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In what extent can a segmented packaging make children choose healthier breakfast cereals?

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Abstract

This study aims to explore and understand the influence of food packaging on children's choice of healthier food, more specifically, how gender in packaging of healthy breakfast cereals can have an impact on children's perceptions of the product itself, purchase intention, perceived healthfulness and choice. To do so, the visual elements of a packaging customized for girl and for boy were transferred into an existing packaging of a healthy breakfast cereal not targeted at children: *Corn Flakes*. We conducted the study in three different schools using a structured questionnaire applied to a sample of Portuguese children aged between 6 and 9, being 288 for the main study and 30 for the complementary study. Findings suggest that segmented packaging can influence children's attitudes, purchase intention and choice and it can therefore be used to promote children's healthy eating habits.

Keywords: children, healthy food, packaging, gender

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Introduction

According to The European Breakfast Cereal Association (CEEREAL facts of 2014), the breakfast cereal industry in Europe is worth over €4.5 billion. In Portugal it accounted for €129.8 million in 2013, of which 44% are children breakfast cereals¹. Several studies and nutritionists claim that children's cereals have excessive levels of sugar and sodium. Consuming sugar in excess contributes to 35 million deaths a year worldwide and excessive consumption of salt causes diabetes or cardiovascular problems (Invitti et al., 2006). This led us to fully grasp one of the biggest issues nowadays, i.e, children obesity, which affected 44 million children from 0 to 5 years old in 2012. If this trend continues, these figures are estimated to increase to 70 million in 2025 (WHO, 2013).

The average shopper in a store spends maximum 15 seconds in the shelves of each category and notices less than 40% of the products (Nielsen, 2014). Therefore, shoppers' attention must be caught by using an eye-catching packaging design.

Children have already reached a stable gender identity by the age of 3 or 4 and thus they start looking for products that fit them and their gender (McNeal, 2007). Gender segmentation is used in many children's products like toys but, until now, it has not been used in food products. The goal of this research is to see whether it is possible to use gender segmentation in the cereals category in order to persuade children to choose and eat healthier products (Shepherd et al., 1996).

¹ <http://fesrvsd.fe.unl.pt:2122/Portal/Pages/Search/SearchResultsList.aspx> [Accessed 14 October 2014]

Literature Review

Consumer Socialization

Consumer socialization can be defined as "processes by which young people acquire skills, knowledge, and attitudes relevant to their functioning as consumers in the marketplace" (Ward, 1974:2). Some of these processes are done by stages and, according to Piaget's theory of cognitive development (1972), children in their learning process go through 4 stages of cognitive development until they reach adulthood: sensorimotor (birth to 2 years), preoperational (2 to 7 years), concrete operational (7 to 11 years), and formal operational (11 through adulthood). It is when they reach elementary school that children start looking for elements of connection between them and the brand (Chaplin and John, 2005) and at this stage gender plays an important role in influencing this relationship, since boys and girls have different preferences and different attitudes (Acuff and Reither, 1999).

Children's Food Preference

The perspective of how children's food preferences are developed is an ongoing debate. Some authors see it as a learned behaviour via experiences with food, while others see it as an unlearned, innate reflection of the body needs, called wisdom of the body behaviour. Birch (1999) was one of the supporters of the former view, when he claimed that children are born with some genetic preferences for certain foods like sweet and salt taste and reject others such as sour and bitter but then their taste is developed via experience with food and is influenced by several factors such as availability of food (Story et al., 2002), advertising (Croll et al., 2001), parents (Kraak and Pelletier, 1998) and peers (Brown et al., 2000). Gender is also influential as girls are more concerned with their body image while boys care about physical performance (O'Dea, 2003; Croll et al., 2001). Availability of a wide variety of food is also important, as suggested by Rozin (1976) when he explained the concept of food *neophobia* as a psychological barrier that children experience since they

are 2 years old (Cooke, 2007) consisting in “the rejection of foods that are novel or unknown to the child” (Dovey et al., 2008: 182). To overcome this rejection, children should experience food as early and repeatedly as possible (Cooke, 2007).

