



Research report

The effects of TV unhealthy food brand placement on children. Its separate and joint effect with advertising [☆]

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ABSTRACT

This paper examines the effect of unhealthy food brand placement on children across different age groups (9, 12 and 15 year-old children). Results show that both brand awareness, and the behavioral disposition (toward junk food and McDonald's) increased when children were exposed to this marketing technique (in comparison with the control group). In the case of age, older groups (12–15) performed better in brand awareness, but scored lower in behavioral disposition than the 9-year-old group. Moreover, the joint use of advertising and placement (synergy) increased the effect of these communication tactics on children. Results are discussed in terms of previous results of the studies providing evidence of the influence of promotional tools of junk food on children.

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Introduction

In the context of the alarming prevalence of obesity among children, an intense debate has been developed over the last two decades regarding the actual influence of marketing activities used to promote unhealthy foods to children. A significant amount of research has investigated the pervasiveness, children's understanding and the actual effects and of promotional actions, particularly advertising, on children's dietary beliefs and behavior. Although recent studies have increasingly focused on the Internet, the vast majority of the available evidence has examined the case of TV advertising because this medium and promotional tool are still the main source of commercial messages to children. In fact, TV advertising represents about 40% of the total marketing expenditures targeted at children (Powell, Harris, & Fox, 2013; Speers, Harris, & Schwartz, 2011).

A relevant number of articles have evaluated the actual effect of TV food advertising on children. These studies have provided evidence in terms of a relevant relationship between ad exposure and brand recall, attitude, and certain level of preference (Gunter, Oates, & Blades, 2005; Livingstone, 2006). They have demonstrated that advertising usually has a significant outcome on increasing the recall of the advertised brand in both immediate and delayed recall (Derscheid, Kwon, & Fang, 1996; Valkenburg & Buijzen, 2005), tends

to produce a positive attitude toward food brands (Derbaix & Bree, 1997; Moore & Lutz, 2000), and is also able to produce preference of advertised food products (Gorn & Goldberg, 1982). Moreover, it has been proposed that in the long run the amount of advertising on children's television appears to be related to the prevalence of excess body weight among children because exposure to food adverts tends to promote the consumption of unhealthy food (Anderson, Crespo, Bartlett, Cheskin, & Pratt, 1998; Halford, Gillespie, Brown, Pontin, & Dovey, 2004; Lobstein & Dobb, 2005).

Despite the relevance of advertising, it is important to notice that this tool is only one of the ways in which food brands are promoted across the different mass media and particularly on TV. The use of advertising is frequently combined with or substituted – when advertising is restricted – for other marketing communication techniques on TV and other mass media (Boyland & Halford, 2013). In this regard, one of the most popular forms of non-advertising tactic is the insertion of brands within the program content (shows, films, and series), a practice called *product or brand placement* (Russell, 1998).

Brand placement has been defined as the paid or purposeful inclusion of branded products or brand identifiers, through audio and/or visual means, within mass media programming. That is to say, brands are intentionally incorporated in a visible way as a means to produce persuasion in the audience (Karrh, 1998; Yang & Roskos-Ewoldsen, 2007). There are several advantages of brand placement over advertising such as the unavoidable character of placements for the audiences and the positive attitudes of viewers toward this technique – because the insertion of real brands provides realism to films and programs (Karrh, 1998).

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In this context, the use of product placement has significantly increased over the last three decades. In fact, spending on paid product placement has grown from US\$6.25 billion in 2009 to US\$8.25 billion worldwide in 2012 (PQ Media, 2008). This communication technique is particularly present in the field of food and beverages. In fact, a study carried out by Sutherland et al. (2010) showed that of the 20 most viewed movies between 1996 and 2005, 69% of them contained at least one food, beverage, or retail food establishment brand. In this study a total of 1180 brand placements were identified in these films.

Although in some countries like the USA or Australia voluntary self-regulation has avoided the placement of food and beverages in editorial TV content that is primarily directed to children aged under 12 years, in practice this norm has partially failed to avoid children's exposure to these format messages. On the one hand, these norms do not restrict the use of brand placement to promote products to youth audiences (12+). On the other, these limitations do not apply for programs (films, TV series and shows) addressed to general audiences – usually broadcasted at prime time – whose audience profile is composed by 50% of children (under 12 years old) in the case of the USA (Holt et al., 2007). In this vein, Speers et al. (2011) presented an examination of the brand appearances during prime time TV programming from January to December 2008 in the USA, which detected approximately 35,000 placements for foods, beverages and restaurants. Using audience data, these scholars detected that an average child watched 281 of these appearances, and adolescent viewed 444 and an adult 666 of them during that year (Speers et al., 2011).

