Food Branding and Young Children's Taste Preferences: A Reassessment

Charlene D. Elliott, PhD, Rebecca Carruthers Den Hoed, MA, Martin J. Conlon, PhD

ABSTRACT

OBJECTIVES: This study examines the effects of branding and packaging on young children's taste preferences.

METHODS: Preschool children aged 3 to 5 (n=65) tasted five pairs of identical foods in packaging from McDonald's and in matched packaging that was either plain, Starbucks-branded, or colourful (but unbranded). Children were asked if the foods tasted the same or if one tasted better.

RESULTS: Children preferred the taste of foods wrapped in decorative wrappings, relying more on aesthetics than on familiar branding when making their choices.

CONCLUSIONS: The findings suggest the need to explore questions beyond commercial advertising (and brand promotion) on television and other media platforms. More attention should be directed at the important role of packaging in directing children's food preferences.

KEY WORDS: Child, preschool; marketing; fast food; advertising as topic; taste perception

La traduction du résumé se trouve à la fin de l'article.

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The childhood obesity epidemic has prompted increased interest in food marketing to children,¹ and various national and international initiatives have recommended that limits be placed on the types of foods promoted to children.²⁻⁴ Despite this heightened interest, limited research examines how especially young children – namely preschoolers – respond to brand and packaging appeals.

Recent research has examined the age at which children can identify the persuasive intent of fast food advertising⁵ and whether brand characters can positively influence young children's (ages 4-6) preference for fruit.⁶ Research has also found that children as young as three recognize brands and what they symbolize.⁷ Yet it was a study released out of Stanford University in August 2007 that captured significant media and public attention, and served as the impetus for this article.

The study, "Effects of Fast Food Branding on Young Children's Taste Preferences," sought to examine the influence of McDonald's branding on the taste selections of preschool children from low-income families. Thomas Robinson and colleagues selected McDonald's because "it is the largest fast food advertiser in the United States" and because they "expected most, if not all, preschool children to be familiar with the McDonald's brand because of extensive marketing."^{8(p.793)} In the study (hereafter referred to as the Robinson study), 63 preschool children tasted five pairs of food, including a McDonald's hamburger, fries and Chicken McNugget®, as well as baby carrots and milk. Each food "pair" was identical. However, one portion was served in packaging from McDonald's, and the other in plain white wrapping. The researchers found that "3- to 5-year-olds preferred the taste of foods they perceived to be from McDonald's."^{8(p.793)} The study also reported "significantly

greater effects of branding among children with more television sets in their homes and children who ate food from McDonald's more often."^{8(p.792)}

The Robinson study received considerable media attention,⁹⁻¹² with the *New York Times* affirming, "If it says McDonald's, then it must be good."⁹ The fact that 54% of the children in the study indicated that even carrot sticks in McDonald's packaging tasted better prompted further media propositions along the lines of that from journalist Lindsay Tanner: "Want children to eat carrot? Put it in [a] McDonald's wrapper."¹³

The Robinson study is important for drawing attention to how fast food branding can impact the tastes of our youngest consumers, and it raises fascinating questions about the role of packaging in taste perception. However, the study has limitations. Robinson and colleagues suggest that the "substantial exposure to the McDonald's brand"⁸ by preschoolers – drives children's taste preferences. Yet the study design fails to capture whether children's tastes are influenced by the *aesthetics* of the packaging rather than the branding itself. It does not reveal whether different types of branding impact children's tastes. Finally, the study focuses solely on preschoolers from low-income households. As a consequence, its conclusions are overstated. This paper aims to provide greater

Author Affiliations

Department of Communication and Culture, University of Calgary, Calgary, AB
Correspondence: Charlene Elliott, Department of Communication and Culture, University of Calgary, SS236, 2500 University Drive NW, Calgary, AB T2N 1N4, Tel: 403-220-3180, E-mail: charlene.elliott@ucalgary.ca

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insight into the relationship between food packaging and taste preferences in young children, by exploring how differently packaged foods – such as those with different types of branding or aesthetics – influence preschoolers' taste preferences.