Health Trends

Childhood obesity is one of the most disturbing issues in the world (WHO, 2013). Globally, the number of obese children under 5 years of age increased from 31 million in 1990 to 44 million in 2012. In Portugal, one in each three children is overweight. It has been estimated that 70 million children under 5 will be overweight or obese by 2025 if current trends continue (WHO, 2013). Good nutrition is very important in the first life age as it influences the child both physically and psychologically (Rees and Shaw, 2007). In this regard, brands in the food industry have been taking some measures to overcome existing statistics (Mancino et al, 2010).

Breakfast Cereals

According to The European Breakfast Cereal Association (CEEREAL facts of 2014), this industry is worth over €4.5 billion. In Portugal, it accounted for €129.8 million in 2013, of which €57.3 million (44% of retail value) is the value of children’s breakfast cereals (Euromonitor: Breakfast Cereals in Portugal, 2014). The two leading brands in the Portuguese children’s market of breakfast cereals are *Chocapic* and *Estrelitas*², which account for 28% and 11% of total retail value sales, respectively, in 2013 (Euromonitor: Breakfast Cereals in Portugal, 2014).

It is an undisputed truth that breakfast is a very important meal for children. If they have an adequate food intake, the odds will be that they will benefit from high intakes of macronutrients and have positive health outcomes for the rest of the day (Cueto, 2001;

² The international name of these cereals are *Koko Crunch* and *Honey Stars*, respectively.

Mahoney et al., 2005). However, some studies reveal that, based on National Nutrition Standards, most cereals marketed to children do not meet the optimum levels as they are denser in energy, sugar and sodium and have lower levels of fiber and protein (Quigley et al., 2007). According to Schor and Ford (2007), there is a commercialization of childhood by food manufacturers, as this is the largest product category for spending and advertising. Since the definition of healthy or unhealthy cereals is crucial, for the purpose of this article healthy cereals for children were defined by qualified nutritionists as being mainly low in sugar and low in sodium.

Packaging

Packaging can be described as a handy container for a product (Ulger, 2009) but also, and to my mind, much more important, as a “a vehicle for communication and branding” (Rettie and Brewer, 2000: 56), or as the “silent salesman” or “salesmen on the shelf” (Pilditch, 1972). This means that packaging works as a huge differentiator factor in the right place when 73% of consumers make their decisions: the point-of-purchase (Connolly and Davidson, 1996; Ahmad et al., 2012).

There are studies that argue that packaging can influence children’s perceptions and food choices (McNeal and Ji, 2003; Macklin, 1996; Gelperowic and Beharrell, 1994; Marshall et al., 2007) as well as food taste (Lapierre et al., 2011). However, there are also studies that contradict this by claiming that children do not choose a box of cereals just because of its nice packaging (Gelperowic and Beharrell, 1994). Packaging is also a technique used by marketers in order to send messages of “eatertainment³” (Ogba and Johnson, 2010). Bearing this in mind, some studies explored strategies to promote healthier foods to children (Federal Trade Commission, 2011) by developing a packaging that makes children

³ This terms refers to fun products marketed to children (Elliott et. al., 2012) through several marketing techniques, one of which is packaging.

desire that food. However, there are no studies on the influence of segmented packaging on children's consumption healthy habits.

Gender differences

Gender is one of the first ways children use to describe themselves and others in order to understand who they are and what their role is in consumer socialization (Carey and Samson, 2003). There are two different perspectives on gender: A maximalist view suggests that differences between girls and boys are inherent and will lead to different preferences. The minimalist view contends that those differences are learned and developed along the years through several influences (Brannon, 1996).

Previous research stated that men and women, boys and girls, are not comfortable with the idea of using and purchasing products that are not made for them or that are not consistent with a person's gender identity and self-image, even though they may meet the functional benefits (Douglas and Phillips, 2010). This attitude starts early in life with children defining a toy as being a "girl toy" or a "boy toy" (Smith, 1994; Albert and Porter, 1988). It is therefore expectable that children who care about self-congruence in purchased products will not only prefer gendered products, but will also be more aware of the marketing elements that create those identities such as packaging, colour, product shape, logos, graphics, and brand names (Wolin, 2003).

Regarding food preferences, girls show a higher preference for fruit and raw vegetables while boys choose sugar and sweetness food (Cooke and Wardle, 2005). Children choose food because of its colour and appearance and boys and girls use colour to distinguish themselves in terms of gender (Ezan and Lagier, 2009). While boys tend to prefer blue, girls prefer red, purple and pink. (Cohen, 2012).