Despite the increasing relevance of non-advertising promotion of food addressed to children on TV and other mass media, there is limited evidence regarding the effects of these promotional actions on children (Owen, Lewis, Auty, & Buijzen, 2013). In the particular case of the brand placement, the vast majority of the studies have focused on the examination of adults' attitudes and effects (McCarty, 2004; van Reijmersdal, Neijens, & Smit, 2009). In fact, a search in using the words *product* and *placement* in the databases *Google Scholar*, *PsycINFO* and *PubMed* showed in their first 50 entries only three articles that directly address the reception of brand placements among children and only some of them have incorporated the examination of food in a generic way (as part of a set of the examination of placements of different products) (Auty & Lewis, 2004; Owen et al., 2013; Volmers, 1995). In addition, there are no studies that evaluate the potential effect of the combined use of placement with other promotional tools such as advertising, which in practice occurs on TV during the prime time (Speers et al., 2011).

Effects of brand placement

As communications tool, product placement seeks the same effects as spot advertising: to produce cognitive, affective, and/or behavioral responses on the members of the audience (in this case, children). Cognitive effects typically refer to children's recall of promoted brands after exposure to commercial messages of them. The available evidence on placement effects on children is scarce and generic in terms of product categories. Volmers (1995) provided evidence on the brand awareness effect of TV placement on children. This author evaluated the spontaneous mention of advertised brands (among them, food brands). She examined a sample of children (7, 9, and 11 years old) evaluating brand memory, affect, and preference after watching a clip of the film *Lassie* (which includes different brands such as Pepsi, Casio, John Deere, American Gas, Quaker Oats, and Pennzoil). Findings showed that the children exposed to brand placements significantly increased their level of mention of the promoted brands compared with those in the control group (which watched the same film but without the scenes depicting these

brands). No results were reported by age in this case. In a recent study, Hudson and Elliott (2013) analyzed the impact of food and beverage product placements on children recall at different ages. Using an experimental approach, 225 of children viewed the same television program, but with either healthy products or unhealthy brands digitally inserted. A detailed survey then measured aided and unaided recall. The results indicated strong spontaneous recall for the products placed, especially for the unhealthy products, and particularly among older children (van Reijmersdal, Jansz, Peters, & Van Noort, 2010).

The analysis of the affective responses seeks to evaluate whether there is a development of a positive children's attitude toward advertised brands after exposure to this communication tool. Research on the effect of placements on children's brand attitudes has been also scarce. Vollmer's above-mentioned 1995 study did not detect a positive relationship between the exposure to product placement and a more positive attitude toward different brands. This situation was the same across the different age groups. In contrast, some evidence in the context of videogames has provided a positive relationship between the presence of placement and a positive brand attitude. In an experiment conducted among 2453 girls between the ages of 11 and 17, van Reijmersdal et al. (2010) demonstrated that experience with interactive brand placement in a video game resulted in more positive attitudes toward the brand.

Finally, studies of behavioral effects have investigated the extent to which children are persuaded to buy or – more commonly, request – the advertised products or brands (van Reijmersdal et al., 2009). The few studies developed in this line have showed weak support for behavioral immediate effect (in this case usually measured as purchase or consumption disposition immediately after exposure). Auty and Lewis (2004) examined this issue in a sample of children exposed to a scene from *Home Alone* with/without depicting Pepsi Cola being spilled during a meal. Afterward, all children were invited to help themselves from a choice of Pepsi or Coke at the outset of the individual interviews. Those who had seen the branded clip made a significantly different choice of drink. The responses to the interviews suggest that it is not simply exposure to the film but rather previous exposure to it with a reminder in the form of recent exposure that affects choice. In her study, Volmers (1995) also examined this issue and could not demonstrate a positive relationship between being exposed to a brand in a movie and the immediate behavior of preferring it. In the same line, the study of Hudson and Elliott (2013) detected that the presence of product placements of both healthy and unhealthy food products had only a modest influence on immediate behavior. The only evidence supporting the existence of a behavioral influence can be found using placement in videogames. van Reijmersdal et al. (2010) demonstrated a positive relationship between the exposure to brand placement and behavioral disposition toward it.