A redesigned study

This redesigned study followed Robinson et al.'s original methodology, with key modifications. We used four of the same food products, adding a fifth option (a cupcake) that preschoolers would not associate with McDonald's. Instead of focusing solely on low-income families, the redesigned study included preschoolers across all income brackets.

Importantly, children were asked to select foods in three different packaging "pairs":

- 1) McDonald's versus plain (white) wrapping
- 2) McDonald's versus coloured (non-branded) wrapping; and
- 3) McDonald's versus Starbucks wrapping.

This redesign allows for observations as to whether packaging aesthetics influences children's taste preferences as much as the branding. Adding a component in which preschoolers select between McDonald's and Starbucks (an adult-oriented brand built around coffee) allows for preliminary observations about the degree to which the McDonald's brand is actually driving the preschoolers' selections.

Overall, this study aims to explore the way that brands/packaging familiar to children might impact their taste preferences, and to determine if a correlation exists between preschoolers' exposure to brands (via television viewing, visits to fast food restaurants, or branded merchandise) and their taste preferences for differently packaged foods.

METHODS

Children aged 3-5 years were recruited from four preschools in Alberta. Two preschools were located in a major urban centre (Calgary) and two were located in an outlying resort town (Canmore). One of the preschools was privately run, two were run by charitable organizations, and one was a small parent cooperative preschool.

After receiving approval by the University of Calgary Research Ethics Board, the study was introduced at staff, parent, or board meetings at each preschool, and advertised through preschool communication channels (e.g., websites, newsletters, bulletin boards). An information package (containing an introductory letter, information sheet, consent form, and parent questionnaire) was sent home with/to the parents.

Parents willing to have their preschooler participate signed the consent form and completed the self-administered questionnaire. Questions (drawn directly from the Robinson study) pertained to: child age, sex, race/ethnicity; number of television sets in the home/in the child's bedroom; number of TV hours the child typically watches per week; frequency with which the TV is on in the house; whether the child has asked for foods/drinks seen on TV in the previous week; how often the child eats at/visits McDonald's or other fast food restaurants; and whether toys from McDonald's were in the home. Our questionnaire also inquired about family income, how frequently their child visited Starbucks and whether Starbucks branded items were in the home. Finally, parents were asked to indicate if their child had food allergies or foods s/he should not taste.

Table 1. Sample Characteristics

Characteristic	Value
Age (Mean $\pm$ SD)	3.8 $\pm$ 0.7
Sex (%M / %F)	44.6 / 55.4
Race (%)	
Caucasian/White	75.4
Asian/Pacific Islander	12.3
Other	10.8
McDonald's visits (%)	
<1/mo	64.6
1-3/mo	29.2
1/wk	4.6
2-3/wk	1.5
Starbucks visits (%)	
<1/mo	87.7
1-3/mo	9.2
1/wk	0.0
2-3/wk	1.5
Other restaurant visits (%)	
<1/mo	60.0
1-3/mo	38.5
1/wk	1.5
2-3/wk	0.0
McDonald's merchandise in the house (%Y / %N)	63.1 / 36.9
Starbucks merchandise in the house (%Y / %N)	30.8 / 69.2
# of TVs in the house (Mean $\pm$ SD)	2.0 $\pm$ 1.1
TV in child's bedroom? (%Y / %N)	4.6 / 95.4
# of hours of TV per week (Mean $\pm$ SD)	7.8 $\pm$ 6.5
Requests food seen on TV? (% Y / %N)	15.4 / 84.6

On the day of each tasting, children were randomly assigned to one of the three packaging "pairs" (McDonald's vs. plain; McDonald's vs. colour; McDonald's vs. Starbucks). Trained research assistants (RAs) then followed the precise methods and RA script wording outlined by the Robinson study. Each child, one at a time, was invited into a separate room and asked if s/he wanted to play a "food tasting game." If yes, the child was seated at a small table that had an opaque screen at one end. A research assistant (RA1) explained that she would sit behind (and be hidden by) the screen during the food tasting, but that they could still talk. RA1 explained that "[name of RA2] is going to bring you some foods to taste". Children were told that they did not have to taste the foods if they did not want to, and that they could stop playing the game at any time. Once RA1 was positioned behind the screen, RA2 placed two samples of identical food, each wrapped in a different kind of packaging, on a tray in front of the child.

