items from outdoor items, Zelazo and Reznick (1991) found that 3-year-olds have sufficient executive functioning to perform the task successfully. At 2½ years of age, however, an immature executive functioning prevents children from completing the task. Despite possessing the accurate prerequisite knowledge (e.g., knowing that a snowman belongs

outdoors), 2¹/₂-year-old children failed to sort items appropriately. Three- and 4-year-olds with higher levels of executive functioning performed the task successfully. Based on these findings, it is expected that when tested using age-appropriate brands as stimuli, children with sufficient executive functioning will be able to distinguish competing brands from one another. Hypothesis 2 is tested to determine the extent to which executive functioning is associated with brand representation ability.

H2: Executive functioning will show a significant positive relationship with the quality of children's mental brand representations.

Executive functioning is the only measured variable expected to show a significant correlation with children's brand representation ability. However, cognitive ability and theory of mind are included in the model predicting brand representation ability to satisfy calls for research into children's consumer socialization outcomes to employ consistent measures across analyses so that findings may be compared and contrasted (Moses & Baldwin, 2005; Young, 1990).

Theory of mind is expected to explain significant variance in children's brand symbolism understanding. In present and past research (e.g., Achenreiner, 1995), brand symbolism understanding is operationalized as a child's ability to make judgments about the ways in which brands are used to symbolize user popularity and product qualities (e.g., child's perception of product quality). Such judgments require social insight. For instance, to generate a thought such as "I wish I had the latest toy. You're not cool if you don't have one" requires that a child be capable of thinking about the thoughts and feelings of others (e.g., "They will think I'm cool and like me more if I have the toy").

Theory of mind tests have been used in psychology to show that children as young as 3 have the social insight to be capable of thinking about others' thoughts (e.g., McAlister & Peterson, 2006, 2007). Successful performance at theory of mind tasks requires a child to understand, for example, that another person might be fooled by the deceptive appearance of an object (such as a candle that is shaped like an apple) even though the child is not fooled (s/he has already been told that the object is really a candle). Because brand symbolism understanding requires an ability to think about the thoughts and feelings of others, it is expected to be significantly related to theory of mind. A child who has an advanced ability to think about the intentions and desires of others (i.e., an advanced theory of mind) is arguably better equipped to understand the use of brands for intentional self-expression and to understand market qualities represented by a brand symbol (e.g., understanding a brand's popularity involves thoughts about the extent to which others desire to own its products). In a model including cognitive ability and executive functioning, Hypothesis 3 tests the relationship between theory of mind and brand symbolism understanding.

H3: Theory of mind will show a significant positive relationship with children's brand symbolism understanding.

It is anticipated that a procedure designed to reduce response demands on children's language ability will enable 3- to 5-year-olds to demonstrate their emerging understanding of brand symbolism. Although no prior study has employed nonverbal measures to investigate children's brand symbolism understanding,

various studies in other applied areas have shown that children's performance differs depending on the use of verbal or nonverbal methods (Robertson & Rossiter, 1974; Rossiter, 1976). The tasks used in the present research minimize verbal responding but still require children to follow the verbal directions of the researcher. Hence, children's verbal receptiveness (i.e., the ability to understand spoken words) is measured and controlled for in the analyses.

To test the hypotheses, six brand pairs were selected from the brand recognition study set on the basis that both brands are recognized by the majority of children and that the two brands are competitors. Despite not meeting the inclusion criteria of recognition by the majority of children, an additional seventh pair is also included for comparison to prior studies that used fashion brands. The seven brand pairs represent the following product categories: drinks (76.90% and 76.50% recognition), fast food (92.90% and 81.30% recognition), "boys' toys" (75.00% and 57.10% recognition), "girls' toys" (75% and 53.30% recognition), entertainment (78.60% and 76.90% recognition), cars (80.00% and 66.70% recognition), and fashion (5.90% and 3.57% recognition). Four of these brand pairs are children's brands (drinks, fast food, boys' toys, and girls' toys) and three pairs are 12+ brands (fashion, entertainment, and cars). Although one pair of toy brands is stereotypically for boys and the other pair for girls, all children are tested using all brands since all brands of toys are currently used by children at their preschool center.

Method

Participants. Following the same procedure employed in the brand recognition study, parental consent was obtained to work with 42 children (22 boys, 20 girls) aged 3 years 0 months to 5 years 6 months ($M = 4$ years 2 months, $SD = 8$ months). These children were recruited from kindergartens and preschools in an upper middle class neighborhood in Brisbane, Australia. All children spoke English as a first language and none had any developmental delay.

Task Administration and Scoring. To avoid fatigue during testing, the following tasks were administered across three testing sessions. The order of administration of these sessions was counterbalanced across children. The gap between testing sessions was always at least one day and never more than one week for each child.

Brand representation ability. For each of the 14 brands, color pictures were presented on 3×3.5 in. cards. There were six pictures for each brand: three products, two sales venues, and one "other" card depicting either a character (e.g., the McDonald's Hamburglar) or a merchandise item (e.g., Bratz pajamas). Each brand pair was assessed on a separate trial. For each trial, the researcher laid out three pages in front of the child. The child was presented with 18 stimulus cards (six per brand, plus six distracter cards depicting irrelevant products and venues). The researcher commenced by sticking the logo of one brand on the first page and the logo of the competing brand on the second page, and saying: "We're going to make some collages. I want you to show me how to make these pictures. This one is the [Coke] picture, so you should put all the [Coke] ones here. This one is the [Pepsi] picture, so put all the [Pepsi] ones here. And this one is for any that don't belong [*demonstrating with additional distracter card*]." The order of presentation of brand pairs was randomized across participants. Upon completion, the researcher photographed the collages for later coding.

