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**Corporate Social Responsibility in Advergames:  
Adjusting Communication to the Kids of Today**  
Effects on Brand Reputation, Brand Identification, Brand  
Preferences and Purchase Intention

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## **ABSTRACT**

This research aims to understand the impact of Corporate Social Responsibility (CSR) initiatives, in particular on the topic of environment, through advergames directed to children. The experiment measures the impact on the brand dimensions, and also on children's attitude towards the environment; with brand familiarity and cause-brand fit as moderators. A total of 124 children aged 7 to 9 years participated in the experiment and were randomly assigned to one of three groups. In two of the groups children either played the game "Save the Planet" or a similar game not related to the environment. A third group did not play any game, only answered a structured questionnaire concerning all four advertised brands. Results showed no significant differences of playing a CSR advergame, except for unfamiliar brands perceived as healthy, where it can reduce the difference in scores between familiar and unfamiliar brands. Overall, playing a game, no matter the topic of the game, had a positive impact on the brand's dimensions, which was stronger for unfamiliar brands; leading to a competitive advantage over other competing brands with no advergame.

**Keywords:** Corporate Social Responsibility (CSR), Advergames, Children, Environment, Brand Familiarity, Cause-Brand Fit

## **INTRODUCTION**

Today, consumers value more companies that are socially responsible, pressuring them to behave accordingly through selective purchasing decisions (Nielsen, 2014; Page & Fearn, 2005). As a result, over the past years an increasing number of firms have been investing in Corporate Social Responsibility (CSR) initiatives.

For firms within the food market, children are a very attractive target, once they are influencers, current and future consumers (McNeal, 1992), but is not obvious how likely children prefer a brand because of its CSR initiatives. The few studies available on the impact of CSR on Children are ambiguous. One study with traditional advertising on CSR (Lemos, 2014) revealed no impact of CSR claims on children's attitudes and behaviors. On the other hand, other studies, which used education sessions on CSR (Ferreira, 2013; Carrilha, 2014), found that it improved eating preferences, but the impact on brand reputation, identification and image was not always positive. However, another study also using an education session on environment (Pais, 2012) refers to a positive impact on brand reputation and identification, but no reference to brand preference neither purchasing intent.

To communicate with children, firms are increasingly using digital media as a growing number of children has access to internet (EU Kids Online Network, 2012). Most brands have their own website with several brand-related content available, such as advergames, TV ads, media tie-ins, website communities, and educational content (also called "Advercation") (Moore, 2006).

Advergames are online video games with clear emphasis on entertainment and brand reinforcement; they have "the ability to draw attention to your brand in a playful way, and for an extended period of time" (Moore, 2006: p. 5). Most of the advergames focus on brand benefit claims, such as taste, packaging, new flavors, fun and feelings (Moore, 2006); and it is

not common to use this format to “Advercate”, i.e., to inform about the origin of a brand ingredient, the manufacturing process or the company’s best practices.

In particular, food brands typically promote nutritional information, given the direct association with the product. Nevertheless, promoting CSR can be a source of differentiation from competition (McElhane, 2009).

## **LITERATURE REVIEW**

### **Corporate Social Responsibility**

Corporate Social Responsibility (CSR) can be defined in many ways. The European Commission (2011: p. 2) defined it as a “concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis.” Environmental concerns include waste and energy management, pollution, ecological degradation, plus management and conservation of natural resources (Wilson, 2010).

In fact, consumers prefer to buy from a company that actively helps people or the environment (Smith & Alexander, 2013), when efforts are not perceived as stakeholder-driver or egoistic and under positive performance scenarios (Nyilasy et al., 2014). A global study by Nielsen (2014), revealed that fifty-five percent of online consumers do not mind to spend a little more for products and services of companies committed to have a positive impact. From those, fifty-one percent were Millennials (age 21-34).

As a result, many companies have been investing in CSR. Hult (2011) mentions the possibility of CSR becoming a common denominator among every organization. In 2011, 95% of the 250 largest global companies issued CSR reports (KPMG, 2011). Plus, an increasing number of Fortune 500 companies refers to CSR on their website, with 80% of them using the headline “Environment” (Smith & Alexander, 2013).

