

# Product placement and the promotion of healthy food to pre-adolescents

## When popular TV series make carrots look cool

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Although many scholars have raised concerns about product placement directed at children, the practice may offer interesting outcomes when used for pro-social objectives. This study investigates the effectiveness of placements promoting the consumption of fruits and vegetables. Specifically, the modality (audio-visual vs. visual) of placements is studied. The role of referent others on children's attitude towards healthy eaters and the target's intentions to consume healthy food is also examined. Challenging previous findings on commercial placements in video games, our experiment on 72 subjects show that audio-visual (or bimodal) placements are of greater effectiveness than the unimodal ones when unbranded goods and passive media such as TV shows are considered. Then, the central role of the attitude towards healthy eaters is demonstrated, stressing the importance of referent others and value-expressive norms in the persuasion process. Managerial implications for public services and screenwriters of popular TV programmes are discussed, as are limitations and directions for further research.

### Introduction

Although product placement is more than half a century old, it has never been as popular either in the media or as a subject of academic research as it is now. A recent review (van Reijmersdal *et al.* 2009) noted that more than 30 studies were conducted on the topic over a three-year period. Valuable insights have been offered, and the effectiveness of the practice on adults has been extensively demonstrated in terms of brand recall, brand attitude and brand choice (see van Reijmersdal *et al.* 2009; Hang 2012 for reviews).

Fewer studies have focused on children as the target audience. Although the practice of product placement is spreading in all types of child-oriented media, far fewer researchers have investigated product placement in that context. Ethical concerns may well explain this caution. Many in the field have considered product placement to be a deceptive practice (Auty & Lewis 2004b; Balasubramanian *et al.* 2006), and it may seem that studying product placement and ways to increase its effectiveness on vulnerable targets is even more questionable. These views may, however, underestimate the pro-social potential of product placement that has educational rather than commercial objectives. In an early study, Collins



and her colleagues (2003) showed that TV programmes might be an effective tool for teenage sexual education. More recently, entertainment–education placements – also referred to as ‘edutainment’ placements by scholars (Collins *et al.* 2003; Pechmann & Wang 2008) and in the entertainment industry (Kaplan & Folb 2013) – were demonstrated to be useful in discouraging pre-adolescent smoking (Pechmann & Wang 2010); nevertheless, the focus of these studies has remained fixed on adolescents and young adults. Therefore the first objective of this study is to investigate younger targets and determine whether product placement may help achieve educational and social objectives by evaluating its effectiveness on a critical age group: 8 to 12 year olds. Edutainment placements for this age group require their own stream of research for two reasons. First, there seems to be a consensus that it is necessary to consider children as a specific target, namely with respect to advertising issues (Roedder John 1999, 2008; Valkenburg & Cantor 2001; Livingstone & Helsper 2006). Pre-adolescence (8 to 12 years) represents an important transitional period in child development. Pre-adolescents are no longer under the sole influence of their parents (Valkenburg & Cantor 2001). They are not only acquiring autonomy (Palan *et al.* 2010) but also confronting substantial peer pressure (Valkenburg & Cantor 2001). These factors should certainly not be ignored in this persuasion context. Second, focusing on edutainment placements may lead to somewhat different conclusions than focusing on commercial placements. For example, in edutainment, brands are not the focus of concern *per se*; in fact, brands actually may not be considered at all, such as in placements related to smoking prevention or safe-sex information. Consequently, the persuasion knowledge that may be elicited after exposure to a placed brand (Matthes *et al.* 2007; Hang 2012), and the influence of brands’ symbolic dimensions observed in commercial contexts (Belk *et al.* 1982, 1984; Goldberg *et al.* 2003), should be here hindered. The potential failures induced by such commercial cues should therefore be much limited.

This leads us to the second objective of this study: to investigate the conditions under which non-branded edutainment placements are effective in pre-adolescents. More specifically, we focus on the modality of placements (either unimodal, such as visual, for example, or bimodal, such as audio–visual) because this criterion is at the centre of seminal studies on commercial placements (Russell 2002; Hang 2012) and at the heart of the inquiries of many professionals (Balasubramanian *et al.* 2006; van Reijmersdal *et al.* 2009). As stated above, it indeed seems important to reassess previous findings in the edutainment context to avoid misleading public service initiatives. For instance, the audio–visual modality of brand placements has been found to trigger persuasion knowledge and has therefore led to decreased effectiveness (Hang 2012). One might wonder whether bimodality remains critical if no brands are mentioned and, in fact, if it might not contribute to greater effectiveness.

The final objective of this research is to propose an initial persuasion model of edutainment placements among pre-adolescents that will eventually improve scholarly understanding of the edutainment persuasion processes of the target group. For instance, the role of referent others and its impact on children’s attitude towards similarly behaving others are investigated. As discussed above, the developmental stage that defines pre-adolescence is characterised by the integration of social influences into the decision-making process about consumption; thus, it seems important to study those influences further in our specific context.



The expected contributions of this research are therefore threefold. First, social marketers and public service personnel should be provided with pragmatic recommendations for building effective edutainment, which will also answer screenwriters' calls for insight (Kaplan & Folb 2013). Second, this research seeks to offer theoretical knowledge about edutainment placements for pre-adolescents – specifically, how and why the effective modalities of entertainment-education placements differ from the effective modalities of commercial placements. Third, insights on essential but nevertheless original variables are offered and a prototypical edutainment persuasion process is proposed.

To achieve this, we first present a review of the literature on children as the target of persuasion attempts in the specific context of product placement. Although there is not a plethora of studies related to product placement targeting pre-adolescents, this section will discuss the insights that have been offered to date. A section is also devoted to the relevance of focusing on the prevention of obesity as the pro-social context of this study, beginning with the World Health Organization's statement that childhood obesity is one of the most challenging social issues of the 21st century (WHO 2010).

These sections then enable us to propose hypotheses to be tested in an experiment involving 72 pre-adolescents. A discussion of the findings concludes this study.

### Children's 'vulnerability' to product placement

Although studies of product placement and children remain scarce in comparison with the many studies of product placements aimed at older target groups, research has shown that the tactic undoubtedly affects children's attitudes and choices (Auty & Lewis 2004b; Mallinckrodt & Mizerski 2007; van Reijmersdal *et al.* 2010; Hang & Auty 2011; Hang 2012; van Reijmersdal *et al.* 2012b). A few studies have investigated product placement in the context of movies (Auty & Lewis 2004b) and print media (van Reijmersdal *et al.* 2012a), but most researchers have focused primarily on advergames and video games (Mallinckrodt & Mizerski 2007; Lee *et al.* 2009; van Reijmersdal *et al.* 2010; An & Stern 2011; Hang & Auty 2011; Hang 2012; van Reijmersdal *et al.* 2012b).