The role of age

A relevant point in the literature on children and marketing is the role of age as mediator of effects of promotional actions on children. Since children have relatively immature cognitive development and consumer skills, these characteristics are likely to mediate how they process and are affected by persuasive messages. In this regard, different theories from developmental psychology have been used to understand how children deal with the persuasive attempt of commercial messages at different ages. Although they have focused on the particular case of advertising, these findings may be also applied to the children's understanding of different marketing messages in the mass media (Buijzen, Van Reijmersdal, & Owen, 2010; Gunter et al., 2005).

From an integrative perspective, [Buijzen and associates \(2010\)](#) propose that three developmental phases can be distinguished based on these approaches. The Early childhood (up to 5 years old) is the early stage in which children can recognize marketing messages only from their perceptual features, have a limited capacity to process the information of these messages and have a limited ability to take the others' perspective (i.e. they have a limited capacity to understand advertisers' intentions). The next stage is middle childhood (6–9 years) in which children become increasingly able to develop a symbolic perspective and thinking, as well as to process/retain the information of commercial messages and to develop a basic understanding of advertiser's selling intent. In the late childhood (10–12 years), children are capable of developing abstract reasoning, processing and retaining complex information, and are able to understand that others may not share the same viewpoint (and consider it at the same time as their own). At this age children start to understand the tactics used by marketers to change their attitudes and behaviors ([Gunter et al., 2005](#); [Rozendaal et al., 2011](#)). Nevertheless, it is important to notice that knowledge of the nature of advertising and marketing messages continues to develop during adolescence. As several authors have documented, since 12 years old there is a development of an increasing capacity to process the information contained in the messages, and a growing sophistication in the understanding of advertisers' motives and information bias ([Dubow, 1995](#)).

In terms of the role of age (as proxy of cognitive development) as mediator of the effect of placement on children, studies have rarely examined this variable. Regarding brand recall, Hudson and Elliot detected that older children tended to recall more brands than younger ones after exposure to product placement because of their higher information processing skills. In the case of the behavioral effects, [Auty and Lewis \(2004\)](#) incorporated the variable age in their analysis of the behavioral influence of brand placement and they failed to show differences between children of 6–7 and 11–12 years old. Similarly, [Mallinckrodt and Mizerski's \(2007\)](#) experimental study with children aged 5–8 did not find significant differences in the children's requests after playing a cereal's advergaming for 5 minutes. In other words, there is some evidence in favor of an increasing brand recall among older children, other couple of studies that show no differences in terms of behavioral effects, and no studies examining placement's effects on children's brand attitude.

The joint use of placement and advertising

It is interesting to note that advertising and placement are not usually used alone. In a media-saturated environment, building brand awareness, bonding and preference becomes more difficult and requires marketers to develop omnipresent strategies for reaching consumers. As a consequence these communication tools and others are frequently used in combination across different mass media ([Boyland & Halford, 2013](#)). The joint use of placement and advertising (or other promotional tools) is based on the idea of synergy or the coordination of communication tools (or media) for delivering greater impact than the tool or medium on its own ([Assael, 2011](#); [Naik & Kalyan, 2003](#); [Wang & Lobstein, 2006](#)).

There is no evidence regarding the joint use of placement and advertising in the case of children. The only study examining these promotional tools has been reported by [van Reijmersdal \(2010\)](#). She evaluated the joint effect of advertising and product placement in the context of a radio program. In her study 102 respondents listened to fragments in which there was an advertisement with or without a radio program including comments about a photo camera. She detected that synergy condition (placement and advertising) performed better in terms of brand awareness (top of mind), but not in brand attitude.