The following paired food samples were brought out, one at a time, for tasting: ¼ McDonald's hamburger, 1 Chicken McNugget®, 3 McDonald's fries, 2 baby carrots, and ½ mini-cupcake. One of the paired samples was always wrapped in a McDonald's small french fries bag – a white bag prominently featuring the McDonald's golden arches and a small red maple leaf (designating McDonald's Canada). The other sample was in a bag of the same size and format as the McDonald's branded wrapping. It was one of the following three options:

- plain white wrapping;
- colourful, non-branded wrapping – bright blue background with polka dots in yellow, red, and orange; or
- brown wrapping featuring the green Starbucks logo along the right side (i.e., a Starbucks pastry bag trimmed to match the size/shape of the McDonald's wrapping).

Only unused wrappers (and currently available McDonald's and Starbucks wrappers) were used for every food item. Both the order in which the *types of food* were presented and side on which the *types of wrapper* were placed on the tray followed a predetermined random order for each child and each food (e.g., McDonald's wrapper on the left side vs. plain wrapper on the right).

Table 2. Children's Taste Preferences

	Preferred McDonald's n (%)	No Preference n (%)	Preferred Alternative n (%)	95% Confidence Interval (for the Mean)	Two-sided p-value
"Plain" group (n=21)					
Burger	6 (30.0)	9 (45.0)	5 (25.0)	(-0.300, 0.300)	0.7632
Nuggets	8 (38.1)	7 (33.3)	6 (28.6)	(-0.286, 0.381)	0.5939
Fries	11 (52.4)	6 (28.6)	4 (19.0)	(-0.095, 0.571)	0.0484
Carrots	11 (52.4)	6 (28.6)	4 (19.0)	(-0.095, 0.571)	0.0497
Dessert	8 (44.4)	5 (27.8)	5 (27.8)	(-0.278, 0.500)	0.3951
"Colour" group (n=21)					
Burger	5 (25.0)	9 (45.0)	6 (30.0)	(-0.400, 0.250)	0.7663
Nuggets	6 (28.6)	8 (38.1)	7 (33.3)	(-0.429, 0.238)	0.7872
Fries	6 (28.6)	9 (42.9)	6 (28.6)	(-0.381, 0.286)	1.0000
Carrots	3 (14.3)	8 (38.1)	10 (47.6)	(-0.667, -0.048)	0.0327
Dessert	7 (38.9)	6 (33.3)	5 (27.8)	(-0.333, 0.389)	0.5681
"Starbucks" group (n=23)					
Burger	7 (33.3)	7 (33.3)	7 (33.3)	(-0.381, 0.286)	1.0000
Nuggets	5 (22.7)	16 (72.7)	1 (4.5)	(-0.045, 0.364)	0.0835
Fries	3 (13.6)	14 (63.6)	5 (22.7)	(-0.364, 0.091)	0.4872
Carrots	2 (8.7)	17 (73.9)	4 (17.4)	(-0.304, 0.087)	0.3976
Dessert	6 (28.6)	10 (47.6)	5 (23.8)	(-0.286, 0.333)	0.7686

RA2 put the tray with the two food samples in front of the child. RA1 instructed, "Now, take a bite of *this* food" (pointing around the screen at either the left or right side of the tray, following a predetermined random order). She then reached around the other side of the screen, pointing to the other sample: "Now, take a bite of *this* food." After the child tasted the two samples, RA1 asked, "Tell me if they taste the same, or point to the food that tastes the *best* to you." As noted in the Robinson study, it was essential to give children the choice of the "right" answer – that the two foods tasted the same. The same steps were followed for each food pairing.

RA2 then inquired, "Can you tell me where you think this food is from?", while pointing to the sample wrapped in McDonald's packaging. During the food-tasting session involving *both* McDonald's and Starbucks wrappers, RA2 repeated the question for the Starbucks wrapped sample, while pointing to it.