We conclude from these studies that there are two main rationales that explain the effectiveness of product placement targeting children. First, 8 to 12 year olds do not appear to use their *persuasion knowledge*, which is defined as an individual's ability to 'recognise, analyse, interpret and remember persuasion attempts and select and execute coping strategies' (Friestad & Wright 1994, p. 3). The involving and entertaining contexts in which brands are placed do not enable their targets to apply their persuasion knowledge (van Reijmersdal *et al.* 2012b; Waiguny *et al.* 2012). Barely aware of the placement and its persuasion intentions (Mallinckrodt & Mizerski 2007), children do not activate their cognitive defences (van Reijmersdal *et al.* 2012a).

The second important rationale that supports the effectiveness of product placement is that of *mere exposure effects* (Auty & Lewis 2004b; Hang 2012). According to the concept of mere exposure, repeated exposure to a stimulus will increase its attractiveness, although the exposure is not conscious (Zajonc 1968). Mere exposure actually creates a sense of familiarity that eases the processing of the stimulus (Mizerski 1995; Matthes *et al.* 2007; Mantonakis



*et al.* 2008; Hang & Auty 2011), whereas the absence of awareness of the persuasion attempt contributes to the affective process, which may then occur without cognitive interference. In this context, product placement also primes previously stored information. Such priming indeed eases the recall process, which facilitates the target's product choice in decision-making situations (Auty & Lewis 2004b). This renders 8 to 12 year olds particularly sensitive to product placement and to the mere exposure effect. Studies of consumer socialisation have categorised children according to their cognitive abilities and social development (Roedder John 1999, 2008); according to this framework, 8 to 12 year olds are 'cued-processors' (Roedder John 1999, 2008). Thus, pre-adolescents require cues to retrieve information stored in their memory. Auty and Lewis (2004b) concluded that renewed exposure to a stimulus (such as a film) triggers an implicit memory of a brand previously seen in the film. Renewed exposure primes the cue (the brand) that was stored in memory at the time of the first exposure, which facilitates and induces a branded choice. In other words, product placement works as a cue that reminds children of information previously stored in their memory. Furthermore, Auty and Lewis (2004b) showed that processing skills do not mediate subsequent brand choices. This confirms the affective nature of the 'mere exposure' process.

Hang's (2012) recent study of pre-adolescents and branded video games confirmed the affective dimension of children's persuasion processes. The study also informed us about the role that modalities of placement (either visual, auditory or audio-visual) play in the effectiveness of the practice. Hang (2012) compared audio-visual and visual placements of the Nike brand, and demonstrated that pre-adolescents exposed to unimodal (exclusively visual) placements more often selected the placed Nike brand than did children who were exposed to Nike in a bimodal setting. These results are consistent with research on adults that has focused on implicit memory of brand placement (significant changes in attitude towards the brand and brand choices) rather than explicit memory of brand placement (actual recall of seeing the brand that was placed). Although audio-visual placement can improve explicit memory of a brand that has been placed (Gupta & Lord 1998; Russell 1998; Law & Braun 2000), unimodal (i.e. auditory or visual) placement can improve implicit memory of factors such as brand choices (Law & Braun 2000). According to Hang (2012), audio-visual placement eventually attracts children's attention to the brand placed, triggers elaboration and therefore elicits persuasion knowledge. This, in turn, can result in a negative attitude and may decrease intentions towards the brand placed.

### **Children's receptivity to edutainment placement**

Arguments about the effectiveness of edutainment rest on its assimilation into implicit recommendations. If an edutainment placement is embedded in a programme without disclosure of its educational objectives, it may avoid *reactance* among pre-adolescents. Reactance is defined as the rejection of attempts to limit freedom of choice; reactance creates a boomerang effect by enhancing the attractiveness of a 'forbidden' option (Brehm 1989). From a seemingly ever earlier age, (pre)-adolescents reject limitations on their freedom of choice (Grandpre *et al.* 2003). At this stage of their development, children frequently disregard parental recommendations and advice that might seem patronising (Goldberg & Gunasti 2006). Pechmann



and Wang (2008, 2010) showed that edutainment placement containing clear disclosures or epilogues stating the placement's educational objective can frequently be counterproductive when the placement is counter-attitudinal. Nevertheless, Pechmann and Wang (2006) proposed that the behaviour of various characters in a programme may act as *descriptive norms* or *value-expressive norms*. The former can be defined as 'the perceptions of which behaviours are typically performed' (Cialdini 2003, p. 105). Based on what is perceived as a shared practice, individuals can identify and select an optimal form of behaviour. The term value-expressive norms refers to adopting the behaviour of individuals whose image is admired to present the same aspired-to image (Rose *et al.* 2001). For instance, the practice of celebrity endorsement rests on value-expressive norms (Kahle & Homer 1985). Furthermore, these types of norm appear to be particularly influential with respect to individuals in status-transition periods (Belk *et al.* 1982), which is a key characteristic of pre-adolescents. Therefore, 8 to 12 year olds may be particularly receptive to unidentifiable recommendations.

### **Childhood obesity and children's exposure to food advertising messages**

The social context of this study is the prevention of obesity and the promotion of healthy foods, such as fruit and vegetables. Childhood obesity has been a matter of great concern for some time now. The World Health Organization has declared it to be one of the most challenging social issues of the 21st century (WHO 2010). Certain scholars have indicated that, for the first time in history, children's life expectancies might be shorter than those of their parents because of this epidemic (Ogden *et al.* 2010). Many prevention programmes have been implemented to curb these negative trends but, although the epidemic rates are not as pessimistic as prior prognoses might have indicated (OECD 2013), those interventions have achieved only limited short- or long-term success (Stice *et al.* 2006; Doak *et al.* 2009), and obesity numbers remain worrying (OECD 2013).

Social marketing researchers have also joined the search for original and effective ways to encourage children to freely select healthy food (Goldberg & Gunasti 2006; Boesen-Mariani *et al.* 2008; Sharpe *et al.* 2008; Charry & Demoulin 2012). However, it remains difficult for children to resist the many temptations that may negatively affect their well-being. Pre-adolescents are the targets of many marketing tactics from the (unhealthy) food industry. Recent studies of advertising content have shown that the vast majority of TV food ads that target children feature unhealthy foods (LeBlanc Wicks *et al.* 2009; Kelly *et al.* 2010). Furthermore, investments in new interactive online techniques to promote food predominantly involve messages (83.8%) that advertise low-nutrient foods (Lee *et al.* 2009). A major consequence of the overwhelming presence of unhealthy food in children's media is that children construct a somewhat distorted conception of appropriate foods and diet. Goldberg and Gunasti (2006) argued that the prevalence of unhealthy food promotion over healthy food promotion may be partly responsible for obesity. Russell and her colleagues (Russell *et al.* 2009) stated that 'cumulative exposure to particular media messages relates to viewers' perception of the prevalence of certain behaviours' (Russell *et al.* 2009, p. 97). This



phenomenon is also known as the *cultivation paradigm* (Gebner *et al.* 2002), which proposes that the more individuals are exposed to specific representations of the world through television, the more they will tend to believe that these illustrations represent social reality. There is no intention here to discuss the influence of advertising on children's preferences and diet. Nevertheless, it is plausible that unbalanced representations of unhealthy versus healthy foods and diets can be blamed (at least in part) for the current situation with respect to childhood obesity. Conversely, if this influence exists, it makes it possible to reshape perceptions through edutainment placement. From this perspective, Hirschman and Thompson (1997) have suggested that product placement may enhance the real-life dimensions of a product(s). Therefore, it seems reasonable to investigate the potential effectiveness of edutainment placement targeting pre-adolescents and its potential contribution to rebalancing and reshaping children's perceptions about appropriate diets.