This study

Thus, in response to the lack of evidence regarding the actual effect of placement – particularly those depicting food – on children, there have been calls for more research focusing on the influence of these marketing tactics based on a subtle persuasion process, particularly examining the case of products with negative externalities such as unhealthy food and cigarettes ([Owen et al., 2013](#)). Thus, this article seeks to provide more evidence about the cognitive, affective and behavioral immediate effects of product placement on children at different ages examining the case of the promotional activity of a junk food brand. Reporting a study carried out in Santiago-Chile, this paper aims, firstly, to evaluate the effects (cognitive, affective and behavioral) of this promotional tool in that product category. Secondly, this piece of research seeks to describe the effects of junk food brand placement at different age groups (9, 12 and 15 years old). Thirdly, this piece of research aims to determine whether the effects on children of the isolated use of product placements of junk food are different from those produced by the combined use of it with advertising.

Research questions

This study explored four main areas expressed in the same number of research questions (RQ):

RQ1: Will exposure to product placement alone of a junk food brand increase children's brand recall? Are there differences at different age groups?

RQ2: Will exposure to product placement alone of a junk food brand produce more positive attitudes toward the promoted brand? Are there differences at different age groups?

RQ3: Will exposure to product placement alone of a junk food brand increase the children's product category and brand disposition? Are there differences at different age groups?

RQ4: Will the joint use of product placement with advertising of a junk food brand increase the effects on children compared with the separate use of these promotional tools? Are there differences at different age groups?

Materials and methods

Participants

An experiment was conducted to examine the effect of the exposure to different promotional formats (control, advertising, placement and joint use of them) at different ages (9, 12, and 15 years old). A sample of 483 Chilean children (265 girls and 218 boys) participated in this study. At the moment of the study, they attended three different schools in Santiago that belong to the third income quintile, placing them in the middle of the income distribution of Chile ([Table 1](#)). In addition, there were no significant differences in the 12 groups in terms of sex ($F = 0.28$, $p = 0.866$).

Table 1
Sample of the study.

	Control	Advertising-only	Placement-only	Advertising-plus-placement	Total
9 years	40	42	39	41	162
12 years	41	38	39	41	159
15 years	40	41	42	39	162
Total	121	121	120	121	483

Stimulus

The stimuli for the experiment consisted of four versions of an edited (45 minutes) version of the film *Richie Rich* (see treatments below). That edited-film contained two scenes depicting product placements of McDonald's (all the other placements of the brand were removed). In this regard, it is important to point out that at the moment of the study, McDonald's was a well-established brand in the Chilean market, and therefore the study examined the effect of one on a leading brand rather than on a new one.

The scenes depicting McDonald's were (1) when *Richie Rich* departs with his friends in his house that have a funfair, gym and McDonald's restaurant in which they eat a hamburger with fries and a soft drink, and (2) when *Richie* and a girl are drinking a soft drink and eating fries and a hamburger with a McDonald's logo. These placements were used because both had the same modality (audio-visual), similar length (10 and 9 seconds respectively) and similar type of placement (active use of the brand) (Gupta & Lord, 1998). In order to be sure that these placements would be similarly noticed, we develop a pretest with a group of 16 children. They were exposed to the edited version of the film but containing only one placement (eight children watched the film with one placement and eight children watched it with the other one) and their spontaneous recall of the placement was evaluated using a single item: (a) "What products or brands do you remember seeing in the film?" (Sharma, Mizerski, & Lee, 2009). In both groups seven children (87%) mentioned the brand McDonald's.

The stimulus also had commercial breaks, which in some cases included an advertisement of McDonald's (in which it was explained how a hamburger is made). The TV commercials incorporated in the study were evaluated in terms of having similar brand recall after exposure in a pretest with a group of 20 children. These children were exposed to a reel containing 8 advertisements, and then they were evaluated using a single item: What products or brands do you remember seeing in the commercial reel? The final group of commercials (McDonald's, Direct TV, a DVD with all the seasons of a Japanese comic, and a theme park) was selected because they were mentioned by a similar number of children (16–17 children, 80–85%) and then they could be considered equivalent in terms of branding.

Procedure

After parents had signed written informed consent form, the students were invited to participate in the experiment. In each participating school, we invited 9-year-old children and randomly divided them into four groups (each group went to a different room). They were told that they could leave the study at any time, and each group was exposed to one of the four versions of an edited (45 minutes) version of the film *Richie Rich* (see below the four treatments). Then, we did the same with the 12 and 15 year-old groups. Immediately after they watched the film, children answered the questionnaire measuring all the dependent variables and covariates. In the first part, children were asked for their opinions about the film and whether they had watched it before (see Covariates below). Then, the dependent variables were measured. The study was carried out between 9:00 and 11:00 a.m. in order to avoid a bias as a result of the influence of children's hunger.

