"Children, healthy eating and “threat appeals” : An investigation on their effectiveness and working processes"

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ABSTRACT

This dissertation aimed at identifying the potential effectiveness of threat appeals in advertising communication when bolstering preadolescents’ consumptions of healthy food is considered. Obesity indeed appears as one of the main health issue for this population (8- to 12-year-olds) in our western societies. Although many prevention programs are being developed, very few appear to achieve the behavioral changes expected. Associating research on advertising persuasion among preadolescents and studies in health prevention, our objective was therefore to identify whether eliciting negative affective reactions through exposure to threatening ads (print and audio-visual) could improve the success rate of communication campaigns. Referring to the traditional focus of advertising research on positive affective reaction elicitation, studying the potential persuasiveness of affective states of negative valence represents a first original contribution of this research. Four experiments hav...

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Children, healthy eating and “threat appeals”:
An investigation on their effectiveness and working processes

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And all that thanks to a PhD…
Ce matin je me trouve beau
J’sais pas si c’est la lumière
Un reflet sur le carreau
Mait je crois que je peux plaire…

Ce matin j’existe un peu
Je me sens pousser des ailes
Et si je dois faire un vœu
C’est de continuer à croire
Qu’elles
Me porteront toute la vie
Au delà des tracas et des soucis
Ce regard dur que j’ai sur moi
Pour de bon disparaîtra

Salut, « Désert » (Thanks for that too, Emerence)
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Introduction

“Obesity is such that this generation of children could be the first basically in the history of the United States to live less healthful and shorter lives than their parents,” (Dr. David S. Ludwig, Director of the Obesity Program at Children's Hospital Boston, March 2005)
According to the World Health Organization, obesity is “one of the greatest public health challenges of the 21st century”. Although Europe appeared protected for a long time, it is now dangerously gathering pace with the United States. Today, in Europe, the amount of overweight children is evaluated at nearly 22 millions (which corresponds to a quarter of its youth), and this number increases worryingly by 400,000 children every year\(^1\). Obesity prevalence has tripled in many European countries in 25 years, and this alarming rate particularly hits children. Henceforth, obesity has reached an epidemic proportion. Being overweight represents now the most common disorder in child populations in Europe.

Recently, the health consequences of overweight and obesity have driven the United Kingdom Department of Health to estimate an average of five years shorter life expectancies for human kind by 2050, if the rapid rise in childhood obesity is left unchecked. In the United States, for the first time in two centuries, children will live shorter lives than their parents (Olshansky et al. 2005). Childhood obesity is indeed associated with a higher risk of premature death and disability in adulthood\(^2\). A direct causal link has been identified between children and adult obesity and it is reported that up to seventy percent of overweight adolescents will become overweight or obese adults (Andreasen 2006; Ebbeling, Pawlak, and Ludwig 2002; Goldberg and Gunasti 2006). Moreover this proportion increases further if one parent is obese. This last piece of information is not of minor importance as it induces a vicious circle. Obese children present a high probability of becoming obese adults and this, in turn, enhances the risks to raise obese children (Ebbeling et al. 2002).

Nevertheless, the negative consequences associated with overweight are not only issues to be dealt with in adulthood. Overweight and obese children experience direct health nuisance such as type II diabetes, hypertension, chronic inflammation, increased blood clotting tendency, and hyper insulinaemia (see Ebbeling et al. 2002 for an exhaustive list). Although these arguments probably appear sufficient to justify action, physical threats, regrettably, are not the sole worry for those children. Obesity also impacts children’s psychological development. More specifically, extra weight distorts children’s self-image and esteem (Andreasen 2006; Ebbeling et al. 2002; Wofford 2008). This, in turn, will undoubtedly impact their socialization. Last but not least, in


many situations, obese children are stigmatized as underachievers (Andreasen 2006; Ebbeling et al. 2002; Schwartz and Puhl 2003), which probably explains the job discrimination they will encounter later in their lives (Huddleston and Perlowski 2003). They are indeed characterized by lower educational attainments (Stice, Shaw, and Marti 2006) although the segregation may be -at least- partly responsible for those results. Yet, according to the World Health Organization (W.H.O.), “healthy children learn better”. Obese children will most certainly bear the weight of their extra kilos in many different ways.