Although studies have shown the positive impact of social initiatives in companies' financial performance (Stanwick & Stanwick, 1998), several firms are struggling to find the best way to communicate their CSR best practices (Rogers, 2013). Previous studies revealed that consumers are unaware that most companies support social or environmental causes (Du et al., 2007). To maximize ROI and its sustainability, it is crucial to increase public awareness of a firm's CSR performance, mainly through word-of-mouth (Reputation Institute, 2014). Actually, the most successful firms not only actively communicate in a genuine and authentic way, as their initiatives reflect the corporate's culture and heritage (Reputation Institute, 2014).

### **Why Children?**

Children's market is very attractive due to its great potential to generate sales in a short and long term. According to McNeal (1992) children comprise three markets into one: (1) Primary market, in which they buy products with their own income; (2) Influence Market, as influencers in their parents purchase decisions; moreover, the more knowledge a child has regarding a product, the higher will be the influence (Thomson et al., 2007); and (3) Future market, as they will be future consumers with an expected higher purchasing power. Hence, even brands with an adult target begin to cultivate a long-term relationship with today's children.

Literature shows that children understand the "psychological world in terms of motives, feeling and intentions and also of moral rules" (Kurtines & Gewirtz, 1991: p. 100). According to Keller and Edelstein (1991) in the naive theory of social action and responsibility, a conception of what is right or wrong emerges around 7 years old. At this level children realize the existence of different opinions and motives, and anticipate the consequences of their choices.

Accordingly, Lindstrom and Seybold (2009) refer to the tweens generation (aged 8 to 14 years old) as a generation with a good understanding of today's economic world, which questions things that do not feel right. An article published in NewsUSA (2009) revealed that ninety-two percent of tweens between 11 and 13 years old said to be "very concerned" or "somewhat concerned" about the environment. However, the few available research on CSR targeted to children, revealed minor impact on brands promoting CSR (Pais, 2012; Ferreira, 2013; Carrilha, 2014; Lemos, 2014).

A possible reason for this inconsistency can be explained by unadjusted communication. The problem might not be the message itself but the format or media in which it is transmitted. Nowadays, kids expect to have a two-way communication and look forward to choose "what they learn, when they learn it, where, and how" (Tapscott, 2009: p. 126). Besides interesting, it also has to be fun (Tapscott, 2009). In this sense, interactive media might be more effective in promoting CSR than traditional media. Interactive media can be "a meaningful, authentic, and interesting exchange, conversation or transaction" between the consumer and brand (Wagler, 2013: p. 121); that provides the brand with the possibility to communicate a story in a less interruptive way (Wagler, 2013).

### **Advergimes**

Advergimes are a form of interactive media; they are games in which brand messages are communicated in a more interactive, colorful and fun way; providing a more involving and entertaining brand experience (Moore, 2006).

According to EU Kids Online Network (2012), in Europe about 60% of kids aged between 9 and 16 years old have access to internet, and 83% of them use it to play games. And the use of internet by children under 9 years old has been increasing (Childwise, 2014).

Among 77 websites in Moore's study (2006), 73% included at least one advergime. In the US, the advergaming market was projected to reach \$68 billion by 2012 (Kanth, 2010).

Advergaming has caught companies' attention because of its capability of transmitting the brand's message in a more interesting way, and keep children's attention for a longer period of time, when compared with a 30-second TV ad (Moore, 2006). Children prefer moving pictures to still pictures, and "pictures of any kind are much better than words" (Wells, 1965: p. 14). Besides, unlike TV commercials, advergaming allows players to interact with the content in the game environment; adding the possibility of learning about the brand or product while playing (Cicchirillo & Lin, 2011). Previous studies suggest that interactivity and attitude towards the game have a positive effect on attitude towards the brand, followed by purchase intention (Goh & Ping, 2014).

Advergaming has generated a lot of discussion about whether they are ethical or not, once children may not understand and critically evaluate their intent (Moore, 2006). Nairn (2009: p. 4) referred to three features of digital marketing techniques that must be considered in implicit persuasion mechanisms: (1) children have difficulty in distinguish what is to persuade and what is to entertain; (2) in an interactive environment the brand is associated to rewarding stimuli; and (3) "repeated exposure to the stimuli is effectively limitless" due to unlimited time of exposure.