Independent variables

In this study two independent variables were used: *message format* and *age*. Regarding message format variable, it was operationalized in four different combinations (van Reijmersdal, 2010):

- (a) Placement-only condition: The edited film (45 minutes) included the two scenes depicting product placements of McDonald's and two commercial breaks without the advertisement of McDonald's.
- (b) Advertising-only condition: Both McDonald's placement scenes were removed but both commercial breaks included an advertisement for McDonald's (The removed scene was 30 seconds length).
- (c) Placement-plus-advertising (synergic) condition: the film included one scene depicting a McDonald's product placement (the scene of the McDonald's restaurant) and the ad of the brand in the second commercial break. One placement scene and one piece of advertising in order were removed to avoid accumulative effects of four stimuli (two ads and two placements).
- (d) Control group: All the scenes with brand placements and all the commercials of McDonald's were removed.

The age variable was operationalized in terms of three groups with different abilities to process information and deal with commercial messages: 9, 12 and 15 years old. We selected them because at these ages there is at least a basic understanding of the nature of advertising (so the results cannot be biased by that situation) and they represent ages that have not been explored in prior research:

- (a) 9-year-old children: As mentioned in the literature review, children in the age of "middle childhood" (Buijzen et al., 2010) can be described as "cued processors" (Roedder, 1981).
- (b) 12-year-old children, which have been characterized as "early strategic processors" (Roedder, 1981) or part of the "late childhood" (Buijzen et al., 2010) in which they can understand the biased character of advertising and start to recognize the tactics used by marketers to change their attitudes and behaviors
- (c) 15-year-old children, that can be described as "late strategic processors" and for that reason they have consolidated their processing abilities and develop an increasingly sophisticated knowledge structures that allow them to a better understanding of the tactics and effects sought by advertisers, which should mediate the effects of marketing communication messages (Wright, Friestad, & Boush, 2005).

Dependent variables and measures

This study examined the effect on children in terms of their cognitive, affective, and behavioral responses toward the brand McDonald's immediately after exposure (Owen et al., 2013):

- (a) Cognitive response was measured as unaided recall in terms of the top-of-mind (TOM) brand recall. Children were asked to write down all the brand of fast food chains that came to their mind. If McDonald's was mentioned first, this brand was considered the TOM brand (and coded as 1; other answers were coded as 0) (van Reijmersdal et al., 2010)
- (b) Affective response was measured using a 2-item scale of attitude toward the brand proposed by Roedder et al. (1983). The questions of the scale were "How much would you like McDonald's?" and "How much would you like the taste of the McDonald's products?" It was answered using a 5-point scale that runs from "like it a lot" to "hate it a lot." This scale has shown good correlation with purchase intention ($r = 0.51$; Norman & Tedeschi, 1989) across different age groups (Mizerski, 1995). The scale evaluating the attitude toward the brand depicted unidimensionality and reliability (eigenvalue = 0.71 and $\alpha = 0.91$).

(c) Behavioral response was measured as intention to eat fast food (category) and select McDonald's (brand). The first one was measured offering different kinds of meal alternatives that we selected from a pretest with a sample of 30 children that were asked to spontaneously mention what they would like to eat if they are hungry (rice and meat, mashed potatoes and chicken, chips and hamburger and other meal) to secure that they represent attractive alternatives to children. The disposition toward the brand was measured offering different alternatives of fast food chain brands: McDonald's, KFC, Burger King, other. This method has been used in several previous studies with young participants (Goldberg, Gorn, & Gibson, 1978; Gorn & Goldberg, 1982; Mallinckrodt & Mizerski, 2007).

Covariates

In addition, prior exposure to the film and attitudes toward the film were examined as covariates because previous literature had reported their potential effect on children's purchase intention (Auty & Lewis, 2004).

Data analysis

Logistic regression in the case of cognitive and behavioral responses and ANOVA for brand attitude was computed to evaluate the significant effect of the independent variables on the dependent variables.