If a child failed to correctly identify food samples packaged in branded wrappers as from McDonald's or Starbucks, the child was asked by RA2 at the end of the food-tasting session to point to the food from McDonald's and/or Starbucks. This final question was included in case some children *recognized* the branded wrappers, but did not name the brands when asked. RA2 recorded each child's answers. At the end of the tasting, she thanked the child and led him/her back to the classroom.

Following the methods of the Robinson study, the null hypothesis was that children would indicate no preference between the two samples of each food (the correct answer). Children were considered to have no preference when they 1) said that the two samples tasted the same, 2) did not answer at all, or 3) did not know. Preference for food identified as McDonald's was coded +1. Preference for the alternate food in the pair was coded -1. No preference was coded 0. For the primary analysis, evaluating preferences across all foods combined, answers were averaged to create a total preference score between -1 and +1 for each participant and the null hypothesis was tested using a nonparametric Wilcoxon signed rank test. The measured pre-existing factors were assessed using the Mann-Whitney *U*-test for dichotomous variables and the nonparametric Kruskal-Wallis test for categorical variables. Tests were two-tailed and statistical significance was set at $\alpha < .05$. To assess the taste preferences for individual foods within each group, bootstrapping was used to establish a bias-corrected and accelerated (BCa) 95% confidence interval for the mean.

RESULTS

Seventy-seven parents consented to their child's participation and completed the questionnaires. Of the resulting sample of 77 children, 65 (84%) completed the food-tasting experiment and comprised the analysis sample. Two children were too old to participate; 5 were absent at the time of the tasting; 2 declined to participate; 2 did not understand the procedure; and 1 had too many food allergies to safely take part. Only children who did not taste any food samples were eliminated from the analysis. Some children did not taste certain samples because of food sensitivities/allergies or taste preferences: 4 children did not taste the hamburger; 1 did not taste the fries; 1 did not taste the chicken nugget; 8 did not taste the cupcake (mostly due to allergies). Table 1 presents the characteristics of the sample.

The average participant was just under age four, and the gender split was roughly even (slightly fewer boys participated). Just under a quarter (23.1%) of the sample were visible minorities (which closely mirrors the demographics of the general Canadian population¹⁴).

Approximately two thirds (63.1%) of parents reported McDonald's merchandise/toys in the home. Yet 64.6% reported that their child visited McDonald's less than once per month. Overall, 46.8% of the children correctly identified the McDonald's packaging. Starbucks branding was much less familiar to the children: only 12.6% correctly identified it. While 31% of parents reported Starbucks merchandise in the home, their children rarely visited Starbucks (87.7% less than once/month and only 1.5% multiple times/week).

There were an average of two television sets per household, with very few children (4.6%) having a TV in their bedroom. Television viewing habits varied substantially, averaging 7.8 hours per week, with the majority of children (69.2%) watching fewer than 10 hours per week. Only 15.4% of parents reported that their child had asked for foods seen on TV in the previous week.

Table 2 presents the preschoolers' taste preferences. Children's preferred the McDonald's over the plain ($p < 0.009$). However for the coloured ($p < 0.240$) and Starbucks ($p < 0.404$) samples, the null hypothesis is *not* rejected.

Table 2 also presents the 95% confidence interval for the mean and the p-value for the individual food pairings across categories. Children preferred the taste of the McDonald's fries and McDonald's carrots to the plain-wrapped equivalent. For the McDonald's versus coloured wrapping "pair", children preferred

the taste of the carrots in coloured wrapping. For the remaining 12 food/packaging combinations, the results are not statistically significant.

None of the demographic variables listed in Table 1 had a statistically significant influence on children's taste preferences, *except* the frequency of visits to McDonald's, and *only* in the "plain" test group ($p < 0.044$).

DISCUSSION

Preschoolers aged 3 to 5 preferred the taste of foods in decorative wrappings, reinforcing that aesthetics matter – even for very young children. Food packaging (and wrappings) are key to attracting consumer attention and influencing sensory expectations,^{15,16} and research studies reveal that packaging/containers can impact the actual taste experiences of consumers¹⁷⁻²⁰ – including preschoolers.²¹ Our findings reinforce this, in showing that preschoolers overall thought the food samples in decorative wrappers "tasted best" compared to those in plain wrappers, even though the foods were identical.