Nonetheless, the greater persuasion of advergaming can be used to promote brand CSR initiatives while educating kids towards environment (Federation of American Scientist, 2006). According with the cultivation theory, it is possible to shape consumers views to the world around them in case of repeated exposure to certain media (Morgan et al., 2009). Thus, promoting responsible environmental practices via advergaming and through repeated exposure may influence children's views and ultimately behaviors towards environment protection.

***H1** CSR Advergaming have a positive effect on Attitude towards Environment*



## **The effect of CSR Advergames on Brand Reputation**

Reputation is defined by Post and Griffin (1997) as a synthesis of the stakeholders' perceptions, opinions and attitudes towards the organization. It is linked to how ethically or unethically the organization is perceived (Brunk, 2010). Brand reputation provides a competitive advantage, once the company is seen as "reliable, credible, trustworthy and responsible" (Mullerat, 2010: p. 106); especially nowadays with easy access to information and greater transparency.

According to the Reputation Institute (2014), the emotional bond created between the stakeholders and the company (or brand) is based on seven key dimensions: leadership, performance, products and services, innovation, citizenship, governance and workplace; being the last three representative of CSR. Citizenship regards the support of good causes, positive impact in society and in the environment; Governance describes how ethical, open and transparent it is; and finally, the workplace refers to the employees' well-being.

Although good reputation is no guarantee of success, it is difficult to build strong brands with poor corporate reputation (Page & Fearn, 2005). Brands with better reputation are more able to foster consumers' support, who trust the company in difficult times and are more willing to buy and recommend the brand products. Those behaviors are 60% driven by the perceptions consumer has of the company and 40% of the products or services it sells (Reputation Institute, 2014). Surprisingly, 42% of how people feel about a firm is a result of their perceptions of the company's CSR commitment (Smith, 2013).

*H2 CSR Advergames have a positive effect on Brand Reputation*

## **The effect of CSR Advergames on Brand Identification**

CSR influences customers' affective responses such as identification, emotions and satisfaction (Pérez & Bosque, 2014). Brand identification can be explained as a committed, deep and meaningful relationship between a brand and the consumer (Bhattacharya & Sen,

2003). The consumer who identifies with the brand values will use it as a source of self-definition, causing a greater engagement with the brand that generates positive word of mouth (Tuškej et al., 2013).

Tapscott in “Grown up digital” (Tapscott, 2009) refers to “The Eight Net Gen Norms” which differentiate the Net generation from older generations. They are: freedom, customization, scrutiny, integrity, collaboration, entertainment, speed and innovation. In fact, advergaming can be seen as a good communication tool, once they apply to Tapscott norms.

*H3 CSR Advergaming have a positive effect on Brand Identification*

### **The effect of CSR Advergame on Brand Preferences**

From middle to late childhood children form a good understanding of symbolic meaning and status associated to products and brands, and from 7 years old on they develop preferences for particular brands, even when products are quite similar (John, 1999). Brand preferences are closely related with brand choice and activate brand purchase. They are affected by social influences, cognitive and emotional responses (Ebrahim, 2011). In particular, emotions are easily evoked when children play an advergame.

*H4 CSR Advergaming have a positive effect on Brand Preference*

### **The effect of CSR Advergaming on Purchase Intention**

Purchase intention it is considered an effective tool to predict the purchase decision (Ghosh, 1990), although it might be altered by internal impulse and external environment during the purchasing process (Kim & Jin, 2001).

*H5 CSR Advergaming have a positive effect on Purchase Intention*

### **The Moderator Role of Cause-Brand Fit**

Perceived cause-brand fit denotes to “consumers’ perceptions of fit between a cause and the brand” (Lafferty, 2007: p. 447). In the advergame context, it is “the extent to which the advergame matches with the theme or image of the advertised brand” (Goh & Ping, 2014: p.

392). It is still not clear its influence on brands effects. Many researchers refer to a positive relationship between cause-brand fit and attitude towards the brand (Nan & Heo, 2007; Alcañiz et al., 2011); though, Lafferty (2007) mentioned it as not sufficient to influence consumers' perceptions and purchase intent.