Results

Covariates

After checking the psychometric properties of the attitude-toward-the-brand scale, the potential influence of the covariates was examined. Prior exposure to the film was equally distributed among the nine groups (F = 0.097, p = 0.907). In the same vein, the attitude toward the film was similar across the different experimental groups (F = 0.683, p = 0.503).

The effect of the use of placement alone

Brand awareness

Logistic regression with the variables message format and age as categorical predictor was used to evaluate the effect of placement alone on brand awareness (TOM). A significant effect was detected for the message format for the total group of children (Wald(3) = 5.955). As Table 2 shows, there are significant differences in TOM between the control group (45.0%) and those exposed to placement (57.0%). In other words, it was observed that the use of placement alone produced a significant increase on brand awareness when compared with the control group (OR = 1.685; CI 95% 1.121–2.198; p = 0.021).

In terms of the differences at different ages, logistic regression did not show a significant effect. As Table 2 shows, 9-year-old (53.7%), 12-year-old (58.4%) and 15 year-old groups exposed to placement alone had a similar TOM.

Table 2
Brand awareness (TOM: Top of Mind).

	Control	Placement-only	Advertising-only	Ad + Placem
TOM 9 years	44.9% ^a	53.7% ^b	55.8% ^b	62.1% ^c
TOM 12 years	46.1% ^a	58.4% ^b	59.1% ^b	66.7% ^c
TOM 15 years	46.0% ^a	57.7% ^b	56.9% ^b	64.5% ^c
TOM Total	45.7% ^a	57.0% ^b	58.2% ^b	63.8% ^c

^{a,b,c} Figures with different superscripts in the same row differ significantly at p < 0.05.

Table 3
Behavioral disposition toward the product category.

	Control	Placement-only	Advertising-only	Ad + Placem
9 years	40.9% ^{a,1}	52.9% ^{b,1}	53.3% ^{b,1}	57.8% ^{c,1}
12 years	39.7% ^{a,1}	44.3% ^{b,2}	46.1% ^{b,2}	51.9% ^{c,2}
15 years	38.8% ^{a,1}	43.6% ^{b,2}	44.1% ^{b,2}	52.3% ^{c,2}
Total	39.8% ^a	46.9% ^b	47.9% ^b	54.0% ^c

^{a,b,c} Figures with different superscripts in the same row differ significantly at p < 0.05.

^{1,2} Figures with different superscripts in the same column differ significantly at p < 0.05.

Brand attitude

The examination of whether exposure to product placement alone increases children's brand attitude showed no effect. In fact, the ANOVA test showed that there was no significant effect from using different message formats (F = 0.696, p = 0.499), age (F = 0.017, p = 0.983) or the interaction of both variables (F = 0.687, p = 0.601). Table 3 shows that the averages of brand attitude toward McDonald's are similar across the different treatment groups and age groups.

Disposition toward the product and brand

Then, the examination of whether exposure to product placement alone increase children's disposition toward the product category and the brand immediately following exposure was developed. Logistic regression model with the intention to eat fast food as dependent variable and message format and age as independent variables was used to test this hypothesis. Results showed a main effect for the format of the message (Wald(3) = 5.193). As Table 3 shows, there was a significant difference between the control group – 42.3% – and the use of placement alone – 47.5% – (OR = 1.778, CI 95% 1.060–2.981; p = 0.023).

Similarly, the logistic regression analysis with the disposition toward McDonald's dependent variable also showed a significant effect for the message format (Wald(3) = 5.318). As Table 4 shows, the group exposed to placement alone depicted more interest in going to McDonald's than the control group (44.7 versus 39.7%) (OR = 1.675; CI 95% 1.002–2.801; p = 0.020).

In the case of age, logistic regression showed a significant effect in the case of both dependent variables between the 9 and the 12-year-old groups, but not between the older groups: disposition toward fast food (Wald(2) = 5.340) and toward McDonald's (Wald(2) = 4.493; p = 0.042). As Tables 3 and 4 show, the youngest groups (9 years old) depicted a higher level of disposition toward the product (OR = 1.805; CI 95% 1.119–2.201; p = 0.004) and brand (OR = 1.309; CI 95% 1.015–1.709; p = 0.046) than the other two age groups exposed to placement.