Nevertheless, it might be argued that persuasion attempts through product placement aimed at such a young age group, even entertainment-education placement, remain problematic. Some may indeed consider that type of education to be the responsibility of parents and schools. We argue that there are various reasons that it is appropriate to focus on pre-adolescents. First, as discussed above, 8 to 12 year olds are already the target of many persuasion attempts related to unhealthy food; therefore, it seems justifiable to attempt to mitigate this influence by exposing them to healthy alternatives. Second, the focus on pre-adolescents may be explained by the stage that 8 to 12 year olds have reached in the consumer socialisation process. Pre-adolescents are indeed fully fledged consumers (Goldberg *et al.* 2003) and represent a triple market: influencers, buyers and consumers of tomorrow (McNeal 1992). Furthermore, this age group's autonomy from their parents is growing significantly (Noom *et al.* 2001; Palan *et al.* 2010) as parental influence gives ground to the influence of peers. Indeed, peer pressure reaches its climax during these years (Valkenburg & Cantor 2001), and consumption is no longer based entirely on the perceptual dimensions of a product but is also influenced by its social implications (Belk *et al.* 1982; Belk *et al.* 1984). Last but not least, children prefer goods that they have selected themselves (Freeman & Brucks 2002). Parental strategies that pressure children to eat specific foods frequently backfire, leaving children less likely to comply with their parents' will (Goldberg & Gunasti 2006). Therefore, subtle and non-patronising ways of influencing this age group are often more effective.

In the following section, we discuss how these various elements contribute to our hypotheses.

## Hypotheses

Product placement represents an effective persuasion tactic among pre-adolescents (Auty & Lewis 2004b; Mallinckrodt & Mizerski 2007; Hang & Auty 2011; Hang 2012). In this respect, unimodal placement has been demonstrated to be the most effective type of placement (Hang 2012). Bimodal placement attracts more attention and causes the elaboration responsible for persuasion knowledge. Furthermore, in the context of playing a video game, the cognitive effort required to convert information proposed in different modalities into one usable type of information can disrupt the affective persuasion process (Hang 2012).



Although such explanations appear reasonable in the demanding context (cognitively speaking) of video-game playing, we adopt a competing perspective with respect to edutainment placement in TV shows. We expect that bimodal placement of healthy food will be more effective than unimodal placement, an expectation that rests on three interacting elements. The '*coding redundancy hypothesis*' (Paivio 1979) provides the initial support for our assumption; this theory posits that duplicating information coding using alternative modes of presentation, such as audio and visual modes, improves memory. Dual coding in memory indeed enhances later retrieval of information, as demonstrated by previous research on somewhat older targets (Russell 1998). Accordingly, exposure to placement plays the role of primes that enable the retrieval of earlier-stocked information (Auty & Lewis 2004b), which is retrieval that is also eased by dual coding (according to the coding redundancy hypothesis). In our context, it may be expected that pre-adolescents will retrieve previously stored nutritional information because pre-adolescents are indeed knowledgeable about the elements of an appropriate diet (Neeley 2007). Therefore, compared to a placement that has been mono coded, bimodal coding of a placement will act as an effective prime to cue and will ease retrieval from memory (Russell 1998; Law & Braun 2000). Second, and contrary to what has been shown with respect to commercial intentions, a placement in passive entertainment media may require numerous modalities to be effective. It has actually been suggested that the emotional content of a programme in which non-commercial information is embedded requires the coding of stimuli in two modes to attract sufficient attention to the latter (LeBlanc Wicks *et al.* 2009). Finally, the affective mere exposure effect might be limited if it is impaired by intense cognitive tasks such as video gaming and treating bimodal stimuli (Hang 2012). Cognitive tasks related to TV exposure are limited. In this perspective, edutainment placement, because it is non-branded, should not trigger persuasion knowledge. In summary, although commercial placement potentially puts an audience's mind-set into a defensive mode when brand references tap in to two senses (Hang 2012), combining visual and auditory formats should not attract particular attention to an edutainment placement in comparison with any other event in the scenario because it presents no striking persuasive cue (such as a brand reference). Elaboration and persuasion knowledge should thus not be triggered. Because it is commonly accepted that attitudes towards a product and behavioural intentions are measures of the effectiveness of promotional messages on children (Phelps & Hoy 1996; Derbaix & Brée 1997; Moore & Lutz 2000), we expect the following:

- H1a:** Children exposed to bimodal edutainment placements for healthy food are more likely to improve their attitudes towards healthy food than are children exposed to unimodal edutainment placements for healthy food.
- H1b:** Children exposed to bimodal edutainment placements for healthy food are more likely to select healthy food than are children exposed to unimodal edutainment placements for healthy food.