Overall, the use of advergimes to transmit the message would cause high-fit to be better perceived within the game dynamics and story; therefore, the effect on brand reputation, identification and preferences is expected to be stronger.

***H1a/2a/3a/4a/5a** CSR Advergame has a stronger effect on Attitude towards environment / Reputation / Identification / Preferences / Purchase Intention when high fit is perceived*

### **The Moderator Role of Brand Familiarity**

Brand familiarity can be defined as “the number of product related experiences that have been accumulated by the consumer” (Alba & Hutchinson, 1987: p. 441). Familiarity with a brand leads to differences in processed information and brand evaluation (Alba & Hutchinson, 1987), since the more familiar it is, more easily memory is accessed (Lafferty et. al, 2004).

The tween generation (aged 8-14) is the most brand-conscious till now (Lindstrom & Seybold, 2009); brands are part of a child's familiar environment, and they speak much more about “brands” than “products” (Pecheux & Derbaix, 1999). A former brand connection may lead to smaller differential effects in brand reputation, identification and purchase intention, once children's opinions are already well established, contrarily to non-familiar brands. Regarding preferences, studies have shown a positive correlation between brand preferences and familiar brands (Monroe, 1976).

***H1b/2b/3b/4b/5b** CSR Advergame has a stronger effect on Attitude towards Environment / Reputation / Identification / Preferences and Purchase Intention for less familiar brands*

## METHODOLOGY

A sample of 124 children aged 7 to 9 years old was collected, from one private school and five study centers, within Lisbon district. At this age range participants were in the same cognitive stage of development (John, 1999).

The sample was split into an experimental group and two control groups. For this study, two similar adventure games were created by the author. Participants in the experimental group played the game “Save the Planet”. The control group 1 played the game “*Smile Game*”, similar but not related to the environment. Children were randomly assigned to one of the games, guaranteeing homogeneity across all groups, and after playing the game asked to answer a structured questionnaire [Appendix 1]. The control group 2, composed by 20 participants, did not play a game, only answered a questionnaire concerning the four brands promoted in the games.

Experimental Group ("Save the Planet")	Low Cause-Brand Fit Potato Chips brands	High Cause-Brand Fit Milk brands	Control Group 1 ("Smile Game")
Familiar Brand	Ruffles	Mimosa	Familiar Brand
Non-Familiar Brand	Super Douradas	Mu-Mu	Non-Familiar Brand

Table 1- Brands present in the experiment

Anonymity was guaranteed and participants were informed about the non-existence of right or wrong answers (Podsakoff et al, 2003). According with UNICEF 2002 standards, only children with the parent’s authorization participated in the study [Appendix 1]. Children’s rights of deciding not to participate in the study and quit at any time were respected. At the beginning, participants were informed that the brand was behind the research; and afterwards elucidated about the non-involvement of any brand.

### Pre-tests

Two pre-tests were necessary to understand the game suitability for the age range, correct possible errors and to choose the brands promoted in the game. For the first pre-test 4 kids

played the game for 5 minutes. In the second pre-test [Appendix 2], 19 participants were asked to select the brands they knew and write the name of their favorite for each category (milk, yogurts, potato chips and sodas). To access the level of cause-brand fit, a 5 Likert-scale was used with smiley faces for each question. The results indicated that healthier brands were perceived as being more related with environmental causes in contrast with unhealthier brands ( $p=.000$ ). Milk brands had the highest rate of cause-brand fit ( $\bar{X} \approx 3,79$ ) and potato chips the lowest fit ( $\bar{X} \approx 2,30$ ). Mimosa and Ruffles showed high levels of awareness and were the second most preferred brands, on the contrary Mu-Mu and Super Douradas were the less preferred and recognized brands. The final list of brands is presented in Table 1.