Three scores were calculated for each trial, one for each collage. One point was awarded for each correctly placed item (i.e., each collage score could range from zero to six). The incorrect placement of any card was not penalized. Due to the dependent probabilities of scores across collages within a trial, all three raw scores were needed to understand the accuracy of distinctions made on each trial. To capture this information, trial scores were calculated by summing across the three collage scores. Trial scores could potentially range from zero to 18 (see Appendix B).

A composite scale score was calculated from the trial scores. When deriving the scale score, the appropriateness of including data from the fashion brand trial was considered since this brand pair had not met the original criterion of having been recognized by a majority of children in the brand recognition study. A one-way between-subjects ANOVA was used to compare average scores across the seven trials; it indicated a significant difference among the groups [$F(6,280) = 63.80, p < 0.001$]. A planned comparison test then revealed that the average score on the fashion trial differed significantly from the average score across all other trials [$t(280) = 9.12, p < 0.001$]. On the basis of these findings, data from the fashion brand trial were removed and the composite scale score was calculated by averaging across the remaining six trials. This scale was labeled “brand representation ability” and had good reliability ($\alpha = 0.84$), which was shown to be maximized by the six retained trials (i.e., item-total correlations showed that reliability would be lower if any of these trials were excluded). Details are displayed in Table 2.

Brand symbolism understanding. The brand symbolism understanding task employed stimulus brands from the six brand pairs comprising the brand representation scale (i.e., two brands each from the categories of drinks, fast food, boy’s toys, girls’ toys, entertainment, and cars). Each child’s brand symbolism understanding was assessed only in relation to the brands for which they had demonstrated adequate mental representations. For each stimulus brand, a child must have scored four or more (i.e., above the mid-point) on the brand representation collage in order to qualify for testing symbolism understanding for

Table 2. Average Trial Scores on the Brand Representation Task and Reliability of the Composite Scale.

Trial	<i>M</i>	<i>SD</i>	Minimum	Maximum	Reliability
Drinks (Coke and Pepsi)	16.22	2.38	5.00	18.00	α if item deleted: 0.81
Fast food (McDonald’s and Hungry Jack’s)	13.78	2.64	6.00	18.00	α if item deleted: 0.77
Boys’ toys (Hot Wheels and Lego)	14.07	2.81	6.00	18.00	α if item deleted: 0.82
Girls’ toys (My Little Pony and Bratz)	17.29	1.65	11.00	18.00	α if item deleted: 0.82
Entertainment (Disney and Warner Brothers)	9.07	2.94	3.00	15.00	α if item deleted: 0.81
Cars (Toyota and Holden)	9.93	3.34	4.00	18.00	α if item deleted: 0.82
Composite scale	13.39	1.99	8.00	16.67	α : 0.84

that brand. Careful checks were undertaken to ensure that children who scored four or more on a brand collage had done so because their collage reflected appropriate representation of the brand and not because they had, for example, placed all stimulus items onto one collage. These checks revealed that two children had “fluked” high scores on one brand collage each. Therefore, despite having high brand representation scores of four and five, respectively, these participants were not tested for brand symbolism understanding in relation to those particular brands.

On each trial, children were primed by a presentation of a brand collage produced earlier and were asked a series of seven questions (order randomized). Three questions related to aspects of the brand such as perceived quality (e.g., “Are their things great or terrible or somewhere in between?”). Three questions related to user attributes such as popularity (e.g., “If another child has [*brand*], how many friends will s/he have . . . lots or just a few or somewhere in between?”), and one question related to purchase intent. Picture response scales were provided to aide children’s responding (e.g., multiple faces vs. fewer faces vs. an empty box for the popularity question). Each question was scored (zero or one) on the basis of whether or not the child provided a meaningful justification for their answer. The researcher prompted for justifications following children’s responses to each of the seven questions: “Why do you think that?” In order to score, children’s reasons needed to relate to some aspect of the brand. For instance, “McDonald’s has a playground so you can play there and everyone likes you” was scored as a meaningful response to the popularity question, while “because it’s fun” was not scored as meaningful in the study context. Between two coders, inter-rater coding showed high agreement (91% across all items).

In relation to each brand, children could potentially score a maximum of seven points if each question was answered with a meaningful response. The number of brands used to measure each child’s understanding of brand symbolism differed across children due to the prerequisite of having demonstrated adequate mental brand representations in order to qualify for scoring in relation to each brand (see Table 3). Therefore, composite brand symbolism understanding scores were calculated by averaging across the number of brand stimuli to which each child had responded. Possible scale scores could range from zero to seven, but actual scale scores ranged from zero to 4.73. Internal consistency was high ($\alpha = 0.94$).

Theory of mind. Following McAlister and Peterson (2006), a battery of five tasks was used to comprehensively assess theory of mind development. Success at each of these tasks requires a child to understand the thoughts of others and to acknowledge that people’s inner psychological states may differ from objective reality. The unseen displacement task was Baron-Cohen, Leslie, and Frith’s (1985) “Sally-Ann” task, enacted with dolls. In each of two trials, a girl doll placed a marble in a basket and left the scene. A boy doll moved the marble to a closed box in the first trial and to the researcher’s pocket in the second trial. The researcher narrated the scene where the girl returned and wanted her marble. Children were asked the test question, “Where will the girl look first for her marble?” followed by two control questions: “Where is the marble really?” and “Where did the girl put the marble in the beginning?” Children needed to pass both control questions to qualify for scoring on each trial. Each correct answer to the test questions earned one point. Therefore, unseen displacement test scores ranged from zero to two.