In terms of the breakfast cereals' industry, colour is considered to be genderless, to reach all potential consumers. We know, however, that girls tend to prefer cereal boxes that are softer and have appealing characters while boys prefer humour and aggressive characters (Visser, 2006). Acuff and Reither (1999) suggest that if marketers wish to reach both boys and girls they must take into account their different needs in order to increase profits and provide an answer to children's healthy eating habits (McNeal and Ji, 2003).

Hypothesis

Attitude toward product

Past studies on packaging reveal that it can influence children's perceptions on food taste (McNeal and Ji, 2003; Macklin, 1996; Gelperowic and Beharrell, 1994; Marshall et al., 2007, Lapierre et al., 2011) as, for example, healthy food is usually associated with no good taste (McKinley et al., 2005; Noble et al., 2000) mainly because of the no-fun packaging appearance. Finally, children who seek customized products and who want to feel unique, will look for and demonstrate positive feelings for segmented products. Therefore, the following will be expectable: **H1a: Compared to non-segmented healthy cereals, the introduction of a segmented packaging will increase the attitude towards healthy cereals**

Purchase intention

The decision of purchasing an item depends on a process of product evaluation but the final decision is taken at the point of purchase where the consumer is influenced by packaging (Valkenburg and Cantor, 2001). Actually, when consumers have to choose between two products with the same price and function, they will choose the one that they consider to be more appealing (Kotler and Rath, 1988).

In terms of gender issues, boys and girls do not feel comfortable using a product that is not consistent with a person's gender identity (Douglas and Phillips, 2010). It is therefore expectable that children, who care about self-congruence, will not only prefer gendered products (Douglas and Phillips, 2010), but will also be more aware of the marketing elements that create those identities such as packaging (Wolin, 2003): **H1b- Compared to non-segmented healthy cereals, the introduction of a segmented packaging will increase its purchase intention**

Perceived healthiness

Children rely on schemas such as “vegetables are healthy” and on basic national nutrients such as sugar and also on visual cues such as packaging, its colour and appearance to understand if a product is healthy (Macklin, 1996; McNeal, 1992). Since we are going to maintain the product inside the packaging, we expect that: **H2- Segmented packaging of cereals will have the same perceived healthiness as the original packaging**

Choice

To conclude, a final hypothesis will be tested: **H3- Children will change their choice for the healthy cereals when comparing segmented healthy cereals with fun non-healthy cereals.**

Methodology

Legal and Ethical Issues

The research with children complied with all UNICEF standards in order to assure children's best interest. We obtained previous informed consent from parents (**Appendix 1**) and also from the school where the research was conducted (**Appendix 2**). We also obtained children's consent since participation must be voluntary and children need to know their role in the research and that they can quit whenever they want (MacNaughton et al.,

2001). Confidentiality, anonymity and the nature of the research were explained to both children and their parents before starting research (Podsakoff et al., 2003).

Sample

Our sample was composed of 288 Portuguese children from 7 to 9 years old (2nd to 4th grades), equally distributed per group and per gender. 350 consent forms were sent to children's parents of two private school and 288 authorizations were received (82.29% response rate). To perform the complementary study (explained in the results section), we used a sample of 30 participants from 7 to 9 years old from both genders and from a different private school.

We chose this age range because, in line with Piaget's cognitive development theory, from 7 to 11 years old children are capable of relating objects and words as well as making evaluations about packaging and answering paper questionnaires (Greig et al., 2007; McNeal, 1992). Children over 9 years of age were not considered in this study because they are very different in terms of which packaging elements they prefer and thus it would be impossible to create a single packaging to suit all ages.

Our research was conducted in private schools because, according to our findings, social class was not an influence variable in the choice of cereals.

Research Design

The research used a questionnaire, since it is a popular tool used to understand a reality where consumers are influenced by their experiences and by society. Questionnaires are common in research with children since they enable researchers to get their in-depth understanding and opinions about a given subject.