### Games

For each of the two games, four versions were created by replacing the logo and package image correspondent to the brand. The objective of the games was to reach the final goal without dying. For the game “Save the Planet” this was only possible if the player grabbed the trees while



Figure 1- "Save the Planet" and "Smile Game"

managing to escape from hummers and garbage falling from the sky. In the menu the game character, “Smile”, asks the player to save the Planet together with the brand [Appendix 3]. Feedback is considered to be a two-way communication that increases the level of interactivity within the game (Goh & Ping, 2014), and was given when the player did game over and won. The “Smile Game” differed on three ways: 1) the mountains color, from green to orange, color not associated to environment (Wright, 2008); 2) the game objects, instead the player grabbed coins and escaped from bombs; 3) the messages, which were adapted by replacing the words “Planet” and “Trees” for “Smile” and “Coins”.

The logo (always present) and the package (in the menu and at the goal line) served as identifiers and were drawn to capture children’s attention, so that they more easily recognized and remembered the brand (Moore, 2006). Difficulty was added as the player advanced through the game with more and faster killing objects; and a time limit of 5 minutes to reach the goal was imposed in order to sustain the child’s interest in the game (Moore, 2006). The 5 minutes duration is also considered to be enough to engage their attention (Mallinckrodt & Mizerski, 2007).

### Questionnaire

The questionnaire, was mostly based on the 5 Likert-scale combined with a Visual Analog Scale (VAS) [Appendix 4]. Through the Likert-scale is possible to capture children’s feelings intensity (Burns & Bush, 2003), from totally disagree to totally agree. On the other hand, VAS tries to measure an “attitude that is believed to range across a continuum of values and cannot easily be directly measured” (Gould, 2001: p. 706), facilitating the scale interpretation. Each questionnaire took between 5 to 7 minutes to be answered.

### Measures

Attitude Towards the Environment	Informative Role
Environment (Nature) protection is a topic I like	Brand x worries about protecting the Planet trees
Environment protection is very important	Brand x worries about reducing the Planet trash
Social Responsibility	Brand x worried about saving the Planet
I worry a lot about the environment	
I make an effort to recycle everything I can	

Table 2 - Questions for Attitude TE, Social Responsibility and Informative Role

Attitude towards the environment and social responsibility was measured based on Phelps and Hoy (1996) and Youn and Kim (2008). In addition, four questions, presented in Table 2, tested for the informative role of the game, i.e., understand if the game could inform children about the brand CSR initiatives, by associating the game history to the actual brand.

Brand Reputation	Brand Identification
Brand x is an honest brand (tells always the truth)	People similar to me use Brand x
Brand x is a brand I can trust	Brand x reflects who I am
My family and friends consider Brand x to be a good brand	If Brand x was a person we would be similar
Brand x is better than similar brands	If Brand x was a person, would be my friend

Table 3 - Questions for Brand Reputation and Identification

In order to measure brand reputation, both Stanaland et al. (2011) and Selnes (1993) studies were considered. The participants were asked whether they consider the brand to be honest and a brand they can trust, and to compare with similar brands, where “to be a good brand” refers to reputation and similar brands to competitors, in an effort to adapt the questionnaire’s language to children (Pais, 2012).

The statements used to measure brand identification were based on self-image congruence method of Sirgy et al. (1997). Once kids choose friends based on similarity, was added a question on whether the brand would be their friend (Haselager et al., 1998). Questions for both brand reputation and identification are presented in Table 3.

To access brand preferences children in both experimental and control group were presented with images of the brand package among competing brands, and asked to choose which they prefer and like the less, as well as the one they would eat or drink first<sup>1</sup>. Participants were also asked to choose the product they would leave to last, however this question was not considered in the results, because it was not obvious whether participants would leave for last the less preferred or the most preferred (Cronbach’s  $\alpha = 0.663 > 0.688$  item deleted) [Appendix 5].

In order to access purchase intention, children had to mark the product they would buy first and the one they wouldn’t buy; a method used before by Mallinckrodt and Mizerski (2007).

## **RESULTS**

This study was conducted with 124 participants equally distributed by gender (52.7% females), group (25% no game, 27.8% Save the Planet and 26% Smile Game) and brand (29.3% Mimosa, 21.7% Mu-Mu, 22.8% Ruffles, 26.1% Super Douradas) [Appendix 6]. The

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<sup>1</sup> Preferences with ordinal numbers between -1 and 2. “I prefer” and “I would eat first” questions added +1 point each, and “I like the less” -1 point. Purchase intention took ordinal numbers between -1 and 1. “I would buy” added +1 point and “I wouldn’t buy” -1 point. In both cases, zero points were considered when no reference to the brand was made.

level of game enjoyment was high for both games [Appendix7] and the different levels of brand awareness between brands confirmed the pre-test results [Appendix 8].