The joint effect of placement and advertising

Finally, this study evaluated the existence of synergy effect between placement and advertising. Logistic regression using message format (placement compared with advertising and synergy condition) and age (9, 12, 15 year old) as categorical predictors was calculated in the case of TOM and behavioral disposition (toward

Table 4
Behavioral disposition toward the brand.

	Control	Placement-only	Advertising-only	Ad + Placem
9 years	39.6% ^{a,1}	47.2% ^{b,1}	50.2% ^{b,1}	62.5% ^{c,1}
12 years	37.3% ^{a,1}	44.8% ^{b,2}	43.1% ^{b,2}	54.8% ^{c,2}
15 years	37.2% ^{a,1}	43.1% ^{b,2}	43.8% ^{b,2}	52.8% ^{c,2}
Total	38.0% ^{a,1}	45.0% ^b	45.8% ^b	56.8% ^c

^{a,b,c} Figures with different superscripts in the same row differ significantly at p < 0.05.

^{1,2} Figures with different superscripts in the same column differ significantly at p < 0.05.

category and brand), and ANOVA was used in the case of brand attitude.

Brand awareness

There were no significant differences between placement and advertising conditions in terms of TOM, but between placement groups and those exposed to the synergy condition (Wald(3) = 5.955). As Table 2 depicts, TOM of the brand increased from 57% to 63.8% when product placement was used with advertising (OR = 1.832; CI 1.198–2.349; $p = 0.041$). When these results were examined by age, there were no significant differences among the different age groups.

Brand attitude

As mentioned above, the ANOVA test showed no main effect differences in terms of brand using different message formats, across different ages, and interaction of both variables. In all the cells the attitude has a similar average (general average = 3.22, SD = 0.135).

Disposition toward the product and brand

In the case of disposition toward the category fast food, no differences were observed between placement and advertising-alone groups. However, there was a significant effect in the comparison between those exposed to placements and the groups exposed to the synergy condition (Wald(3) = 5.318). As Table 3 illustrates, the joint use of advertising and placement increased the disposition toward fast food from about 47% to 54% (OR = 2.377; CI 1.157–3.598; $p = 0.001$). In the case of the analysis by age, a main effect was detected (Wald(2) = 5.802). In Table 3 it is possible to observe that the 12 year-old group has a significantly lower disposition toward the category than the 9-year-old group (OR = 1.965; CI 1.051–3.166; $p = 0.009$). This effect was not detected in the comparison between the 12 and 15 year-old groups.

Regarding the disposition toward McDonald's the situation was the same. That is to say, there were no significant differences between the isolated use of placement and advertising. Nevertheless, when these promotional tools were used together, there was a significant effect in the disposition to the brand (Wald(3) = 5.293). Table 4 shows that the level of disposition toward McDonald's increased from about 45% to 57% when the synergic condition was used (OR: 2.216; CI: 1.156–3.430; $p = 0.005$). The analysis by age again showed a significant effect (Wald(2) = 4.128). Older groups (12 and 15 year-old groups), depicted a lower level of behavioral disposition toward the brand than the youngest group (OR: 2.009; CI: 1.728–2.462; $p = 0.039$).

Discussion

This study evaluated the cognitive, affective and behavioral effects of product placement on children at different ages examining the case of a junk food brand. In particular it examined the effect of the use of placement alone and, subsequently, the effects of the combined use of it with advertising.

All in all, results showed, firstly, that exposure to placement had a relevant effect on increasing TOM brand awareness (RQ1) and that using placement with advertising increased this effect even more (RQ4). This finding demonstrates the relevant role of product placement on producing brand awareness, which has been a common assumption in the literature on marketing communications (Belch & Belch, 2004). Furthermore, the effect of this tool is similar to the effect of advertising on brand awareness, what is a new finding provided by this study. In addition, results show that the combined use of these techniques produces a better TOM than does the isolated use of them. This is also a novel finding in the context of children and supports what the literature in the field of synergy among adults had demonstrated previously (Dijkstra, Buijtelts, & Van Raaij, 2005; van Reijmersdal, 2010).

Secondly, the examination of TOM in terms of age (RQ1) demonstrated the absence of a significant difference between the different age groups. This can be explained due to this study evaluated the immediate brand recall, rather than the short-term or long-term recall. In these cases, prior literature had suggested that older children (as "strategic processors") should be able to store and retrieve information (meaning, number of brands) more and more quickly than younger ones (characterized as "cued processors") (Gunter et al., 2005; Roedder, 1981).