Table 3. Number of Children Who Qualified for Brand Symbolism Understanding Scoring, in Relation to Each of the Stimulus Brands.

Product Category	Brands	Number of Children Who Qualified for Testing	Average Brand Representation Scores of Qualifying Participants (<i>SD</i>) ^a
Drinks	Brand 1	40	5.05 (0.55)
	Brand 2	39	4.72 (0.51)
Fast food	Brand 1	37	4.95 (0.85)
	Brand 2	23	4.65 (0.78)
Boys' toys	Brand 1	33	4.88 (0.70)
	Brand 2	33	5.03 (0.77)
Girls' toys	Brand 1	40	5.80 (0.46)
	Brand 2	40	5.75 (0.67)
Entertainment	Brand 1	11	4.36 (0.50)
	Brand 2	7	4.43 (0.53)
Cars	Brand 1	11	4.55 (0.69)
	Brand 2	11	4.55 (0.69)

^a These averages are across qualifying participants only (i.e., those scoring four or more on the brand representation collage) and therefore differ from the averages obtained on the full-scale brand representation task.

Two misleading container tasks were used. The first employed a familiar Band-Aid box containing pencils (Gopnik & Astington, 1988). The researcher presented the closed box and asked the child what was in it. All children named the expected contents (Band-Aids). The researcher then revealed the true contents of the box (i.e., coloring pencils), before closing it and asking a further control question: "What is really in the box?" The test question concerned the belief of another: "[Classmate] is coming next. S/he hasn't seen inside this box before. When I show it to him/her all closed up like this, what will s/he say is in it?" Finally, there was a representational change test question about one's own false belief: "When I first showed you this box, before you looked inside, what did you think was in it?" followed by a control question: "What is really in it?" All children passed both control questions. Children earned one point for each correctly answered test question. Therefore, possible scores ranged from zero to two.

The second misleading container task was the belief emotion task (Wellman & Liu, 2004), which assessed each child's ability to judge how a person would feel, based on the child's inference that they held a mistaken belief about the contents of a box. The scene was played out using a familiar box depicting popular children's cookies, along with a boy doll. Children were asked what they thought was inside the box and were scored as correct if they responded "cookies" or something similar. In the boy doll's absence, the box was opened and the contents (i.e., small rocks) revealed to the child, then shut and a further control question was asked: "What is Harry's favorite snack?" All children passed both controls. The researcher continued to narrate: "Harry's back and it's snack time. Let's give Harry this box." The target question was asked of the child: "So, how does Harry feel when he gets this box?" followed by the emotion-control question: "How does Harry feel after he looks inside the box?" In order to score, children must answer both the target question and the emotion-control question correctly. Children who answered only one question correctly scored zero. To aid responding, children were shown a set

of three faces, depicting “happy,” “sad,” and “just okay.” Belief–emotion scores could be zero or one.

In the appearance–reality test (Flavell, 1986), children were shown a candle that looks like a real apple. All children correctly answered “apple” when asked what the object was. The researcher lit the candle to demonstrate that it was not a real apple. Two counterbalanced test questions followed: “What is this really and truly?” and “When you look at this with your eyes right now, what does it look like . . . does it look like a candle or like an apple?” Children were required to answer both test questions correctly. Scores ranged from zero to one.

The pretend representation task assessed children’s awareness of pretense. Children were shown a real banana and were asked to pretend it was a phone. After a brief period, the researcher said “We’ve finished our game now. We have stopped pretending.” Pointing to the banana, the researcher asked: “What is this really?” and “What did we pretend this was?” Two additional objects—a real phone and an irrelevant decoy (i.e., a tennis ball)—were placed on the table with the banana. A further two test questions were asked: “Which one did we pretend was a phone?” and “Which one is really a phone?” Children were awarded one point for each of the four test questions answered correctly. Potential scores for this task ranged from zero to four.

Theory of mind scale scores were obtained by first rescaling tasks so that all were scored from zero to one. Scores were then summed to form a composite scale ranging from zero to five. This scale was found to have adequate reliability ($\alpha = 0.70$).

Executive functioning. The tests included in this battery tap behavior planning, impulse control, and rule adherence. The route navigation task (Cole & Mitchell, 2000) involved planning and impulse control. In each of four trials, a child was presented with a card displaying a popular character at the bottom and a desired object at the top. Two paths were depicted: One led unhindered to the desired object, and the other was blocked by attractive stickers (side of presentation counterbalanced). The stickers provided a distraction that must be resisted in order to score correctly. Standard instructions were used: “[Daffy Duck] wants to get to the [gift]. There are two ways he can go, the easy way, or the hard way with the stickers on [*Researcher indicates with finger*]. Can you show me the easy way with your finger?” Children were awarded one point for each correct path. Task scores ranged from zero to four.

Cole and Mitchell’s (2000) Squirrel and Badger game was employed with teddy bear and lion puppets to replace the squirrel and badger. The task required impulse control, rule adherence, and behavior planning. On each of 12 trials, the puppets took turns directing children’s hand movements (e.g., touch your nose). Prior to these trials, children were instructed only to obey the instructions of the bear. Children were told to place their hands flat on the table and stay completely still when the naughty lion instructed them to act. Of the 12 trials, six were commanded by the bear, and six by the lion. One point was allocated for each instance in which the child successfully inhibited responding to the lion. Scores ranged from zero to six.