**Hypothesis 1, 2, 3, 4 and 5:** Brand Reputation was significantly higher for those who played the game with no CSR content ( $p=0.071$ ,  $\alpha < 0.10$ ), because they trusted more the brand ( $p=0.06$ ), contradicting hypothesis 2. Overall, results show that there is no significant effect of a CSR advergaming on attitude towards environment (H1), brand identification (H3), neither on preferences (H4) and purchase intention (H5) [Appendix9]. Even though, when gender differences are considered, purchase intention was slightly higher for male who played the game Save the Planet ( $p=0.057$ ,  $\alpha < 0.10$ ). Female had no significant differences between games; and purchase intention was significantly higher than male, with the Smile game ( $p=0.053$ ,  $\alpha < 0.10$ ) [Appendix 9, t6], given that male had low purchase intention when the Smile game was played.

**Hypothesis 1a/b, 2a/b, 3a/b, 4a/b and 5a/b:** Looking at each brand individually, there were no significant differences when the CSR advergaming was played [Appendix 10]. In fact, the prior difference in brand reputation was only significant for the unfamiliar chips' brand, Super Douradas, that had a significant increase in reputation ( $p=0.002$ ) and identification ( $p = 0.092$ ,  $\alpha < 0.10$ ), for those who played the Smile game ( $p=0.002$ ).

### **Informative Role**

Although the game could not influence the attitude towards environment, it could be an importance source of brand information. Milk brands were perceived as worrying more about the Planet trees protection ( $p=0.001$ ), reducing Planet trash ( $p=0.008$ ), and saving the Planet ( $p=0.045$ ), regardless of the game ( $p=0.311$ ). Results confirm the greater fit between the topic of environment and milk brands [Appendix 11]. Additionally, informative role was higher for the brand in the game than for the brand not promoted in the game ( $p=.000$ ), no matter which game was played.



## Effect of playing a game

Participants who played a game attributed significantly higher scores to the advertised brand [Appendix 12]. The impact was stronger for unfamiliar brands, which had significant differences for all variables and larger size effects. Still, disparity between milk brands scores was higher, than for chips brands. Mu-Mu had significant differences for all variables, contrarily to Mimosa which had no significant difference in brand reputation ( $p=0.203$ ). Mu-Mu size effects were larger than Mimosa for preferences ( $V_{\text{cramerMuMu}} = 0.686$ ,  $V_{\text{cramerMimosa}} = 0.380$ ) and purchase intention ( $V_{\text{cramerMuMu}} = 0.667$ ,  $V_{\text{cramerMimosa}} = 0.650$ ). As for chips brands, both had significantly higher scores with the game, in all brand dimensions, still the effect size was larger for Super Douradas in preferences ( $V_{\text{cramerSuperD}} = 0.450$ ,  $V_{\text{cramerRuffles}} = 0.416$ ) and purchase intention ( $V_{\text{cramerSuperD}} = 0.573$ ,  $V_{\text{cramerRuffles}} = 0.486$ ).

Regarding age differences, brand reputation and identification increased significantly with the game on all ages [Appendix 12, t4]. The impact in preferences, due to the game play, was stronger for those with 8 and 9 years old. Purchase intention had a significant increase for all ages, but for those who played the game, children with 9 years old had significantly higher scores than children with 7 years old ( $p= 0.098$ ).