Next, it may be useful to investigate the specific process through which product placement may persuade pre-adolescents. From this perspective, it is expected that changes in behaviours will follow the sequence developed below. As discussed above, the effectiveness of edutainment placement rests on the premise that its behavioural recommendations are not perceived as dictates or preaching. Edutainment placements can act as descriptive norms or value-expressive norms (Pechmann & Wang 2006). Pre-adolescence represents an important transitional period in childhood development in which the weight of social norms reaches its zenith (Valkenburg & Cantor 2001). From the perspective of consumer behaviour, products and brands are no longer exclusively characterised by their functional and perceptual dimensions. From this point onwards, the symbolic meaning of goods and consumptions are important attributes (Belk *et al.* 1982). Pre-adolescents are able to connect brand names to features such as prestige and trendiness (Bachmann Achenreiner & Roedder John 2003), and they continue to develop a better understanding of the social context and social implications of consumption (Roedder John 1999). Consumption becomes an act that will decide social status; consequently, it may cause acceptance or rejection (Belk *et al.* 1982, 1984). From this perspective, consumption may be analysed from the perspective of social status and, with respect to conformity concepts, consumption that is shared by referent individuals will be accepted. Popular characters act as such referents, and their attitudes and behaviours are evaluated positively (Pechmann & Wang 2006; Russell *et al.* 2009). Moreover, popular characters further improve the image of those who act as they do. Adolescents' affective reactions towards smokers were improved after watching a movie in which a young, attractive lead character smoked in many scenes (Pechmann & Shih 1999). Russell and colleagues (2009) showed that, in a TV programme, a popular character's negative perceptions of alcohol consumption influenced viewers' attitudes towards drinkers. In other words, it seems that the affect transfer observed in other marketing contexts (Derbaix & Brée 1997; Bachmann Achenreiner & Roedder John 2003) is also observed here: the affect associated with the original stimulus transfers to any congruent stimulus that fits the image of the original. Therefore – and transposing this to a positive perspective – it may be expected that placements involving healthy consumption by popular characters will script the positive message that healthy eaters are 'cool', thereby improving attitudes towards healthy eaters. Deciding which behaviour to adopt will thus be based on positive attitudes towards healthy eaters. Value-expressive norms – the unwritten rules that guide behaviour on the basis of the aspirational image of people who are admired (Rose *et al.* 2001) – frame behaviours according to their social acceptability. According to Bandura's social learning theory (1977), individuals – and children per se – copy the behaviours of models who receive positive reinforcement for those behaviours, such as social acceptance. The process identified in celebrity endorsement (Kahle & Homer 1985) and product placement (Russell & Puto 1999) should thus be expanded to all positively evaluated individuals. Auty and Lewis (2004a) indeed expressed their concerns that exposure to cigarette and alcohol placements would encourage children to smoke and drink because, in children's eyes, these types of consumption are tantamount to being grown-up (Mizerski 1995). Consequently, we expect the following:



- H2:** Edutainment placements promoting healthy food positively influence children's perception of healthy eaters. In turn, the intention of children to consume healthy food will be positively associated with their attitudes towards healthy eaters. Attitudes towards healthy eaters mediate the relationship between edutainment placements and intentions to consume healthy food.

## Method

### *Experimental design and subjects*

We tested our hypotheses on 72 children between the ages of 8 and 11 years old ( $M = 9.4$ ;  $SD = 1.17$ ), equally represented by gender (boys = 47.2%, girls = 52.8%). This age segment among 'cued-processors' corresponds to the final classes in French primary schools (which is where the study occurred). 'Cued-processors' are able to work with pencil-and-paper questionnaires; they can also master the processing of information across modalities (LeBlanc Wicks *et al.* 2009; Hang 2012).

Children were randomly assigned to either the unimodal (visual placement) or the bimodal (audio-visual placement) condition. The random assignment allowed for potential differences among children – such as prior attitudes towards fruit and vegetables – to be distributed evenly across conditions. The school's population, which did not have children who were either particularly socio-economically privileged or underprivileged, should also have ensured this even distribution. Indeed, an individuals' socio-economic status is considered to explain either enhanced or reduced consumptions of, and preferences for, fruit and vegetables (Hulshof *et al.* 2003; Darmon & Drewnowski 2008). Thirty-seven pre-adolescents were exposed to unimodal placements; 35 were exposed to bimodal placements. There were no significant differences in conditions with respect to either gender ( $\chi^2(1) = 0.062$ ;  $p = 0.803$ ) or age ( $\chi^2(3) = 3.554$ ;  $p = 0.314$ ).

### *Stimuli*

To increase the external validity of this study, short videos of the popular French TV show *Plus Belle La Vie* were selected. According to a recent French audiometry report, *Plus Belle La Vie* is one of the most popular French TV shows of all time, and it captures approximately 20% of the French TV audience on a daily basis. The series describes life in a suburban area in France and features interactions among characters of all age groups (seniors, adults, adolescents and children). The episodes selected were broadcast some time ago, making it possible for some children to have seen them before, but not recently (Auty & Lewis 2004b).

Each of the one-and-one-half-minute videos had two embedded placements. The placements in video 1 differed from the placements in video 2 in terms of their modality. The placements in video 1 were solely visual (unimodal), whereas the placements in video 2 were audio-visual (bimodal). Opting for visual placements in the unimodal condition was based on Gupta and Lord's (1998) ranking of unimodal placement effectiveness, which placed visual over audio. Furthermore, if any persuasion knowledge were to be expected, visual placement



would trigger less of it (Russell 2002). In the unimodal condition, there was a plate of fruit on the table and one of the two characters was eating an apple. In the bimodal condition, one character prepared carrots for a meal and asked for help with the task; later, a second character passed bowls of fruit salad while saying that he would have some fruit salad for dessert. Opting for the doubled placement was consistent with previous research in advertising, which advises repeating the message at least once (Phelps & Hoy 1996). Repetition indeed eases the recall of information stored in the memory (Roedder John 1999). Although older children (11 to 12 year olds) require fewer cues than their younger counterparts (6 to 7 year olds) (Auty & Lewis 2004b), the process should nevertheless be strengthened by the presence of multiple cues.

### **Procedure**

Bearing acquaintance in mind, as advised by Rust and Hyatt (1991), small groups of children (no more than four) were put together by a teacher and led to a separate room that the school had reserved for the experiment. To ensure that no external factors (such as time of day) could represent an alternative explanation of our results, we controlled for such factors by counterbalancing across different conditions. Before the video clips were played, the children were told that they were about to see a short video clip of *Plus Belle La Vie* and that, after watching it, they would be asked their opinion about the show. The same introduction was offered in both conditions as vaguely as possible. Although children do not seem to make use of information provided before exposure (Brucks *et al.* 1988), it was expected that this introduction would not trigger demand or mere measurement effects. The videos were shown on large screens to ensure that the children could see and hear the show perfectly, although they were seated at individual tables. After watching the video clip, the children were asked to turn around in their seats to fill in questionnaires that had been placed on their tables. They were consequently turning their backs to one another to control for voluntary interactions and/or involuntary influences (Charry & Demoulin 2012).