Hughes’ (1998) child version of the hand game was used to measure rule adherence and impulse control. The following instructions were given: “When I show my hand, I want you to make the same shape as me. So if I make a fist, you make a fist, and if I point a finger you point a finger.” The imitative (control) condition commenced with the child copying each of the researcher’s actions

until six correct responses were made consecutively. Feedback ensured children understood the task requirements. All children passed the control condition. The true test came in the conflict condition. The following instructions were given: "Now, if I point a finger, I want you to show a fist. And if I show a fist I want you to point a finger." Again, children were required to reach six consecutive correct responses (up to a maximum of 15 trials). Children were scored according to how few trials they needed to reach the criterion. Children who did not achieve the task within the maximum 15 trials scored zero. Children scored one point if they achieved the task within 15 trials, two points for achievement within 14 trials, and so forth. The maximum possible score was 10.

A shortened card sort task was adapted from Frye, Zelazo, and Palfai (1995) to measure rule adherence and sorting ability. Children were provided with a pile of cards, each depicting either a yellow circle or a red square. Behind each of two boxes stood an "identification" card; either a red circle or a yellow square. Each child was directed to sort the stimulus cards into the boxes on the basis of one dimension (e.g., shape, but not color). Each child was required to sort five cards, presented in random order. These five trials served as a training session. Corrective feedback was provided. One of the theory of mind tasks was administered as a distracter prior to training the child to sort cards according to the second dimension (i.e., color). A further theory of mind task was administered, then three testing blocks of the card sort task occurred. Test one required children to sort five cards according to the first dimension on which they had been trained. All children met the requirement of sorting at least four of the five cards correctly. Test two required children to switch sorting rules and sort five cards. Children scored one point for each card correctly sorted according to the new rule. Test three alternated the sorting rule on every one of four trials. One point was given for each card correctly sorted. At the end of the task the total score (combined from tests two and three) ranged from zero to nine. Test one was not included in the scoring, since rule switching did not come into effect until test two.

The executive functioning tasks were rescaled so scores ranged from zero to one. Following this, task scores were summed to form a composite scale ranging from zero to four. This scale was found to have adequate reliability ($\alpha = 0.86$).

Cognitive ability. Children's cognitive ability was measured using the nonverbal scales of the Stanford Binet Intelligence Scales for Early Childhood (Roid, 2005). The nonverbal scales are more efficient to administer than the full-scale IQ and include fluid reasoning, knowledge, quantitative reasoning, visual-spatial processing, and working memory. In accordance with the test manual, raw scores were converted to standardized scores that account for age. Standardized scores have a population mean of 100 and a standard deviation of 15.

Language. Verbal receptiveness was assessed using the Peabody Picture Vocabulary Test (Dunn & Dunn, 2007). On each page of the test book, children saw four color pictures. The researcher said a word and the child pointed to the most appropriate picture. Testing began at the basal set and was terminated when the child reached the ceiling set (see test manual). Raw scores were converted to standardized verbal mental age scores, according to the test manual.

Results

Descriptive Information and Preliminary Analyses. Table 4 shows the means and standard deviations of the variables as well as correlations

Table 4. Correlations Between Children's Average Scores on Each of the Measured Variables.

	<i>M (SD)</i>	2	3	4	5	6	7
1. Age	4y2m (8m)	0.66**	0.67**	0.49**	0.10	0.53**	0.65**
2. Language (verbal mental age)	4y10m (1y)	—	0.72**	0.63**	0.51**	0.65**	0.67**
3. Theory of mind (max = 5)	2.44 (1.34)	—	—	0.57**	0.36*	0.69**	0.78**
4. Executive functioning (max = 4)	2.65 (1.12)	—	—	—	0.23	0.74**	0.57**
5. Cognitive ability (standardized)	105.15 (9.38)	—	—	—	—	0.30	0.39*
6. Brand representation ability (max = 18)	13.39 (1.99)	—	—	—	—	—	0.77**
7. Brand symbolism understanding (max = 7)	2.19 (1.32)	—	—	—	—	—	—

* $p < 0.05$; ** $p < 0.01$.

between each of the variables. The descriptive statistics show that this sample of children exhibit average language and cognitive development for their age. No ceiling or floor effects are evident in any of the measures; however, children clearly perform better at the brand representation task as compared to the brand symbolism task. As would be expected in a sample of typically developing children, significant correlations are found between age, theory of mind, executive functioning, and language ability. Since cognitive ability is a standardized measure (i.e., age is accounted for in standardized scores), it was not expected to correlate with age.

Predicting Brand Representation Ability. To test the hypothesis that brand representation ability would be significantly predicted by executive functioning, a multiple regression analysis was run with age and language controlled at step one, followed by executive functioning, cognitive ability, and theory of mind at step two (see Table 5).

The model was significant at step one [$R^2 = 0.42$, $F(2,38) = 15.32$, $p < 0.001$]. Children's language ability contributed significantly to their brand representation ability [$t(38) = 3.33$, $p < 0.01$]. However, the relationship between age and brand representation ability was not significant [$t(38) = 1.19$, n.s.]. The addition of the independent variables at step two provided a significant increase in explained variance (R^2 for the full model = 0.62, $F_{\text{change}} = 7.21$, $p = 0.001$). Consistent with H2, executive functioning showed a significant positive relationship with brand representation ability [$t(35) = 3.63$, $p < 0.01$] after controlling for age and language. As expected, cognitive ability failed to contribute significantly to the prediction of brand representation ability in the context of the full model [$t(35) = 0.29$, n.s.]. However, theory of mind showed an unexpected significant relationship with the outcome measure [$t(35) = 2.09$, $p < 0.05$].