## Gap between familiar and unfamiliar brands scores

	Reputation			Identification			Preferences <sup>a</sup>			Purchase Intention <sup>b</sup>		
	No Game	Game	\Delta	No Game	Game	\Delta	No Game	Game	\Delta	No Game	Game	\Delta
Mimosa	4.45	4.63	0.18	3.68	4.28	0.60	0.80	1.35	0.55	0.20	0.68	0.48
Mu-Mu	3.09	4.28	1.19	2.79	4.00	1.21	- 0.60	0.5	1.10	- 0.60	0.35	0.95
Sig.	✓*	✓**		✓*	×		✓*	✓*		✓*	✓*	
Ruffles	3.59	4.44	0.85	3.31	4.34	1.03	1.20	1.73	0.53	0.55	0.86	0.31
Super D.	2.80	3.69	0.89	2.83	3.63	0.80	- 0.35	0.36	0.71	- 0.60	0.18	0.78
Sig.	✓*	✓*		×	✓*		✓*	✓*		✓*	✓*	
	Save the Planet	Smile Game	\Delta	Save the Planet	Smile Game	\Delta	Save the Planet	Smile Game	\Delta	Save the Planet	Smile Game	\Delta
Mimosa	4.58	4.69	0.11	4.36	4.19	0.17	1.44	1.25	0.19	0.72	0.63	0.09
Mu-Mu	4.34	4.19	0.15	4.05	3.94	0.11	0.55	0.44	0.11	0.55	0.11	0.44
Sig.	×	✓*		×	×		✓*	×		×	✓*	
Ruffles	4.48	4.42	0.06	4.48	4.19	0.29	1.70	1.75	0.05	0.90	0.83	0.07
Super D.	3.18	4.27	1.09	3.35	3.94	0.59	0.33	0.38	0.05	0.20	0.15	0.05
Sig.	✓*	×		✓*	×		✓*	✓*		✓*	✓*	

<sup>a</sup>Arithmetic average for a scale {-1,0,1,2}; <sup>b</sup>Arithmetic average for a scale {-1,0,1}

\* Significance at 5% level \*\* Significance at 10% level

Table 4 - Differences between Game and No game, Save the Planet and Smile Game, for all brands

Regarding milk brands, for the participants who did not play any game, Mimosa had significantly higher scores than Mu-Mu, for all variables (Table 4). The gap between the brands' scores was smaller when the advergaming was played. The scores of the familiar brand Mimosa were already high with no game and didn't change as much as for the unfamiliar brand (Table 4). Mimosa effects, from no game to game, varied from 0.18 to 0.60, while Mu-Mu had larger size effects, between 0.95 and 1.21. The scores between brands were closer with the game Save the Planet, for reputation ( $p=0.364$ ) and purchase intention ( $p=0.176$ ). The difference between the brands preferences was smaller with the "Smile Game" ( $p=0.223$ ), but for both were also slightly lower.

As for chips brands, the differences in brand reputation, preferences and purchase intention were still significant with the game (Table 4), besides the slightly larger size effects for the unfamiliar brand Super Douradas, which varied from 0.71 to 0.89, comparing with Ruffles, which effects varied from 0.31 to 0.85. On the other hand, differences in brand identification became significant with the game ( $p=0.017$ ), because Ruffles effect size was larger than Super Douradas (1.03 and 0.80). The moderate to large effect sizes of Ruffles, contrarily to what happened to Mimosa, might be explained by the different levels of familiarity between the two familiar brands, i.e., Mimosa was recognized by 92.6%, while Ruffles was by 83.3% of the participants, leaving Ruffles with more space for improvement in scores.

Brand reputation and identification scores between Ruffles and Super Douradas were closer when the Smile Game was played, mainly because Super Douradas had significantly higher scores with the Smile game, as mentioned earlier for hypothesis 2.

### **How were brands affected with the competitor's advergaming?**

Taking a closer look into milk brands preferences and purchase intention [Appendix 13,t3-t6], Mu-Mu preferences were significantly higher when Mimosa advergaming was played ( $p=0.026$ ), and Mimosa purchase intention was also positively affected by Mu-Mu advergaming

( $p=0.049$ ) [Appendix 13, t3&4]. In comparative terms, Mimosa did not benefit as much as Mu-Mu with the advergaming [Appendix 13, t5]. There were no strong and significant differences in Mimosa scores between participants who played Mimosa advergaming and those who played Mu-Mu advergaming [Appendix 13, t5]. On the other hand, the unfamiliar brand Mu-Mu had significantly higher results when its game was played, for preferences ( $p=.000$ ,  $V_{\text{cramer}}=0.579$ ) and purchase intention ( $p=.000$ ,  $V_{\text{cramer}}=0.550$ ). And results were enhanced by the game Save the Planet ( $p=.000$ ).