### **Measures**

The questionnaire included a measurement of the children's attitudes towards the scene, constructed on the basis of Derbaix *et al.*'s (1999) scale measuring children's attitudes towards advertisements (*I like this scene; I understood what was happening in the scene; I find the scene interesting; The scene was boring*). This measure acted as a control variable. As indicated earlier, the video clips were part of an existing show and, for that reason, finding perfectly comparable scenes that proposed the required placements was found to be an impossible task. The literature on children and advertising indicates, however, that attitude towards an advertisement represents a strong predictor of attitude towards the brand (Phelps & Hoy 1996; Derbaix *et al.* 1999; Moore & Lutz 2000). Consequently, controlling for attitude towards the clip represents a necessary condition to rule out potential alternative explanations for the changes in our dependent variables (van Reijmersdal *et al.* 2012a). Next, we measured attitudes towards fruit and vegetables based on Pecheux and Derbaix's (1999)



attitude-towards-the-brand scale and used in previous research on childhood obesity prevention (Charry & Pecheux 2011) (*I like eating fruit/veggies; Fruit/veggies are good for me; Fruit/veggies, they're tasty; Fruit/veggies, they're less cool to eat than ice cream; To eat fruit/veggies, that's not fun; Fruit/veggies are appealing*). Finally, a measurement of children's attitudes towards healthy eaters was constructed with three items (*Someone who eats fruit and vegetables 'is not funny'; Someone who eats fruit and vegetables 'is on a diet'; Someone who eats fruit and vegetables 'is smart'*). All the responses were measured on a 4-point Likert scale, as advised (Peracchio & Mita 1991) and commonly used (Derbaix & Brée 1997; Charry & Demoulin 2012; Hang 2012) with this target audience. The Cronbach's alpha was calculated for all of the measures, and its results indicate good reliability (Cronbach's  $\alpha$  values: Attitude towards fruit and vegetables: 0.85; Attitude towards healthy eaters: 0.70; and Attitude towards the video: 0.81).

Children's enhanced likelihood of making healthy choices was measured by comparing the number of times a healthy snack was selected from a randomised list of ten snack options across conditions. Children had to indicate what their choice would be among eight unhealthy options that were unrelated to the placement (e.g. chocolate mousse, pancakes, and custard topped with caramel) and two healthy options that were related to the placement (i.e. fruit and fruit salad). All of the snacks were listed and presented in a similar fashion – the product names were written out, but neither brand names nor pictures of the snacks were used – and the order of the snacks was rotated to avoid priming effects. The children's choices were coded as a binary categorical variable with selecting fruit or fruit salad as 1. Any other option was recorded as 0.

Filler questions, such as the children's interest in TV and other hobbies, were added to our measures to avoid creating a demand effect.

## Results

To control for an alternative explanation represented by attitudes towards the scene, we ran a  $t$ -test to evaluate children's attitudes towards the scene across conditions. There were no significant differences in the children's evaluations ( $M_{\text{bimodal}} = 2.95$  ( $SD = 0.80$ ),  $M_{\text{unimodal}} = 2.84$  ( $SD = 0.52$ );  $t(70) = -0.66$ ,  $p = 0.51$ ). This variable does not influence the results of either condition.<sup>1</sup>

Attitudes towards fruit and vegetables were compared across the two conditions. Children in the bimodal condition show significantly more positive attitudes towards fruit and vegetables ( $M_{\text{bimodal}} = 3.37$  (0.62),  $M_{\text{unimodal}} = 2.87$  (0.43);  $t(70) = -3.90$ ;  $p < 0.0001$ ). Furthermore, there is a significant main effect of the type of placement on the attitude towards fruit and vegetables ( $t(70) = -3.90$ ,  $p < 0.0001$ ,  $\beta = 0.44$ ;  $R^2 = 0.22$ ).

From the same perspective, children are nearly three times (71.4%) more likely to select a healthy snack in the bimodal condition than in the unimodal condition (28.6%) ( $\chi^2(1) = 6.18$ ,  $p = 0.001$ ). Hypotheses 1 and 1b are thus confirmed.

<sup>1</sup> As an alternative method to control for the potential influence of attitude towards the scene, the variable was introduced in all tests; these analyses yielded similar findings. For the sake of parsimony, we report only the analyses without the control variable.



To test the hypothesis related to the persuasion process, a mediation analysis was conducted on our data. Our objective was to assess the mediating role of attitude towards healthy eaters in the process. First, a binary logistic regression was run with food choices as the dependent variable and the modality of placement (or condition) as the independent variable. There is a significant effect of product placement on intentions to consume fruit or fruit salad (Condition = Wald's  $\chi^2 = 9.84$ ,  $p = 0.002$ ; Overall model =  $-2LL = 80.60$ ). There is also a main effect of the type of modality on attitudes towards healthy eaters ( $t(1) = 3.83$ ,  $p < 0.001$ ,  $\beta = 0.42$ ,  $R^2 = 0.17$ ). Children in the bimodal condition evaluate healthy eaters more positively than do children in the unimodal condition ( $M_{\text{bimodal}} = 3.10 (0.53)$ ,  $M_{\text{unimodal}} = 2.55 (0.67)$ ). Finally, a binary logistic regression was run with food choices as the dependent variable and the modality of placements/conditions and attitude towards healthy eaters as the independent variable. The findings support the hypothesis of total mediation through attitude towards healthy eaters as 'condition' is no longer significant (Attitude towards healthy eaters: Wald's  $\chi^2 = 5.67$ ,  $p = 0.017$ ; Condition = Wald's  $\chi^2 = 2.02$ ,  $p = 0.16$ ; Overall model =  $-2LL = 74.22$ ,  $p = 0.002$ ). Hypothesis 3 is thus confirmed.

## Discussion

For some time now, edutainment placements have been included in the storylines of television series (Pechmann & Wang 2008; Russell & Schau 2008). Because TV screenwriters have been willing to integrate social issues into their scenes (Kaplan & Folb 2013), popular programmes have discussed skin cancer prevention (*Beverly Hills 90210*), condom use to avoid unexpected pregnancies (*Friends*), and library attendance (*Happy Days*). Although producers' motivations are most likely more related to increasing the realism of their programmes than to solving social challenges, this trend represents an opportunity that social marketers should exploit, which is the intent of this study.

Accordingly, the first purpose of our research is to investigate the effectiveness of edutainment placement (i.e. such placements' influence on attitudes and intentions to behave) on an important but under-studied target: pre-adolescents. More specifically, the objective is to examine the factors of effectiveness of edutainment placement, such as its modalities. Recent research into brand placement in video games has shown that unimodal (visual) placements are more effective than bimodal (audio-visual) placements. Testing this view seems important in the framework of non-branded placement in media, such as TV shows, which are less interactive and, therefore, less cognitively demanding. An overreliance on previous findings – and wrongful assumptions that their conclusions are valid in every context – may be detrimental to the effectiveness of pro-social messages. Next, this study intends to provide a better understanding of the persuasion process at work, particularly with respect to the role of variables such as referent others and its influence on children's attitude towards 'similarly behaving others', whose influence may be considered specific to the age group of concern.

Our results demonstrate the capability of placement to educate. More specifically, we show the superiority of bimodal audio-visual over unimodal visual placements in influencing children's attitudes and behavioural intentions. Bimodal placement does not trigger the persuasion knowledge that is to be expected in branded placement, according to Hang (2012). On



the contrary, if bimodal placement does attract attention, as Hang suggests (2012), this seems to benefit our objectives. Children choose significantly more fruit or fruit salad after exposure to an audio-visual placement (bimodal) than after a visual placement alone (unimodal).

From a managerial perspective, these findings are, of course, substantially relevant for those who wish for edutainment placement to realise its greatest potential. Concretely, it indicates that screenwriters of popular programmes should be advised to use audio-visual supports, not those that are merely visual, when integrating healthy food consumption messages into their shows for pre-adolescents.