Yet one must be careful not to presume that the preschoolers' aesthetic preferences are actually *brand* preferences. Robinson et al.'s experimental study, which served as the impetus for this study, makes a firm assertion in stating: "this was a real-world study addressing a straightforward, real-world question: do children prefer the taste of food and drinks if they think they are from McDonald's."^{8(p.795)} The authors conclude that the answer is yes, and that "brand identity can influence young children's taste perceptions."^{8(p.794)} Our study suggests that conclusion is misleading: it is not necessarily the brand influencing their preferences. Just like other consumers, children prefer food that comes in decorative wrappings *regardless* of whether the wrapping is "decorated" with McDonald's branding, Starbucks branding or multi-coloured polka dots.

When faced with a choice between food placed in McDonald's-branded wrapping and food in plain wrapping, the preschoolers in our study indicated a taste preference for the McDonald's food – just as the Robinson study reported. However, when faced with a choice between food in McDonald's-branded wrapping and food in a colourful wrapping, or between food in McDonald's wrapping and food in Starbucks wrapping, children did *not* indicate a preference for the McDonald's-branded food. Children rely more on aesthetics than on branding when making choices. A colourful wrapper or a wrapper with an unfamiliar logo has equal appeal to a wrapper with a familiar logo for children.

Results showed that the children in the study were familiar with the McDonald's brand (almost half of the children identified it) but markedly less familiar with the Starbucks brand. Not surprisingly, only 12.6% of children were able to identify Starbucks. Starbucks' adult-oriented brand built around coffee provided a counterpoint to the McDonald's brand, which Robinson et al. picked because of McDonald's "substantial exposure" to children.^{8(p.794)} The relative "paucity of exposure" children had to Starbucks allowed us to interrogate whether it was brand exposure that really mattered in children's resulting taste preferences. Eighty-eight percent of the preschoolers visited Starbucks less than once a month; 31% of parents indicated that Starbucks merchandise is in the home. Compare this to the 35% of children visiting McDonald's 1-3 times per month or more; and 63% with McDonald's merchandise/toys in

the home. Yet, for the preschoolers who tasted foods in McDonald's wrapping versus Starbucks wrapping, the "more familiar" McDonald's brand was *not* preferred. The Robinson study's correlation made between brand exposure and taste preference did not play out. An equal percentage of children preferred McDonald's burgers in Starbucks wrappings as in McDonald's wrappings. For the chicken nuggets, fries and carrots, the majority of children indicated that the samples tasted the same. Yet for those children who did indicate a preference, more children preferred the taste of fries and carrots in the Starbucks versus the McDonald's wrapping.

Two other findings are worth highlighting. First, none of the demographic variables had a statistically significant influence on the children's preferences, except for the frequency of McDonald's visits and only in the McDonald's versus plain comparison group. Household income did not impact children's taste preferences. Second, the parents in our Canadian study reported that their children ate at McDonald's less frequently than was reported in the U.S.-based Robinson study (35% visited McDonald's 1-3 times per month or more vs. 72% in the Robinson study). American parents also reported a higher percentage of McDonald's merchandise in the home compared to our study (76.2% vs. 63%). That the American preschoolers were more exposed to McDonald's might explain why they were better able to identify the McDonald's brand (62%) compared to Canadian preschoolers (47%). However, the fact that the Canadian children were better able to identify McDonald's than Starbucks does suggest familiarity with the brand – albeit to a lesser degree than their American counterparts.

When it comes to television exposure, viewing, and requests, our study found no correlation. Children's food preferences were not statistically related to the number of televisions in the household or in the child's room, nor were they related to the number of hours of television watched per week. Roughly 85% of parents indicated that their child did *not* request foods or drinks seen on TV in the previous week. This is unlike the Robinson study, which found that "children with more television sets in their homes ($r = 0.24$, $p < 0.04$)... were more likely to prefer the taste of foods/drinks if they thought they were from McDonald's."^{8(p.794)} Robinson et al. postulated that this was because the "number of televisions in the home might indicate greater exposure to McDonald's advertising or be associated with other mechanisms leading to greater responsiveness to branding..."^{8(p.795)}