Predicting Brand Symbolism Understanding. To test the final hypothesis that brand symbolism understanding would be significantly predicted by theory of mind, a regression was run with age and language entered as control variables at step one, followed by the three independent variables at step two (see Table 6).

The model was significant at step one [$R^2 = 0.50$, $F(2,38) = 20.88$, $p < 0.001$]. Children's age [$t(38) = 2.48$, $p < 0.05$] and language [$t(38) = 2.93$, $p < 0.01$]

Table 5. Regression Predicting Brand Representation Ability from Executive Functioning, Cognitive Ability, and Theory of Mind, While Controlling for Age and Language.

Step	Variable	β	sr_i	sr_i^2	t	R^2	ΔR^2	F_{change}
1	Age	0.19	0.14	0.02	1.19	0.42	0.46	15.32***
	Language	0.53	0.40	0.16	3.33**			
2	Age	0.04	0.02	0.00	0.23	0.62	0.18	7.21**
	Language	0.08	0.04	0.00	0.45			
	Executive functioning	0.47	0.36	0.13	3.63**			
	Cognitive ability	0.04	0.03	0.00	0.29			
	Theory of mind	0.33	0.21	0.04	2.09*			

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 6. Regression Predicting Brand Symbolism Understanding from Executive Functioning, Cognitive Ability, and Theory of Mind, While Controlling for Age and Language.

Step	Variable	β	sr_i	sr_i^2	t	R^2	ΔR^2	F_{change}
1	Age	0.37	0.28	0.08	2.48*	0.50	0.52	20.88***
	Language	0.43	0.33	0.11	2.93**			
2	Age	0.28	0.18	0.03	1.88	0.64	0.16	5.81**
	Language	-0.05	-0.02	0.00	-0.25			
	Executive functioning	0.16	0.12	0.01	1.30			
	Cognitive ability	0.20	0.16	0.03	1.65			
	Theory of mind	0.47	0.29	0.08	3.08**			

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

contributed significantly to their brand symbolism understanding. The addition of the independent variables at step two provided a significant increase in explained variance (R^2 for the full model = 0.64, $F_{\text{change}} = 5.81$, $p < 0.01$). Consistent with H3, theory of mind showed a significant positive relationship with brand symbolism understanding [$t(35) = 3.08$, $p < 0.01$]. As expected, both cognitive ability [$t(35) = 1.65$, n.s.] and executive functioning [$t(35) = 1.30$, n.s.] failed to contribute significantly to the prediction of brand symbolism in the context of the full model.

Discussion

The purpose of this research was to determine whether 3- to 5-year-old children's emerging brand knowledge is impacted by their cognitive ability, executive functioning, or theory of mind. These studies contribute uniquely to the extant marketing literature in two ways. First, the investigation is pioneering in the assessment of brand representation ability and brand symbolism understanding in preschool children. Previously, the youngest children to be assessed for understanding of brand symbolism were 8 years of age (Achenreiner, 1995). Second, the present research contributes by providing the first assessment of individual differences in multiple forms of children's development as predictors of consumer socialization outcomes. Although a relationship has previously been inferred to exist between cognitive ability and brand symbolism understanding (Achenreiner, 1995; John, 1999), no prior study has empirically tested this relationship. Further, the findings contribute to the psychology literature by demonstrating the applied value of psychological theories of children's development. In a marketplace context, age-stage theories of children's development have previously been seen to provide a vague outline of children's socialization as consumers; however, application of theoretical frameworks that acknowledge the role of individual differences are seen here to explain substantial variance in children's brand knowledge within one stage (i.e., within the preschool period).

Summary of Findings. *Brand recognition.* It was anticipated that the use of stimulus brands other than fashion brands would enable children as young as three to demonstrate emerging brand knowledge. Indeed, this is what is found. The results of the brand recognition study indicate that children's recognition rates

for a variety of brands range from 0% to 92.90%. The brand most commonly recognized by children is McDonald's, followed closely by other brands of fast food, soda, and toys. These figures are consistent with prior reports that 3- and 4-year-olds can name brands of take-out and snack foods (e.g., Derscheid, Kwon, & Fang, 1996; Haynes et al., 1993). The present findings are also consistent with prior conclusions that brand recognition is not advanced in young children (e.g., John, 1999). Average recognition across all brand stimuli was found to be relatively low at 38.78%. Clearly, for preschoolers, brand recognition is emerging.

Consistent with H1, preschoolers were found to be more likely to recognize children's brands than brands that are targeted primarily to adolescents and adults. What is it about children's brands that make them more frequently recognized? One possible explanation may be that children recognize the brands with which they have the most experience. For example, brands of fast food and toys might be readily recognized because children see the brand logos each time they open a packaged item and they may have a vested interest in being able to request an item by brand name to ensure a parent purchases precisely the desired item. By comparison, only a limited number of 12+ brands are recognized, perhaps because children experience less incentive to store information about these brands, and most likely do not discuss 12+ brands with peers. Further possibilities may center on the appearance of children's brands that are attractive in terms of colors, shapes, or characters used to define the image. Colors, fonts, and general tools used to present 12+ brands may be less interesting to children.