Furthermore, the study pinpoints the influence of edutainment placement on positive perceptions of healthy eaters. Although the importance of connectedness between characters and their audiences had previously been established (Russell & Stern 2006), this study shows that product placement influences an audience's liking of any individual behaving in a manner that is similar to the characters. Our findings further indicate that attitudes towards other healthy eaters are an essential dimension of the effectiveness of a product placement. Pre-adolescents understand and integrate the symbolic dimension of consumption and, to a certain extent, judge people on the basis of their consumption choices (Belk *et al.* 1982, 1984; Goldberg *et al.* 2003; also see Roedder John 2008). Pre-adolescents perceive the types of product they choose to consume as potentially influencing social status and prestige (Belk *et al.* 1982, 1984). Our findings indicate that, if popular characters in popular programmes consume healthy products (or have lifestyles in which healthy products play a role), children's perception of individuals consuming healthy products will be positively influenced. Eventually, this will have an impact on their willingness to eat healthily. This study therefore contributes to the understanding of the edutainment persuasion process, stressing again the central role of affect in pre-adolescents. Although it has previously been identified in traditional advertising (Derbaix & Brée 1997), affect is essential in this context because it transfers from admired TV characters to all 'real life' individuals presenting similar characteristics and, therefore, it transfers to similar behaviours also.

We nevertheless acknowledge that this study presents a number of limitations. First, the scenes selected for the experiment were not perfectly identical with respect to their characters, atmosphere and placements. For instance, in the dual-mode placement, two characters consumed, whereas the unimodal placement relied on a single character consuming. It cannot be excluded that this difference somewhat inflates our findings. Nevertheless, it is important to stress that the variable 'attitude towards the scenes' most certainly encompasses these differentiating factors and that, if there are variations, they seem to be neutralised because the overall attitudes towards the scenes do not differ across conditions. Therefore, it seems reasonable to state that this limitation does not strongly hinder our contribution.

Second, this study focuses on a limited number of variables, potentially moderating the effectiveness of edutainment placement. Due to the limited size of our sample in this study, we are not able to conclude on moderators such as age or gender, although they have been shown to be influential (van Reijmersdal *et al.* 2010; Waiguny *et al.* 2012). Furthermore, research on interactive media has stated that children with prior brand experience are influenced less by product placement (van Reijmersdal *et al.* 2010). Because there seems to be an agreement that children have prior experience with (and knowledge of) healthy food (Neeley



2007), and because children's prior experience actually seems to facilitate the mere exposure process in this study (Auty & Lewis 2004b), it would be relevant to further understand the role of this variable in our specific non-interactive, non-branded context. If we wish to effectively expand our findings to other pro-social issues, it seems that it would be important to know whether the setting of this study (non-branded, non-interactive) counterbalances the negative impact of prior experience or whether in all instances, edutainment should occur before children have their first experience with cigarettes or drugs. We realise that the lack of contribution on potential moderators limits the contribution of our work. We nevertheless hope that this introductory research and its encouraging – and managerially relevant – results will spark further pro-social initiatives.

Third, this research measures only the impact of exclusively healthy food messages on pre-adolescents by a limited excerpt from the show and for a short exposure time. Although the popularity of the programme – and the researcher's instructions – enable us to state that the videos were not mistaken for ads, other issues could arise. It may indeed be expected that, in a popular programme depicting the life of an entire suburb, both healthy and unhealthy foods will be consumed during the programme, given that 'virtually all programs include competing referent messages because they seek to educate in an entertaining way using positive and negative role models, drama and conflict' (Pechmann & Wang 2010). Thus, unfortunately, it seems that the effectiveness of entertainment–education messages may be mitigated by the presence of alternative messages. For instance, Russell and Schau (2008) showed that the presence of mixed alcohol messages had a negative impact on the effectiveness of positive messages. Consequently, to better grasp the full potential of edutainment placement from a perspective of ever-increasing effectiveness, this dimension should also be considered.

Finally, it should be stressed that this study was conducted in a cultural context in which a balanced diet is rooted in tradition to a greater extent than it may be in other cultures. Although our conclusions on modality and the persuasion model hold, this factor may well predispose children to respond more positively to pro-social placements of fruit and vegetables. Therefore, we also invite further research in the cross-cultural area.

Overall, as supporters of the cultivation paradigm suggest (Goldberg & Gunasti 2006; Russell *et al.* 2009), increasing the opportunities to expose viewers to healthy food and healthy consumers through edutainment may be a simple and effective technique to contribute to the fight against the obesity epidemic. In a context in which the physiological, psychological and economic consequences of obesity place considerable burdens on both its victims and society (Neumark-Sztainer *et al.* 1999; Ebbeling *et al.* 2002), we consider these results to be encouraging. We certainly hope that our results will elicit the necessary interest to trigger further investigations.