Then, it also appears important not to conceal the economical implications of obesity. According to the World Health Organization Regional Office for Europe, obesity is nowadays responsible for 2-8 % of health costs in different parts of the Region⁴. In Belgium, this represents 6% of the health care budget, two third being allocated to diabetes treatments. Then, obesity also induces indirect costs. On average, obese people spend three more days per year in hospital than normal weight people⁵, which accordingly impacts sick leaves and companies.

Undoubtedly, there would be an overall positive effect of a decrease in the obesity trend.

Fortunately, across the world, more and more voices raise and the issue appears now to be on both policy and media agenda’s, reflecting a somewhat common perspective. In many countries, obesity prevention programs have been put into action by governments or public organizations, often heavily reported by the media. Whether the objective is political, economical or social is of no concern to us. The relevant information remains that it may indeed enhance the target’s awareness of the problem, and that is essential for prevention to be efficient. It indeed appears that too often, families with overweight children feel that there is no need for action. They may deny that a problem exists or consider it to be out of their control. For instance, adults with weight problems too often think that their offspring’s situation is due to genetic factors, clearing their consumptions habits of responsibility. Although this may indeed be punctually the case, genetics cannot provide a plausible explanation to the exponential increase of the considered phenomenon. In fact, it is now widely accepted that the immediate causes are twofold: inadequate diet and a lack of physical activities. Consequently, prevention programs primarily aim at correcting those determinants. Commonly, government’s actions include improvement of

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⁴ [http://www.euro.who.int/obesity](http://www.euro.who.int/obesity), retrieved from the internet on the 17th December 2008.

⁵ Jean-Paul Thissen, « Génération Obèse », (Dés)équilibre alimentaire File, UCL Louvain Newsletter - Avril 2009 n°27.
information to parents and to all contributors in children’s eating education (school cooks, teachers …). It also usually foresees increased investments in school canteens and sports infrastructures. Most national campaigns implemented over Western societies indeed resort to a combination of those approaches (examples can be found on the internet6,7,8, 9). Nevertheless, increasing information, ameliorating training of professionals and improving accessibility of sport infrastructures, as listed in the meta-analysis conducted by Stice, Shaw and Marti (2006), are not satisfactory. Authors reported the low efficacy of most of the programs. Although one out of five prevention programs seems to reach its objective, only 5% of those appear to be able to maintain its effect in the long term. While this percentage remains in a comparable range to other prevention programs, it appears to be not sufficient to struggle the epidemic.

Meanwhile, some countries go a step further, adopting laws or regulations. For instance, French speaking Belgium has banned soft drinks vending machines and branded material from primary schools. Sweden and French speaking Canada forbid TV advertising to children. Considering what is at stake economically, these decisions may be seen as daring. On the one hand, it appears intuitively the right move to make. Children would spend too much time in front of the TV set in their free time and this would induce too consequences: too little physical activities and too much exposure to messages encouraging the unhealthy diet. This measure would at least prevent children from this second harm. On the other hand, little scientific evidence has provided justification to these resolutions, offering no real support for those policies. Further, the removal of space barriers in modern TV broadcasting does not enable those initiatives to yield the expected effects. Most countries still allow some food companies’ practises, although they have been scientifically identified as detrimental to children (Hastings et al. 2003; Nestle 2006; Orlet Fisher, Rolls, and Birch 2003; Sharpe, Staelin, and Huber 2008).

Consequently, bearing in mind how devastating the epidemic appears to be, prevention programs and regulations so far appear not sufficient.