Our study found that the number of TVs in the household and hours watched per week were similar to those in the Robinson et al. study, but that fewer children asked for foods seen on TV. One can surmise that hours of television viewing does not necessarily mean exposure to television advertising, particularly in an era of Netflix, PVRs and videos. Although the television might be on, we have no metric for establishing what children are actually viewing. Again, we found no correlation between television sets/television viewing and children's preferences for specific branding. Even the Robinson study's decision to consider any *toys from McDonald's in the household* as a type of brand exposure may function as a red herring. McDonald's toys do not typically carry McDonald's brand logo; as such, exposure to the toy does not necessarily mean exposure to the brand. While very young children may know that "you can go to McDonald's to get a toy," research is required to establish that preschoolers continue to associate the plastic toys in the home with McDonald's.

This said, we do not intend our results to be used to argue *against* recommendations for limiting the commercial promotion of foods of poor nutritional quality to children. The World Health Organization, among others, has suggested regulating the promotion of high sugar, fat, and/or salt foods to children in order to stem the rising tide of childhood obesity and to improve children's health.^{2,3,22,23} We support this recommendation. What our findings suggest is the need to explore questions beyond commercial advertising on television and other media platforms. In particular, more attention should be paid to the important role of packaging in directing children's food preferences. On the one hand, our results suggest that potential positive applications might exist through packaging healthy food in colourful wrapping. This might be a positive option in light of studies showing that food packaging can influence children's perceptions of food more broadly, including how they evaluate the healthfulness of packaged foods.^{24,25} The challenge, however, is that this idea of promoting healthy food can be misused, particularly in consideration of the questionable products that have counted as "healthy" dietary choices for children by some food industry initiatives.²⁶ Given this, perhaps food is best presented to preschoolers without any packaging whatsoever (i.e., on a plate).

Future research opportunities exist. This was an exploratory study with a relatively small number of preschoolers. It would be interesting to examine preschoolers' preferences between i) colourful (unbranded) wrappings versus plain, ii) colourful wrappings versus Starbucks; and iii) Starbucks-branded wrapping versus plain, to see if the trend held. In theory, children would prefer the more decorative-looking package. There is also opportunity to revisit conclusions made from previous research. Our results agree with Robinson et al. but with one significant addition. Wrappings with brands (regardless of familiarity) or with colour are preferred by children. Preschoolers prefer foods in decorative, not plain wrappings.

The Robinson study – and especially its subsequent newspaper coverage – made much of the fact that children preferred the taste of carrots if they thought they were from McDonald's. Its authors conclude that "specific branding can alter young children's taste preferences."^{8(p.796)} Yet when children in our study were given the option of carrots in McDonald's wrapping or carrots in colourful wrapping, children liked the "colourful" carrots more. Appearance, rather than branding, appears to influence children's taste preferences. As such, when it comes to preschoolers and taste preferences, perhaps more focus should be directed to the wrappings *around* food – the packaging – rather than the particular brand upon it.

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RÉSUMÉ

OBJECTIFS : Examiner les effets de l'image de marque et des emballages sur les préférences gustatives des jeunes enfants.

MÉTHODE : Des enfants d'âge préscolaire de 3 à 5 ans (n=65) ont goûté à cinq paires d'aliments identiques placés dans des emballages de McDonald's et dans des emballages assortis : neutres, de marque Starbucks ou colorés (mais sans marque). Nous avons demandé aux enfants si ces aliments goûtaient la même chose ou si l'un d'eux avait meilleur goût.

RÉSULTATS : Les enfants ont préféré le goût des aliments dans des emballages décoratifs, se fiant davantage à l'esthétique qu'à la familiarité des marques pour faire leurs choix.

CONCLUSIONS : Ces constatations montrent qu'il faut explorer d'autres questions que la publicité commerciale (et la promotion de l'image de marque) à la télévision et sur d'autres plateformes médiatiques. Il faudrait accorder plus d'attention au rôle important des emballages dans l'orientation des préférences gustatives des enfants.

MOTS CLÉS : enfant d'âge préscolaire; marketing; aliments de restauration rapide; publicité comme sujet; perception du goût