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## References

- An, S. & Stern, S. (2011) Mitigating the effects of advergames on children. *Journal of Advertising*, 40(1), 43–56.
- Auty, S. & Lewis, C. (2004a) The 'delicious paradox': preconscious processing of product placements by children. In L.J. Shrum (ed.) *The Psychology of Entertainment Media: Blurring the Lines Between Entertainment and Persuasion*. Mahwah, NJ: Lawrence Erlbaum, 117–133.
- Auty, S. & Lewis, C. (2004b) Exploring children's choice: the reminder effect of product placement. *Psychology & Marketing*, 21(9), 697–713.
- Bachmann Achenreiner, G. & Roedder John, D. (2003) The meaning of brand names to children: a developmental investigation. *Journal of Consumer Psychology*, 13(3), 205–219.
- Balasubramanian, S.K., Karrh, J.A. & Patwardhan, H. (2006) Audience response to product placements: an integrative framework and future research agenda. *Journal of Advertising*, 35(3), 115–141.
- Bandura, A. (1977) *Social Learning Theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Belk, R., Bahn, K.D. & Mayer, R.N. (1982) Developmental recognition of consumption symbolism. *Journal of Consumer Research*, 9(1), 4–17.
- Belk, R., Mayer, R. & Driscoll, A. (1984) Children's recognition of consumption symbolism in children's products. *Journal of Consumer Research*, 10(4), 386–397.
- Boesen-Mariani, S., Werle, C., Gavard-Perret, M.-L. & Vellera, C. (2008) Preventing youth obesity: effective means of promotion. Paper presented at the Latin American Advances in Consumer Research Conference (Association for Consumer Research), São Paulo, Brazil.
- Brehm, J.W. (1989) Psychological reactance: theory and applications. *Advances in Consumer Research*, 16, 72–75.
- Brucks, M., Armstrong, G.M. & Goldberg, M.E. (1988) Children's use of cognitive defenses against television advertising: a cognitive response approach. *Journal of Consumer Research*, 14(4), 471–482.
- Charry, K. & Demoulin, N.T.M. (2012) Behavioural evidence of the effectiveness of threat appeals in the promotion of healthy food to children. *International Journal of Advertising*, 31(4), 741–771.
- Charry, K. & Pecheux, C. (2011) Enfants et promotion de l'alimentation saine: étude de l'efficacité de l'utilisation de menaces en publicité. *Recherche et Applications en Marketing*, 26(2), 2–28.
- Cialdini, R.C. (2003) Crafting normative messages to protect the environment. *Current Directions in Psychological Science*, 12(4), 105–109.
- Collins, R.L., Elliott, M.N., Berry, S.H., Kanouse, D.E. & Hunter, S.B. (2003) Entertainment television as a healthy sex educator: the impact of condom-efficacy information in an episode of *Friends*. *Journal of Pediatrics*, 112(5), 1115–1121.
- Darmon, N. & Drewnowski, A. (2008) Does social class predict diet quality? *American Journal of Clinical Nutrition*, 87(5), 1107–1117.
- Derbaix, C. & Brée, J. (1997) The impact of children's affective reactions elicited by commercials on attitudes toward the advertisement and the brand. *International Journal of Research in Marketing*, 14, 207–229.
- Derbaix, C., Blondeau, S. & Pecheux, C.L. (1999) L'enfant et l'attitude envers l'annonce publicitaire: mise en oeuvre du construit et précisions conceptuelles. *Recherche et Applications en Marketing*, 14(3), 23–39.
- Doak, C., Heitmann, B.L., Summerbell, C. & Lissner, L. (2009) Prevention of childhood obesity – what type of evidence should we consider relevant? *Obesity Reviews*, 10, 350–356.
- Ebbeling, C.B., Pawlak, D.B. & Ludwig, D.S. (2002) Childhood obesity: public-health crisis, common sense cure. *The Lancet*, 360(9331), 473–482.
- Freeman, D. & Brucks, M. (2002) Drugs, alcohol, and tobacco use prevention efforts. Benefits and challenges of targeting young children. In J.R. Flemming Hansen, A. Martensen & B. Tufte (eds)



- Children: Consumption, Advertising and Media* (1st edn). Copenhagen: Copenhagen Business School Press, 243–252.
- Friestad, M. & Wright, P. (1994) The persuasion knowledge model: how people cope with persuasion attempts. *Journal of Consumer Research*, 21(1), 1–31.
- Gebner, G., Gross, L., Morgan, M., Signorielli, N. & Shanahan, J. (2002) Growing up with television: cultivation processes. In J. Bryant & D. Zillmann (eds) *Media Effects: Advances in Theory and Research*. Lawrence Erlbaum Associates, 43–67.
- Goldberg, M.E. & Gunasti, K. (2006) Creating an environment in which youths are encouraged to eat a healthier diet. *Journal of Public Policy and Marketing*, 26(2), 162–181.
- Goldberg, M.E., Gorn, G.J., Peracchio, L.A. & Bamossy, G. (2003) Understanding materialism among youth. *Journal of Consumer Psychology*, 13(3), 278–288.
- Grandpre, J., Alvaro, E.M., Burgoon, M., Miller, C.H. & Hall, J.R. (2003) Adolescent reactance and anti-smoking campaigns: a theoretical approach. *Health Communication*, 15(3), 349–366.
- Gupta, P.B. & Lord, K.R. (1998) Product placement in movies: the effect of prominence and mode on audience recall. *Journal of Current Issues & Research in Advertising* (CTC Press), 20(1), 47.
- Hang, H. (2012) The implicit influence of bimodal brand placement on children. *International Journal of Advertising*, 31(3), 465–484.
- Hang, H. & Auty, S. (2011) Children playing branded video games: the impact of interactivity on product placement effectiveness. *Journal of Consumer Psychology*, 21(1), 65–72.
- Hirschman, E.C. & Thompson, C.J. (1997) Why media matter: toward a richer understanding of consumers' relationships with advertising and mass media. *Journal of Advertising*, 26(1), 43–60.
- Hulshof, K.F.A.M., Brussaard, J.H., Kruizinga, A.G., Telman, J. & Lowik, M.R.H. (2003) Socio-economic status, dietary intake and 10 trends: the Dutch National Food Consumption Survey. *European Journal of Clinical Nutrition*, 57(1), 128–137.
- Kahle, L.R. & Homer, P. (1985) Physical attractiveness of the celebrity endorser: a social adaptation perspective. *Journal of Consumer Research*, 11(4), 954–961.
- Kaplan, M. & Folb, K. (2013) *Hollywood, Health and Society. Entertainment Education for Television, Movies and New Media*. South California: Norman Lear Center at the USC Anneberg.
- Kelly, B., Halford, J.C.G., Boyland, E.J., Chapman, K., Bautista-Castaño, I., Berg, C., Caroli, M., Cook, B., Coutinho, J.G. *et al.* (2010) Television food advertising to children: a global perspective. *American Journal of Public Health*, 100(9), 1730–1736.
- Law, S. & Braun, K.A. (2000) I'll have what she's having: gauging the impact of product placements on viewers. *Psychology & Marketing*, 17(12), 1059–1075.
- LeBlanc Wicks, J., Warren, R., Fosu, I. & Wicks, R.H. (2009) Dual-modality disclaimers, emotional appeals, and production techniques in food advertising airing during programs rated for children. *Journal of Advertising*, 38(4), 93–105.
- Lee, M., Choi, Y., Quilliam, E.T. & Cole, R.T. (2009) Playing with food: content analysis of food advergames. *Journal of Consumer Affairs*, 43(1), 129–154.
- Livingstone, S. & Helsper, E.J. (2006) Does advertising literacy mediate the effects of advertising on children? A critical examination of two linked research literatures in relation to obesity and food choice. *Journal of Communication*, 56(3), 560–584.
- Mallinckrodt, V. & Mizerski, D. (2007) The effects of playing an advergame on young children's perceptions, preferences and requests. *Journal of Advertising*, 36(2), 87–100.
- Mantonakis, A., Whittlesea, B.W.A. & Yoon, C. (2008) Consumer memory, fluency and familiarity. In C.P. Haugtvedt, P.M. Herr & F.R. Kardes (eds) *Handbook of Consumer Psychology*. New York: Taylor & Francis Group, LLC.
- Matthes, J., Schemer, C. & Wirth, W. (2007) More than meets the eye. *International Journal of Advertising*, 26(4), 477–503.
- McNeal, J.U. (1992) *Kids as Customers: A Handbook of Marketing to Children*. New York: Lexington Books.
- Mizerski, R. (1995) The relationship between cartoon trade character recognition and attitude toward product category. *Journal of Marketing*, 59(4), 58.