The reasons for this low efficacy are numerous. First of all, one must consider the high level of competition those programs face. First and most obvious, promotion for unhealthy foods, whatever its forms, has never been as intense as it is nowadays. Its well-documented impact on

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children preferences is now widely accepted (Hastings et al. 2003; Nestle 2006). Second, our cultures seem to have biased the role of unhealthy food, too often used as rewards or consolation means. Third, people tend to misperceive the risks and dangers of obesity. Therefore, as argued earlier, populations may not be attentive to the prevention programs. Last, their motivation to act may also be lacking. Those combining elements eventually heavily encourage not paying attention to the issue.

Therefore, we believe that efficient prevention programs should concentrate on actions that are likely to enhance both the target’s awareness of the problem and its willingness to act appropriately.

But who should be the target audience? Despite the evidence, this might still need to be specified. Many analyses of the children obesity issue appear to restrict the target to parents (Andreasen 2006). We believe this view is rather limited. Although nutritionists and psychiatrists emphasize that nutritional education should predominantly occur through parents, and while it seems to be still the case (Neeley 2007), it appears, in our society, that other socializing agents such as school and media intervene in the process. Children do not learn and act solely under parental supervision and recommendations. Parents’ influence decreases as the child grows (Roedder John 1999) and he/she should therefore be considered as an actor in consumption decision making. A recent study on Belgian children evaluated to more than 50% their influence on parent’s product choices for foods such as cereals and snacks. Therefore, their increased active role in consumption decisions should not be questioned. Then, we also know that concerning obesity, prevention is by far the most efficient tool (Ebbeling et al. 2002; Wofford 2008). Consequently, motivating children to adopt healthy eating behaviors at a time when the proportion of autonomous decisions increases appears relevant.

And how could this be achieved? First, it appears relevant to communicate with children through media that do not require them to proactively look for information. At this stage, we indeed do not expect children to be sufficiently involved in the issue to initiate action. Second, using communication means that have proven their effectiveness in modifying children’s preferences sounds appropriate. As stated earlier, research reviews have shown that advertising indeed influences children. This adequacy would be further enhanced if the media support foreseen is part of children’s everyday life. Indisputably, TV advertising fits both objectives. Third, referring

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to “techniques” identified as beneficial in health prevention seems wise. We will demonstrate that threat appeals are appropriate in pursuing this objective. The successive stages of this monograph will indeed be devoted to the achievement of this purpose.

A review of the seminal contributions of researchers in the various themes relevant to our objective will start this dissertation. The following topics will be discussed: effectiveness and mechanisms of persuasion through advertising in child populations; health-prevention theories as well as successful campaigns and, last, children’s food world. Our framework will consequently be constructed in our chapter I. Concretely, we will present how previous research enable us to predict effectiveness of threat appeals in advertising campaigns promoting fruits and vegetables among 8-to 12-year-olds. This represents our first chapter: “What Do We Know So Far? What Do We Want To Learn From This Research?”

The second stage of this research proposes to test the advertising effectiveness and to understand its functioning. This will be achieved through the succession of several experiments detailed in three chapters (chapters II, III and IV), presenting four experiments. These successive experiments are constructed in order to step deeper and deeper into aspects and understanding of persuasion and behavioural changes, the ultimate goals this research seeks for.

Chapter II (“Can Children Really Learn From Threats and Will They Change Their Intentions To Behave And Behaviors?”) will offer some answers to this question through a preliminary experiment on print ads and a second experiment working with audio-visual commercials.

Chapter III (“How Do Children Infer How To Behave From Threat Appeals”) investigates the persuasion process that leads children to consume more fruits after exposure to threats than children exposed to typical commercials.

Chapter IV (“Are We Taking Risks When Repeating Threats? Study On The Wearin And Wearout Effects”) pursues various objectives. First, it intends to increase the understanding of the persuasion process, adding moderators to the model. Second, it also aims at increasing the external validity and concrete contributions of our work, repetition being corollary to advertising campaigns.

Eventually, this dissertation should provide theoretical and practical contributions to marketing research. Superior effectiveness of threat appeals in promoting healthy food to preadolescents
will be demonstrated and its persuasion process studied. The ability of a TV campaign to change children’s consumptions will then be presented.