A further factor that might distinguish between the extent to which children's versus 12+ brands are memorable could be children's experience with advertising. Brands for which children are the primary target segment will inevitably be marketed more directly to children. When messages are tailored to captivate children's attention, information may be more easily processed and stored, thereby increasing children's subsequent brand recognition.

Brand representation ability. Brand representation ability was tested to ensure that children held a mental representation of each brand before their brand symbolism understanding was assessed. The collage task assessed whether a child knows sufficient information about the products offered by each brand, where they are sold, and what characters or merchandise items are associated with the brands. Along with six other brand pairs, children's ability to form mental representations of a pair of fashion brands was also tested. It was not surprising to find that children's brand representation ability was significantly lower on the fashion brand trial compared to other trials using brands that were recognized by most children in the sample.

Why is it that children cannot distinguish between the offerings of one fashion brand and its competitor, but they can do this for competing brands of fast food, drinks, toys, cars, and entertainment (keeping in mind that the latter two brand pairs are classified as 12+)? It may be argued that the results are due to a lack of experience with—or interest in—fashion brands. To perform well at the mental brand representation task, children needed to demonstrate knowledge not only of the brand logo, but also of each brand's products, sales venues, and related merchandise or characters. In relation to children's brands, it may be efficient for a child to remember venues where particular brands may be purchased in order to request a shopping trip to the desired location. Similarly, having knowledge of a range of products might allow children to communicate

a desire for their parents to purchase products not yet owned by the child or to engage in conversations with peers who own similar toys. Comparable levels of knowledge about fashion brands may serve much less of a purpose for a preschooler.

The finding that children were relatively successful at demonstrating their ability to form representations of two pairs of brands for which they are not the target segment (i.e., the car and entertainment brands) warrants some discussion. In relation to the entertainment brands, the results are not particularly surprising. Although these brands are labeled as 12+ by the coders, they are very salient to children since their logos appear at the commencement of many popular television shows and movies. Children's success at differentiating between competing brands of cars seems more surprising but may be readily explained. Possibly, success at recognizing and differentiating between car brands occurs because the toy cars children play with are produced as replicas of real cars. For instance, Hot Wheels produces replica Toyota, Dodge, and Ford cars and Barbie-branded cars are replica VW Bugs and Corvettes. Such toy replicas may encourage children to attend to brands of real cars, thereby facilitating brand representation.

It was hypothesized that brand representation ability would be significantly predicted by children's executive functioning. This hypothesis is supported. Executive functioning is found to be the most significant predictor of mental representation of children's brands after accounting for age and language. This significant relationship is consistent with research in psychology showing that 3- to 5-year-olds exhibit executive functioning that is advanced enough to support abstract reasoning to classify stimuli according to rules (e.g., Frye, Zelazo, & Palfai, 1995). Moreover, the present finding questions the Piagetian notion that preschool children are incapable of abstract thinking. It is concluded that the use of standard executive functioning measures allows preschoolers to demonstrate their higher-order abilities, and that the use of age-appropriate brand stimuli allows preschoolers to exhibit emerging brand representation abilities.

Theory of mind is also found to be a significant predictor of brand representation ability. Although this relationship was not anticipated, it perhaps should have been, given that theory of mind—the ability to think about others' thoughts—inherently requires mental representation. It requires that the child be able to form a mental representation of another's mind (McAlister & Peterson, 2006, 2007). So, despite the fact that generation of mental brand representations is thought to be independent of understandings of emotion, intentions, beliefs, and desires, it is logical that children with advanced theory of mind are better practiced at representation and that this practice translates to their greater ability to think schematically about brands.

Brand symbolism understanding. To perform well at the brand symbolism understanding task, children needed to express attitudes regarding the popularity of brands and attributes of brand users. Although prior studies have not specifically measured brand symbolism understanding with preschool children, it has generally been concluded that preschoolers would not understand brand symbolism (John, 1999). Preschool children probably have little if any experience thinking about the "prestige" associated with various teen/adult brands. However, the present results clearly show that preschoolers do make attributions about user popularity and perceived product quality of "children's" brands that are salient and relevant in their lives.

As with brand representation ability, children's brand symbolism understanding is not yet fully developed. The 3- to 5-year-olds in this sample show an *emerging* ability. Consistent with H3, theory of mind shows a significant association with preschoolers' brand symbolism understanding. This finding suggests that the emergence of brand symbolism understanding is more rapid among children who possess a mature theory of mind. It is concluded that the ability to reason about the thoughts and feelings of others results in a heightened awareness of the ways in which brands can be used as symbols in a social world (e.g., to represent status, popularity, quality). When one is free from the Piagetian stages assumption, one is able to see that these capabilities arise much earlier.

Methodological Contributions. *Piagetian stages versus age-appropriate testing.* In contrast to the Piagetian notion that young children are incapable of the abstract thinking required to group items together to form mental representations of brands, the present findings suggest that children are quite adept at the collage task, which requires sorting between images belonging to a brand, its major competitor, and distracter items. This outcome is not surprising. In the modern psychology literature, it is thought that Piaget's tasks are too taxing on a variety of other resources (e.g., language, memory) and that tasks that minimize such requirements allow children to demonstrate abstract reasoning abilities (Young, 1990). The level of brand representation ability exhibited by children in the present sample is believed to have been facilitated by the use of the collage task, which minimizes demands on language.