The materials used in this study were photos of front panels of cereal boxes as it is a representation of the whole box (McNeal and Ji, 2003) and what children see first on

display and when eating cereals (Levin and Levin, 2010; Miller et al., 2011). We chose an unfamiliar brand in order to reduce brand familiarity bias (Shimp et al, 1976): *Chabrior*, the private brand from Intermarché, a retailer which is normally located outside urban areas, like Lisbon, where the research was done.

With a view to developing the most appropriate questionnaire, 2 primary school teachers were interviewed as well as a marketing operational analyst of a company that targets children. Finally, a pre-test was conducted with 6 children within the age range to validate the language used in the questionnaire as being suitable to them. In the pre-test children took on average 15 minutes to fill the questionnaire. Some adjustments in the wording of the items were made based on these children's comments.

Design of the Packaging

We chose two breakfast cereals to be used in the research, one that was healthy and adult-targeted, and another non-healthy and child-targeted and thus with a fun packaging. The leader cereals in the children category in Portugal are chocolate cereals but we did not want to use chocolate because from past research we understood that it is too dominant and it is very difficult for children and for adults to resist chocolate. Therefore we decided to use for the unhealthy cereals, the ones that were similar to the second leading brand, (i.e. cereals with honey). In order to select which cereals could represent the healthy option, we interviewed 3 nutritionists (**Appendix 3**).

Nutritionist | The main aim of the interview with the nutritionists was to have more knowledge of cereals nutrients and to understand the main issues in cereals in terms of a healthy vs. non-healthy meal for children. From the information provided by the interview, we realized that if we want to choose the healthiest breakfast cereals we need to choose the ones that provide the least amount of sugar and the least amount of sodium. From the

available cereals in the market, cornflakes are the best choice in terms of least amount of sugar and sodium.

After choosing the two breakfast cereals, the objective was then to develop gendered specific packaging. To reduce bias and to guarantee a more real packaging, the new cereal boxes featured the same graphical and nutritional elements as the original box as well as the same brand name and logo (Schoorsman et al., 1997). To determine what the package should be like, some previous studies were taken into account (Pires and Agante, 2011; Hunter, 2002) and more interviews were made to get insights from 1) a brand manager of children's breakfast cereals; 2) a 3rd grade school teacher; and 3) a focus group with children within the target to understand their preferences and insights about an ideal packaging as well as a test to the final designed packaging (**Appendix 4**).

Brand manager | In terms of an ideal packaging, the brand manager of children's breakfast cereals alerted us to the importance of keeping the same nutrition claims as well as other legally required information since children and parents look for them, which means they function as a cue to their product evaluation.

Primary school teacher | In terms of packaging, the third grade teacher provided the following feedback: boys like warriors but they would prefer to have just one in the packaging instead of more and they would like to have a spoon in the packaging. Girls like illustrated and modern dolls with tiny, pink or purple clothes. While boys prefer a blue background, girls prefer pink and yellow.

Focus group | We conducted two different focus group sessions, one with 3 boys and another with 3 girls (**Appendix 5**). We concluded that girls and boys have different preferences for colour and images on the packaging as boys prefer blue, red and green (football colours) and images of warriors and girls prefer pink, purple and princesses and

nurture things. Finally, the original boxes of healthy and non-healthy cereals were shown to boys and girls to check whether they were familiar with the boxes and whether they found those boxes fun. Respondents failed to recognise any of the boxes, they found the healthy box boring while they found the other box fun.

Finally, to create the packaging it was deemed it important to first find someone that could help with the illustrations (dolls and a warrior) and only after that to find a designer that could help me to re-create the original packages and to guarantee a good connection between all packaging elements (**Appendix 6 & 7**).

Procedure

The research started with sending a questionnaire to children's parents (**Appendix 8**) together with the authorizations parents had to sign. The aim of this questionnaire was to understand children's eating habits regarding breakfast cereals. After 3 days, I went to the school and applied the questionnaire (**Appendix 9 & 10**) to all children who had obtained consent from their parents. In each class students were split into two groups according to gender; they were allocated into separate classrooms (Pires and Agante, 2011). Then, questionnaires were distributed to every pupil and instructions were explained to make sure they understood the process.