Regarding chips brands, their preferences and purchase intention were not affected by the competitor advergaming [Appendix 13, t3&4]. Still, both brands benefited more when their advergaming was played, comparing with a situation where participants played the competitor's advergaming [Appendix 13, t5]. Contrarily to what happened with the milk brands, the familiar brand Ruffles had larger size effects than the unfamiliar brand Super Douradas, for both preferences ( $0.620 > 0.513$ ) and purchase intention ( $0.605 > 0.468$ ). And the differences were more evident when the Smile game was played [Appendix 13, t6].

### **Other competing brands**

Considering other competing milk brands, preferences and purchase intention of Nesquik (familiar brand) and Agros (less familiar brand) reduced significantly with Mu-Mu and Mimosa advergaming [Appendix 14]. Agros preferences and purchase intention scores were significantly lower ( $p=.000$ ) when an advergaming was played, regardless of the brand and the game. Nesquik was mostly affected by the unfamiliar brand Mu-Mu, for the game Save the Planet ( $p=0.001$ ).

As for chips brands, purchase intention of the unfamiliar brand Snack Day was significantly lower ( $p=0.004$ ), no matter the brand or the topic of the game [Appendix 14, t4]. Preferences for the familiar brand Lays were slightly lower for those who played Ruffles advergaming ( $p=0.047$ ); in particular the Smile game ( $p=0.0729$ ).

Overall, preferences and purchase intention of other competing brands (not chosen to be advertised in a game) were significantly lower with the advergames. And the negative impact was stronger for the less familiar brands.

## **CONCLUSIONS**

Children enjoy playing an advergame no matter if it has or not a CSR content. Results for attitude towards environment are high for both advergames (mean of  $\approx 4.91$ ). The CSR advergame had also no significant impact on brand identification, preferences and purchase intent. Brand reputation was slightly higher for those who played the Smile Game, however this difference reflected mostly an increase in the unfamiliar chips brand scores.

Milk brands are considered to be worried about the environment and Planet, and there was no difference in the information obtained by playing the CSR game. Still, playing the CSR advergame can be an advantage to the unfamiliar milk brand, once it reduces the difference in scores between the familiar and the unfamiliar brand, due to a slightly (not significant) increase in the size effects, when there is a fit between cause and brand.

In general, playing a game has a positive impact on the advertised brands, which was more significant for older children (8/9 years old). Brands scores are significantly higher for the advertised brand, comparing with an extreme situation where is the competitor that has an advergame; and again effect is stronger for unfamiliar brands. Other competing brands are negatively affected by its competitor advergame, and the impact is stronger for less familiar brands.

## **LIMITATIONS AND FURTHER RESEARCH**

The major limitation of this study is the weak reliability for the scale on attitude towards the environment (Cronbach's alpha of 0.115), once it was measured by two direct questions.

Plus, when children were questioned about the importance of the environment they tended to answer according to what is socially desirable (Miller et al., 2015). In this study it was only possible to have 2 to 4 respondents at a time answering the questionnaire. It would be desirable to have done it in a classroom assessment after all playing the game. For future research it would be interesting to measure attitude, including factors such as boring/exciting, stupid/great and dull/fun (Phelps & Hoy, 1996). At the same time, it would be relevant to measure the informative role for the groups with and without game. To corroborate results, a greater sample size would be required.

Furthermore, it would be interesting to test results with an advergame with CSR content specifically related to the brand (e.g.: brand character, specific CSR activities, greater fit between the product and the cause and higher number of identifiers); in this study, this was not possible, in order to keep results unbiased between the CSR and non-CSR advergame. We tried to keep the games as similar as possible, only by changing the topic (CSR vs non-CSR) but the difference may have not been perceived by the children, and thus influence results. However we know that by introducing more differences between the games, we may obtain results that are not related with the topic itself (for example by changing the character, the scenario besides the colour, etc).

Results also might be different when the game is played for a longer period of time. In this sense, it would also be relevant to test its impact on the participants' behavior for social responsibility; and with the use of different interfaces, such as tablet and smartphone, which are the most commonly used within younger children.

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