Similarly, the finding that theory of mind is a significant predictor of children's brand symbolism understanding shows that modern psychology has a place in the marketing literature. Since the early 1980s, researchers in psychology have been increasingly aware that theory of mind explains variance in children's performance at tasks that require a child to think about the thoughts, feelings, or intentions of others (Wellman, Cross, & Watson, 2001). In 2002, Wright suggested the need for marketing research to steer away from Piagetian explanations of children's consumer socialization. In 2005, Moses and Baldwin reiterated this suggestion, but it seems that the present research is the first to integrate measures of theory of mind and executive functioning into an investigation of children's consumer socialization. The significant findings serve as evidence to support Moses and Baldwin's claim that empirical research incorporating theory of mind and executive functioning will be more fruitful in terms of interpretations based on empirical data.

Stimulus brands. Having found that children are better able to recognize children's brands than 12+ brands, an important contribution is made to the marketing literature in terms of highlighting the inappropriateness of using unrecognized brands when testing children's brand symbolism understanding. Although it is not at all surprising that children are better able to recognize children's brands than 12+ brands, the use of empirical data to illustrate the magnitude of the effect might dissuade researchers from using "non-child" brands in future tests of children's brand-related knowledge. A child is in no position to demonstrate any understanding of a brand if they do not recognize it from the outset.

Control variables. Age and language were used as control variables in the analyses. This practice should continue in future research with children. Although

the tasks used in this research were chosen to minimize language requirements, language was still significant at the first step of the regressions predicting brand representation ability and brand symbolism understanding. This is most likely because children need verbal receptiveness skills to follow test instructions.

Societal Implications and Directions for Future Research. Contrary to conclusions drawn in prior research, the present findings suggest that children aged 3 to 5 years have an emerging capacity to understand the symbols of brands for which they form part of the target segment. Preschoolers can and do judge others on the basis of brand use. This finding has clear public policy implications in relation to at least two issues: materialism and the formation of eating habits. The present results show that children as young as 3 willingly judge their peers. They see other children as popular or unpopular, fun or boring, because of the brands they use. Such judgments suggest that, at an early age, children attribute great importance to the use of branded products to cultivate and promote self-image. These findings, therefore, seem to flag an early emergence of materialism among preschool children. Any study seeking the beginnings of materialism in children should, therefore, be commenced during the preschool years.

Formation of eating habits is also relevant since the findings show that children use brand names as cues to determine the extent to which food products are likely to taste good, be enjoyed, or be exciting. Children make attributions about the consumers of different brands of food, a finding that indicates that food consumption may also be influenced by the desire to promote and maintain a chosen self-image. Although it was not a specific focus of the current research, the data show that this sample of 3- to 5-year-olds tended to judge fast food as fun, exciting, and tasty. Cola brands were often reported to be fun “because the drinks are fizzy,” “the bubbles are fun,” and “lots of people like them.” These findings suggest that values associated with food choices are formed early in life. Therefore, it is suggested that public policy targeting eating habits should focus on intervention during the preschool years.

The development of future public policy regarding materialism and eating habits may be most successful if restrictions are combined with education. The findings encourage the design of education programs for young children. See Wright (2002) for a discussion of a consumer behavior curriculum that might be implemented to promote young children’s marketplace social intelligence. Wright suggests a Preadult Education on Marketplace Persuasion Tactics (a PREEMPT program) and clearly states that the curriculum should be informed by research. The present research is intended as an initial contribution toward Wright’s goal. Where Wright called for the need to identify factors that facilitate early competencies in marketplace knowledge, the present research responds with the findings that theory of mind and executive functioning predict mental brand representation ability and that brand symbolism is understood earlier among children whose theory of mind is mature. These findings are intended to contribute to the prosocial efforts of consumer behavior researchers.

Future research in this area should first aim to determine the extent to which findings obtained in the present research generalize under various conditions. While the children examined in these studies were recruited from upper-middle-class preschools, it would be interesting to determine whether the results hold true among children from lower-income families. This might be achieved by

examining socioeconomic status as a variable of interest. Ethnicity or cultural heritage may also be important. Ideally, future research in this area might investigate lower-, middle-, and upper-class children concurrently. Although this would be time consuming in terms of recruiting children and collecting data at a number of different locations, such a large-scale project would be valuable in terms of testing the generality of the present findings with among a much larger sample of children.