In order to reduce bias of this study, two different sub-groups were created and each sub-group was exposed to different stimuli. The control group just answered questionnaires regarding the original packaging of *Corn Flakes* (healthy) and *Mielak* (non healthy) (**Figure 1&2**) and the experimental group saw the segmented packaging and the original non healthy one (**Figure 2 & 3/4**). The order in which the packaging was shown was randomized and there were no differences in results according to the order in which the child viewed each packaging.



As classes within the same scholar year are homogeneous in terms of cognitive and analytical skills, it was possible to work with them as if they were two different sub-groups.

The images with the front panel of the packaging were presented to all of them explaining that they had to look at each card as if they were looking at packages in the supermarket (Miller et al., 2011), with no time constraints (Pires and Agante, 2011). Since this study aims to understand how gender differences can influence the choice of packaging, different stimuli were shown to boys and girls according to their gender (McGivern et al., 1997).

Measures

In McNeal's view (1992), rating scales are a good technique among young respondents that already attend school and five scales are considered sufficient according to their discrimination capability.

For attitude towards product, we used a three-item 5-point semantic differential scale, which is meaningful when doing research with children (Greig et al., 2007). Children product evaluation was therefore measured in terms of being “boring-fun”, “unfamiliar-familiar” and “tastes bad-tastes good”, items that have already been used in research with children (Mcalister and Cornewell, 2012; Pires and Agante, 2011).

To evaluate purchase intention, a 5-point semantic differential scale was used to check whether children would like to buy these cereals or to ask parents to do it (Phelps and Hoy, 1996) as well as whether they would like to eat those cereals (Pires and Agante, 2011).

Scales on attitude towards the product and purchase intention were reliable with alphas of 0.7870 and 0.8940 respectively⁴.

To assess perceived healthiness we used a 5-point semantic differential scale in terms of how healthy children thought these cereals were (Pires and Agante, 2011).

Finally, a questionnaire was sent to educators asking them the weekly frequency of some types of cereal's consumption (adapted from Elfhag et al., 2008; Pires and Agante, 2011).

The results were analyzed using IBM SPSS Statistics version 22, and Smart PLS 3.0.

Results

Main Study

This study was conducted with 288 respondents between 7 to 9 years of age from two different private schools, equally distributed by gender (**Table 1**).

Table 1: Gender and grade distributions of the sample

			Grade			
			2 nd	3 rd	4 th	Total
Gender	Male	N	47	45	52	144
		% within grade	32.64%	31.25%	36.11%	100.00%
	Female	N	38	57	49	144
		% within grade	26.39%	39.58%	34.03%	100.00%
	Total	N	85	102	101	288
		%	29.51%	35.42%	35.07%	100.00%

Hypothesis 1a, 1b and 2 | These hypotheses aimed at evaluating the impact of gendered segmented packaging on the [H1a] Attitude towards Product (**Appendix 11&12**); [H1b] Purchase Intention (**Appendix 13&14**) and [H2] Perceived Healthiness (**Appendix 15**).

The means were computed for each item for the control group and the experimental group and an independent t-test for equality of means was performed (**Table 2**) to test the significance of these differences. Results showed that all differences were significant

⁴ The reported alpha for the attitude scale does not include the item "familiarity" since children were answering it based on different assumptions, not only for the product.

($p=0.000$) except for the item "familiarity"⁵ ($p=0.844$), which led us **not to reject H1a** and **H1b** but to reject **H2** since there were significant differences of perceived healthiness between groups. This might be explained by the fact that children (like adults) usually think of non-fun packaging as boring and healthy. Thus, when a segmented and fun packaging was presented to them they got confused and perceived it as being less healthy.

Table 2: Means and P-values for H1a, H1b and H2

	H1a: Attitude towards Product					H1b: Purchase Intention			H2: Perceived Healthiness
	Familiarity	Fun	Taste	Overall Attitude	Overall Attitude without familiarity	Eat	Buy	Overall Purchase Intention	Perceived Healthiness
Healthy Cereals									
Control Group (1)	2.11	2.35	2.88	2.45	2.62	3.03	2.93	2.98	4.54
Experimental Group (2)	2.08	4.29	4.31	3.56	4.30	4.35	4.49	4.42	4.15
Non-Healthy Cereals									
Control Group	1.78	4.39	4.4	3.52	4.40	4.27	4.1	4.185	3.04
Experimental Group	1.92	3.14	3.38	2.81	3.26	3.14	3.03	3.085	2.91
P-Value T-tests compare (1) and (2)	0.844 	0.000 	0.000 	0.000 	0.000 	0.000 	0.000 	0.000 	0.000 