- Moore, E.S. & Lutz, R.J. (2000) Children, advertising, and product experiences: a multimethod inquiry. *Journal of Consumer Research*, 27(1), 31–48.
- Neeley, S.M. (2007) Children's nutritional understanding: levels of knowledge and sources of influence. In K.M. Ekström & B. Tufte (eds) *Children, Media and Consumption: On the Front Edge*. Göteborg: International Clearinghouse on Children, Youth and Media, 259–272.
- Neumark-Sztainer, D., Story, M. & Harris, T. (1999) Beliefs and attitudes about obesity among teachers and school health care providers working with adolescents. *Journal of Nutrition Education*, 3(1), 3–9.
- Noom, M.J., Dekovi, M. & Meeus, W. (2001) Conceptual analysis and measurement of adolescent autonomy. *Journal of Youth and Adolescence*, 30(5), 577–594.
- OECD (2013) *Obesity Update 2012*. OECD.
- Ogden, C.L., Carroll, M.D., Curtin, L.R., Lamn, M.M. & Flegal, K.M. (2010) Prevalence of high body mass index in US children and adolescents, 2007–2008. *Journal of the American Medical Association*, 303(3), 242–249.
- Paivio, A. (1979) *Imagery and Verbal Processes*. Hillsdale, NJ: Lawrence Erlbaum.
- Palan, K.M., Gentina, E. & Muratore, I. (2010) Adolescent consumption autonomy: a cross-cultural examination. *Journal of Business Research*, 63(12), 1342–1348.
- Pecheux, C. & Derbaix, C. (1999) Children and attitude towards the brand: a new measurement scale. *Journal of Advertising Research*, 39(4), 19–27.
- Pechmann, C. & Shih, C.-F. (1999) Smoking scenes in movies and antismoking advertisements before movies: effects on youth. *Journal of Marketing*, 63(July), 1–13.
- Pechmann, C. & Wang, L. (2006) An experimental investigation of an entertainment education television show about adolescents smoking: effects on norms and intent. Unpublished manuscript, Stanford Graduate School of Business, Stanford, CA.
- Pechmann, C. & Wang, L. (2008) The use of entertainment education to deter youth smoking: does balance, transformation, and a public service announcement epilogue help or hurt? Paper presented at the Advances in Consumer Research Conference (Association for Consumer Research), Memphis, TN.
- Pechmann, C. & Wang, L. (2010) Effects of indirectly and directly competing reference group messages and persuasion knowledge: implications for educational placements. *Journal of Marketing Research*, 47(1), 134–145.
- Peracchio, L. & Mita, C. (1991) Designing research to assess children's comprehension of marketing messages. In R.H. Holman & M.R. Solomon (eds) *Advances in Consumer Research* (Vol. 18). Provo, UT.
- Phelps, J.E. & Hoy, M.G. (1996) The Aad–Ab–PI relationship in children: the impact of brand familiarity and measurement timing. *Psychology & Marketing*, 13(1), 77–106.
- Roedder John, D. (1999) Consumer socialization of children: a retrospective look at twenty-five years of research. *Journal of Consumer Research*, 26(3), 183–213.
- Roedder John, D. (2008) Stages of consumer socialization: the development of consumer knowledge, skills, and values from childhood to adolescence. In C.P. Haugtvedt, P.M. Herr & F.R. Kardes (eds) *Handbook of Consumer Psychology*. New York: Taylor & Francis Group, LLC, 221–246.
- Rose, R.L., Bearden, B. & Manning, K.C. (2001) Attributions and conformity in illicit consumption: the mediating role of group attractiveness. *Journal of Public Policy & Marketing*, 20(Spring), 84–92.
- Russell, C.A. (1998) Toward a framework of product placement: theoretical propositions. Paper presented at the Advances in Consumer Research Conference (Association for Consumer Research), Provo, UT.
- Russell, C.A. (2002) Investigating the effectiveness of product placements in television shows: the role of modality and plot connection congruence on brand memory and attitude. *Journal of Consumer Research*, 29(3), 306–318.
- Russell, C.A. & Puto, C.P. (1999) Rethinking television audience measures: an exploration into the construct of audience connectedness. *Marketing Letters*, 10(4), 393–407.



- Russell, C.A. & Schau, H. (2008) Mixed alcohol messages in television series: product placement meets edutainment. Paper presented at the Advances in Consumer Research Conference (Association for Consumer Research), Memphis, TN.
- Russell, C.A. & Stern, B.B. (2006) Consumers, characters, and products: a balance model of sitcom product placement effects. *Journal of Advertising*, 35(1), 7–21.
- Russell, C.A., Russell, D.W. & Grube, J.W. (2009) Nature and impact of alcohol messages in youth-oriented television series. *Journal of Advertising*, 38(3), 97–111.
- Rust, L. & Hyatt, C. (1991) Qualitative and quantitative approaches to child research. Paper presented at the Advances in Consumer Research Conference (Association for Consumer Research), New York, NY.
- Sharpe, K.M., Staelin, R. & Huber, J. (2008) Using extremeness aversion to fight obesity: policy implications of context dependent demand. *Journal of Consumer Research*, 35(3), 406–422.
- Stice, E., Shaw, H. & Marti, N.C. (2006) A meta-analytic review of obesity prevention programs for children and adolescents: the skinny on interventions that work. *Psychological Bulletin*, 132(5), 667–691.
- Valkenburg, P.M. & Cantor, J. (2001) The development of a child into a consumer. *Journal of Applied Developmental Psychology*, 22(1), 61–72.
- van Reijmersdal, E., Neijens, P. & Smit, E.G. (2009) A new branch of advertising. *Journal of Advertising Research*, 49(4), 429–449.
- van Reijmersdal, E., Rozendaal, E. & Buijzen, M. (2012a) *Integrating Advertising and Editorial Content in Magazines: Effects on Children's Persuasion Knowledge and Brand Attitudes*. Lisbon: EMAC.
- van Reijmersdal, E.A., Rozendaal, E. & Buijzen, M. (2012b) Effects of prominence, involvement, and persuasion knowledge on children's cognitive and affective responses to advergames. *Journal of Interactive Marketing*, 26(1), 33–42.
- van Reijmersdal, E.A., Jansz, J., Peters, O. & van Noort, G. (2010) The effects of interactive brand placements in online games on children's cognitive, affective, and conative brand responses. *Computers in Human Behavior*, 26(6), 1787–1794.
- Waiguny, M.K.J., Nelson, M.R. & Terlutter, R. (2012) Entertainment matters! The relationship between challenge and persuasiveness of an advergame for children. *Journal of Marketing Communications*, 18(1), 69–89.
- WHO (2010) Set of recommendations on the marketing of foods and non-alcoholic beverages to children. Geneva: World Health Organization.
- Zajonc, R.B. (1968) Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology*, 9, 1–27.

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