REFERENCES

- Achenreiner, G. B. (1995). Children's reliance on brand name heuristics: A developmental investigation. Unpublished dissertation, University of Minnesota, Minneapolis.
- Achenreiner, G. B., & John, D. R. (2003). The meaning of brand names to children: A developmental investigation. *Journal of Consumer Psychology*, 13, 205–219.
- Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a "theory of mind"? *Cognition*, 21, 37–46.
- Cole, K., & Mitchell, P. (2000). Siblings in the development of executive control and a theory of mind. *British Journal of Developmental Psychology*, 18, 279–295.
- Daly, M., & Wilson, M. (1982). *Sex, evolution and behavior*, 2nd ed. Belmont, CA: Wadsworth.
- Derscheid, L. E., Kwon, Y.-H., & Fang, S.-R. (1996). Preschoolers' socialization as consumers of clothing and recognition of symbolism. *Perceptual and Motor Skills*, 82, 1171–1181.
- Dunn, L. M., & Dunn, D. M. (2007). *Peabody Picture Vocabulary Test*, 4th ed. Minneapolis, MN: NCS Pearson, Inc.
- Flavell, J. H. (1986). The development of children's knowledge about the appearance-reality distinction. *American Psychologist*, 41, 418–425.
- Frye, D., Zelazo, P. D., & Palfai, T. (1995). Theory of mind and rule-based reasoning. *Cognitive Development*, 10, 483–527.
- Gopnik, A., & Astington, J. W. (1988). Children's understanding of representational change and its relation to the understanding of false belief and the appearance-reality distinction. *Child Development*, 59, 26–37.
- Haynes, J., Burts, D. C., Dukas, A., & Cloud, R. (1993). Consumer socialization of preschoolers and kindergartners as related to clothing consumption. *Psychology & Marketing*, 10, 151–166.
- Henke, L. L. (1995). Young children's perceptions of cigarette brand advertising symbols: Awareness, affect, and target market identification. *Journal of Advertising*, 24, 13–28.
- Hughes, C. (1998). Finding your marbles: Does preschoolers' strategic behavior predict later understanding of mind? *Developmental Psychology*, 34, 1326–1339.
- John, D. R. (1999). Consumer socialization of children: A retrospective look at twenty-five years of research. *Journal of Consumer Research*, 26, 183–213.
- Macklin, C. M. (1987). Preschoolers' understanding of the informational function of television advertising. *Journal of Consumer Research*, 14, 229–239.
- McAlister, A., & Peterson, C. (2006). Mental playmates: Siblings, executive functioning and theory of mind. *British Journal of Developmental Psychology*, 24, 733–751.
- McAlister, A., & Peterson, C. (2007). A longitudinal study of child siblings and theory of mind development. *Cognitive Development*, 22, 258–270.
- Moses, L. J., & Baldwin, D. A. (2005). What can the study of cognitive development reveal about children's ability to appreciate and cope with advertising? *Journal of Public Policy and Marketing*, 24, 186–201.
- Piaget, J. (1970). Piaget's theory. In P. H. Mussen (Ed.), *Carmichael's manual of child psychology* (pp. 703–732). New York: Wiley.

- Robertson, T. S., & Rossiter, J. R. (1974). Children and commercial persuasion: An attribution theory analysis. *Journal of Consumer Research*, 1, 13–20.
- Roid, G. H. (2005). *Stanford-Binet Intelligence Scales for Early Childhood*, 5th ed. Itasca, IL: Riverside Publishing.
- Rossiter, J. R. (1976). Visual and verbal memory in children's product information utilization. In B. B. Anderson & A. Arbor (Eds.), *Advances in consumer research*, Vol. 3 (pp. 572–576). Ann Arbor, MI: Association for Consumer Research.
- Wellman, H. M., Cross, D., & Watson, J. (2001). Meta-analysis of theory-of-mind development: The truth about false belief. *Child Development*, 72, 655–684.
- Wellman, H. M., & Liu, D. (2004). Scaling of theory-of-mind tasks. *Child Development* 75, 523–541.
- Wright, P. (2002). Marketplace metacognition and social intelligence. *Journal of Consumer Research*, 28, 677–682.
- Young, B. M. (1990). *Television advertising and children*. New York: Oxford University Press.
- Zelazo, P. D., & Reznick, J. S. (1991). Age-related asynchrony of knowledge and action. *Child Development*, 62, 719–735.

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APPENDIX A

List of Stimulus Brands Employed in Brand Recognition Study

Brands Marketed to Children (Children's Brands)		Brands Marketed Primarily to Adolescents and Adults (12+ Brands)	
McDonald's	Hungry Jack's	Woolworths	Coles
Pizza Hut	Domino's	Kleenex	Band-Aid
KFC	Red Rooster	Holden	Toyota
Lego	Hot Wheels	Brumby's	Baker's Delight
My Little Pony	Bratz	Caltex	Shell
Smiths	Arnott's	Nestlé	Mitre 10
Cadbury	M&M's	Warner Brothers	Disney
The Simpsons	Looney Tunes	Golden Circle	Cottee's
Nickelodeon	Sesame Street	Heaven	Baskin-Robbins
Coke	Pepsi	Energizer	Duracell
Donut King	Nintendo	Telstra	Optus
Pumpkin Patch	Bonds	Nike	Puma
Kellogg's		Qantas	

Note: The distinction between children's brands and 12+ brands is whether children form part of the target segment. So, for instance, brands such as Coke and M&M's may be consumed by adolescents and adults just as frequently as they are consumed by children, but the important point is that the coders judged these brands as being marketed directly to children as well as adolescents and adults. Kleenex or Duracell, on the other hand, may be used frequently by children but the coders judged these brands as being marketed to adolescents and adults only.

APPENDIX B

Sample of Children's Responses to Brand Representation Task

Child A (Trial Score = 18): Three collages produced on the trial assessing mental representation of competing fast food brands. Child A showed perfect performance, distinguishing between McDonald's items, Hungry Jack's items, and distracter items.



collage score = 6
(All product, venue, and character images correctly placed around logo.)



collage score = 6
(All product, venue, and character images correctly placed around logo.)



collage score = 6
(Phone used as focal card by the researcher. The child placed all "irrelevant" cards here.)

Child B (Trial Score = 7): Three collages produced by another child on the same fast food trial. Child B showed poor performance in terms of distinguishing the brands from one another and from distracter items.



collage score = 3
(Fries, "drive thru" sign, and restaurant image correctly placed around logo.)



collage score = 4
(Character image, "drive thru" sign, dessert, and restaurant image correctly placed around logo.)



collage score = 0
(Phone used as focal card by the researcher. No other distracter cards were placed here by the child.)