Other Results | In line with the literature, we noticed a positive ($R^2 = 0.658$) and significant ($p=0.000$) correlation between the items "fun" and "taste" since the funnier the product is, the better children perceived it as having better taste and vice versa. Results also suggested a relation between perceived healthiness of the healthy product and age in the control group ($p=0.060$) (**Table 3**), with younger children perceiving the original healthy product as healthier than older children (4.79 vs 4.40). Younger children, however, seem to be more affected by the introduction of a segmented packaging because, for the experimental group, this item was almost equal in both age groups (4.10 for younger and 4.13 for older children), meaning that it decreased significantly in younger children.

Table 3: Relation between Age and Perceived healthiness

Perceived Healthiness	<=7 years old	>7 years old	P-Value
Control Group (Non-Segmented Healthy Cereals)	4.79	4.40	0.006
Experimental Group (Segmented Healthy Cereals)	4.19	4.13	0.810
Δ [EG-CG]	-0.6	-0.27	-

⁵ When conducting questionnaires, children considered "familiarity" as familiarity of the brand and not as familiarity with that kind of cereals, *Corn Flakes*.

In addition, we concluded that the attitude towards product and the purchase intention of the non-healthy cereals decreases between groups, when the segmented packaging is introduced and that this difference is statistically significant ($p=0.000$).

Finally, we created a variable of the gap between the healthy and the non-healthy cereals for the items attitude towards product and purchase intention. Results show that, while in the control group children gave higher rates to the non-healthy cereals, in the experimental group they did the inverse. Moreover, the t-test suggest that this difference was significant ($p=0.000$). **(Table 4)**

Table 4: Gap between healthy and non-healthy cereals

Healthy Cereals - Non-Healthy Cereals	Overall Attitude without familiarity	Overall Purchase Intention
Control Group	-1.78	-1.21
Experimental Group	1.04	1.34
P-Value T-tests	0.000 ✓	0.000 ✓

Hypothesis 3 | This hypothesis aims at evaluating the impact of gendered segmented packaging on the choice between the healthy and the non-healthy product **(Appendix 16)**.

We observed that without segmentation, 70% of the children from the control group preferred the non-healthy version, while, when we presented a segmented packaging, 75% of the children preferred it, a significant difference ($p=0.000$), which led us **not to reject H3 (Table 5)**.

Table 5: H3: Choice

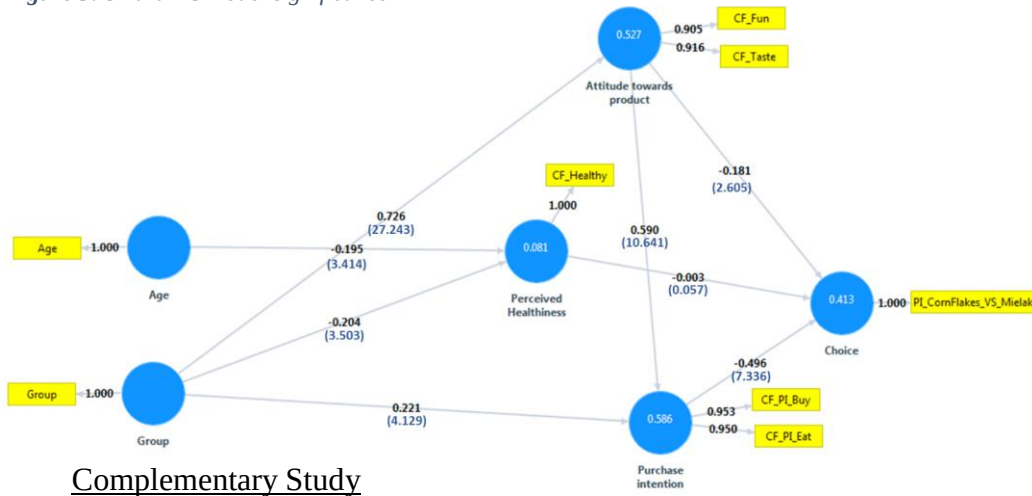
	Choose Healthy Cereals	Choose Non-Healthy Cereals	P-Value
Control Group	30%	70%	0.000 ✓
Experimental Group	75%	25%	

It was possible to find a correlation between age and children's choice ($p=0.079$), in the experimental group, as younger children have a stronger preference for *Corn Flakes* and, with the introduction of the stimuli, this preference gets stronger (82.7% against 70.7%).