In terms of brand attitude (RQ2), no differences were detected for either the communications tool or age. This finding is not in the same vein of prior literature, which could be explained by two hypotheses that are not necessarily mutually exclusive. The first one refers to the role of the brand because McDonald's had a relatively good evaluation, which is difficult to immediately improve (see control group). The second hypothesis proposes that the development of brand attitude is more complex and requires longer periods of time and cannot be captured by direct and short-term measures (Roedder et al., 1983; Waiguny, Nelson, & Terlutter, 2010).

Finally, this study examined the immediate behavioral disposition toward the category and the brand (RQ3). This distinction is relevant because from a marketing perspective, the brand variable is more relevant, but from a public health viewpoint, the most significant issue is whether or not children want to consume unhealthy food (no matter the brand of the chain). The results in both cases were similar. The presence of the communications tools included in this study (in any condition) improved the disposition toward the category and the brand. Moreover, the joint use of advertising and placement increased these behavioral dispositions more than the separate use of them (Dijkstra et al., 2005).

The examination of age showed differences between the youngest group (9 years-old children) and the other two age groups (12 and 15 year-old children). This result supports what literature has proposed in terms of that the defenses against commercial attempts are actually present at the age of 12. Although the child's understanding of the technique is not fully established at 12, it is strong enough to mediate the effect of commercial messages (Gunter et al., 2005; Oates et al., 2003).

Conclusions

All in all these results show the power of using placement (and advertising) on children. On the one hand, the isolated use of advertising and product placement significantly increased the level of TOM recall and the behavioral disposition toward both the product category (fast food) and the brand (McDonald's). It is important to point out that the literature has mainly highlighted the relevance of advertising and proposed several policies in order to produce a less deceiving exposure on children. This finding therefore emphasizes the relevance of developing debate on how to regulate the different forms of promotion rather than restricting or banning a particular technique such as advertising (Chalaby, 2008).

On the other hand, when used together, the effect of advertising and placement increased more in terms of cognition and behavioral disposition, which demonstrated the power of the cross-tool synergy on children. This finding is particularly relevant because pieces of research usually examine the case of advertising or placement in an isolated way, but companies tend to use these communication tools jointly. This therefore not only puts a challenge for further pieces of research, but also means that in the "real world" the effects of advertising on children detected by previous research by examining only advertising or placement should be stronger than has been proposed to date (Owen et al., 2013).

In terms of managerial implications, it is important to highlight the power of using advertising and placement together. For those interested in targeting child audiences the combined use of

different tools (as well as diverse media) should be considered as relevant in order to increase the effect in the audience. This is particularly relevant for programs devoted to health promotion because the public sector has scarcely used more sophisticated communication campaigns (Flynn et al., 2010; Randolph & Viswanath, 2004). In addition, these results provide new insights for the development of an adequate self-regulation of the industry. This should include not only element of the content of the executions, but also considerations of an adequate (meaning fair) use of the mass media (Jordan, 2008).

Finally, some limitations of this study have to be mentioned. Firstly, this study examined the case of a well-known brand and with a good reputation in the studied target, which may cause part of the effect. It has been determined that the communication effectiveness of the campaigns may be moderated not only by the expenditure, but also by the prior knowledge of the brand as well as the prior brand attitude (Belch & Belch, 2004; Phelps & Thorson, 1991). Second, this study performed multiple comparisons rather than only a single comparison. This situation may increase false positives or Type I errors in this study.

Further research should examine the case of lesser-known or even unknown brands in order to minimize the effect of prior brand knowledge. Although of the McDonald's case allows researchers to use a real film and a brand that actually combines advertising and placement in its communication campaigns, it is important to broaden the results of this study with brand with different levels of recall and reputation. Further research could also check whether the absence of an effect on children detected in the case of brand attitude is in fact caused by the long-term nature of this effect or if it was caused by the brand incorporated in this study. Finally, it is important to ask whether these results could also be applied to promoting healthy foods rather than unhealthy products. Although intuitively one could propose hypotheses in both ways, future research should explore this issue due the importance of promoting healthy lifestyles for children.

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