Further Analysis | In order to better understand which factors affected children's choice, a logistic regression was performed using choice as the dependent variable, and all the others (age, group, gender, attitude towards product, purchase intention and perceived healthiness) as independent variables, With a *Cox & Snell* R-Square of 0.304 and a *Nagelkerke* R-Square of 0.406, the model was considered significant. The omnibus tests of model coefficients indicated as significant the variables *group* ($p=0.017$) and *taste* ($p=0.000$), which may mean that the segmentation leads to a change in choice per itself, and also through the change on the perceived taste.

To further investigate the factors influencing purchase intention and choice of the healthy product, we developed a model with the variables from our questionnaire, and computed the required parameters (Diamantopoulos and Siguaw, 2000): (1) Average Variance Extracted (acceptable for thresholds above 0.5), (2) Composite Reliability that should fall above 0.6 and (3) Cronbach Alpha coefficients that test internal consistency which should be above 0.7. To get an accurate analysis of the model, some items such as familiarity and gender were excluded since they were not significant ($t\text{-test} < 1.96$). The final model suggested all values satisfy the criteria (**Appendix 17**) and that choice is affected directly by attitude towards product and by purchase intention but not by perceived healthiness. Moreover, the type of packaging affected choice through the influence on the attitude and on the purchase intention but not directly. Finally, age had an impact only on the perceived healthiness of the product. (**Figure 5**).

Figure 5: SmartPLS model significance



A segmented packaging targeted at children will inevitably be perceived as fun by them, since it implies customizing the product and making it more appealing to children. Therefore, when justifying the motives underlying their choices, it is difficult to separate the fun component of the segmented packaging, and we wanted to make sure that children were choosing the healthy product because it was segmented and not because it was fun. “Fun packaging” is not the aim of this study as it intends to prove the influence of gender segmentation on children’s choices. Results from the main study suggested that “fun” was not always determinant since there was a percentage of students that gave the highest score to the segmented packaging in the fun scale but ended up choosing *Mielak* instead. However, and as expectable, it was possible to verify in the experimental group a weak ($R^2=0.47$) but significant ($p=0.000$) positive correlation between the item “fun” and the choice children made. Hence, we felt the need to understand the real motives underlying children's decisions and that was why we decided to conduct an additional study.

We applied a questionnaire to 30 children, similar to the one presented to the experimental group in study 1, but only with the choice question. Each student had first to observe both packages and then to choose one of them. After making the choice, each child was asked why he/she had chosen that product.

As had already happened in the main study, results suggest that most children choose healthy cereals with segmented packaging when compared with the non-healthy cereals with fun packaging (63%) and their insights about the chosen box suggest that their decision is mainly supported by segmentation criteria as they mention the preference for colour, for dolls/warriors, for having a gendered unique packaging. On the contrary, children that chose the non-healthy product always supported their decision with claims that the segmented product was too childish (**Table 6**).

Table 6: Reasons to choose each cereals (translated)

	Males		Females	
Grade	Healthy Segmented Cereals	Unhealthy Cereals	Healthy Segmented Cereals	Unhealthy Cereals
2 nd	<i>I love the warrior</i> <i>It is just for boys</i> <i>I prefer blue to yellow</i> <i>Yellow is a girls' color</i> <i>They seem tastier</i>		<i>I love the princesses</i> <i>Because it is not for adults</i> <i>This way, my brother would not eat my cereals, they are just for girls</i> <i>Pink is my favorite color</i> <i>I like the flowers</i>	
3 rd	<i>Me and my brother can eat together</i> <i>They are tastier</i> <i>I like blue</i>	<i>The warrior is too childish</i> <i>The spoon is strange</i>	<i>I like the dolls</i> <i>It is just for girls</i>	<i>It is less childish</i> <i>I don't like pink</i> <i>I think the dolls are not for my age</i>
4 th	<i>I like the super hero</i> <i>It is just for boys</i> <i>I like the way the milk is falling</i>	<i>It is less childish</i> <i>They are healthier</i>	<i>I like to have a cereal box just for me</i>	<i>I prefer yellow</i> <i>I don't like pink</i> <i>The box of cereals is for younger children</i> <i>I would prefer zombies</i>

Discussion and Implications

The aim of this research was to explore gender segmented packaging as a tool to influence and encourage children to make healthier food choices. More specifically, this study was conducted to understand how gender segmentation in packaging of healthy breakfast cereals can have an impact on children's perceptions of the product itself, purchase intention, perceived healthiness (Pires and Agante, 2011) and choice (**Table 7**).

Table 7: Hypothesis summary

	Hypothesis	Observations	Procedure	Test	Items	Sig.	Overall Sig.	Decision
H1a	Compared to non segmented healthy cereals, the introduction of a segmented packaging, will increase the attitude towards healthy cereals	Higher Scores for Corn Flakes Segmented	Independent Sample Tests	t	Familiarity	0,844 	0,000	
					Fun	0,000 		
					Taste	0,000 		
H1b	Compared to non segmented healthy cereals, the introduction of a segmented packaging will increase its purchase intention	Higher Scores for Corn Flakes Segmented	Independent Sample Tests	t	Eat	0,000 	0,000	
					Buy	0,000 		
H2	Segmented packaging of cereals will have the same Perceived Healthiness as the original packaging	Similar scores for both Corn Flakes but slightly higher for Corn Flakes Original	Independent Sample Tests	t	Perceived Healthiness	0,000 	0,000	
H3	Children will change their choice for the healthy cereals when comparing segmented healthy cereals with fun unhealthy cereals	Higher Scores for Corn Flakes Segmented	Chi-Square	χ^2	Choice between both	0,000 	0,000	

Results suggested that children reacted positively towards healthy cereals with segmented packaging in terms of the items fun and taste. This might explain the reason why children rarely chose healthier cereals, as those cereals are usually targeted at adults and therefore have no children cues on the packaging. Moreover, findings showed that children's **purchase intention** of healthy cereals increases with the segmented packaging compared to non-healthy non-segmented. Thus, packaging should be used to influence children to make healthier options from a young age.

Even though the introduction of segmentation decreased children's **perceived healthiness**, averages remained high, which indicates that cereals inside the segmented packaging were still perceived as healthy. This is an indication that it is possible to educate children to make healthier options and not to mislead them by hiding the healthy product under a junk packaging or by pretending that the product is not healthy. It was reassuring to find that children can choose a healthy product over an unhealthy one. However, we also hope that the results of this research will not be used to promote non-healthy breakfast cereals. In that sense, special ethical issues should be taken into account regarding packaging, by limiting this marketing tool to promotion of healthy cereals.

Finally, results suggest that children **choose** healthy cereals over non-healthy when the former has a segmented packaging. Therefore, besides going in line with previous research that supports the conclusion that packaging influence children's preferences and attitudes towards products, this research also suggests that we can use this tool of gender segmentation to significantly change children's choices into healthier eating options.

This research has therefore provided some theoretical contributions in terms of the persuasion power of using gender specific packaging targeted at children, while at the same time having managerial and societal implications since breakfast cereals can now be more than just providers of energy and nutrients: they can also be a channel to guide children to make better and healthier options.

Limitations and Further Research

The main limitation of this study was the use of a non-familiar brand and therefore I feel that future research could be done in order to evaluate whether a segmented packaging for a healthy product would achieve the same results with a familiar non-healthy product.

Moreover, sample comprised only children from 7 to 9 years old, from a unique cognitive development stage. In future research, a larger and wider age diversity sample should be considered as well as a new geographical area or country to take into account cultural differences in gender issues and to understand how gender differences evolve with age.

My decision to use of breakfast cereals was important as it is one of the 3 categories in which children have most influence in their parents' shopping (Marshall, 2007). However, a similar study could be conducted with other categories to further verify how far packaging is important. Finally, a real in-store situation might also be used to better understand and prove the results of my study.

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