Nevertheless, we realize this epidemic will not be curbed by the sole effect of an advertising campaign, whatever its effectiveness. It has indeed been emphasized by researchers in social marketing that the combination of upstream (changes in targets’ environment) and downstream approaches (direct communication to targets) was the most efficient way to achieve behavioral changes (Andreasen 2006; Thøgersen 2007). Childhood overweight is also often associated with socioeconomic factors. Children in low income households for instance appear more at risk than their counterparts coming from higher income families. We are aware that the low availability as well as accessibility of -too often- expensive fresh fruits, vegetables and sport infrastructures may also contribute to this situation and that an advertising campaign will not change this fact. This emphasizes the urge for both societies and governments to act, in many directions. This research offers to study one of potential efficient lead: we will investigate how detrimental effects (the attractive power of TV and advertising’s influences on children’s food preferences) may be transformed into forces.

We wish you a pleasant reading
Chapter 1: What Do We Know So Far? What Do We Want To Learn?

Summary

This chapter reports the seminal contributions of 30 years of research related to our topic. This constitutes the conceptual background sustaining our research hypotheses. Consequently, this report is divided into five main sections. Each one approaches a specific issue of our dissertation: children, advertising, food, threat appeals and ethics in marketing. First, the “children” section focuses on both the elements that justify our decision to address 8-to 12-year-olds and relevant facts -as far as consumer socialization is concerned- to our dissertation. Exposing researchers’ views on advertising and persuasion through advertising among children (how and under which conditions does it affect them?) represents our second task. Third, we define food, healthy food and how they should be considered in relationship with 8-to 12-year-olds. Fourth, a broad review of fear and threat appeals in health promotion and prevention contexts is presented. Arguments in favor of the use of threat appeals when children are the target are then proposed. Last, and closing this chapter, we discuss the ethical question this dissertation is bound to raise.
1.1. Children and consumer socialization: causes and consequences of preadolescence on advertising persuasion

This research may legitimately raise a first question: “What are the motivations as well as the justifications for focusing on children and more precisely, on children of this age?” We evoked in our introductory section that some may consider parents to be the one and only target within the family because of the educational role they should play in this issue. This seems however not a realistic vision of western societies. The “child-king” (enfant-roi) phenomenon, crowning children as the deciders in the household (Marcelli 2003; Pleux 2002), expresses a trend that illustrates children’s influence on adults’ consumption decisions and choices. In early 2001, it was already listed that children influenced up to fifty percent of all the family’s consumption choices. A 2006 Belgian study revealed that the top products on which children have an influence during a shopping trip are food products (such as candies, snacks and cereals), that children either select themselves and put it in the trolley or request beforehand. Eventually, it has been evaluated that concerning food choices too, children influence more than fifty percents of decisions. Furthermore, while trying to get a loyal picture of the situation, it is also important not to oversee the food purchases that children realize on their own with pocket money. A recent study on the French market estimated the total amount of pocket money of 9-to 15-year-olds to seven hundred and eleven millions Euros (711 millions €), 21% of which would be devoted to food purchases.

These are pieces of evidence that, as far as food is concerned, children play more than a “supporting role” in consumption acts. They are both “independent consumers as well as influential when it comes to family consumption” (Tufte 2007). Accepting this cultural trend as a fact, one should consider how it can eventually become an asset to our objective. This child’s influence on adults could indeed succeed in changing the whole family’s food attitudes and behaviors. The process through which children teach adults is called “inverted or reciprocal socialization” (Gollety 1999).

Although children try to inflect their parents’ choices from their very first years, this phenomenon really occurs around the age of 8, when their influence becomes considerable. Nowadays, this influence is not questioned anymore. Marketing practitioners for instance take profit of this state of affairs every day and refer to the 8-to 12-year-olds as “tweens”, a contraction of two terms: “between” and “teens”. The increasing interest in tweens is such that not only advertisers, marketing and media specialists consider this target. Sociologists, psychologists, political scientists, economists and politicians also grant them with a lot of attention (Tufte 2007).

The next section will be devoted to the scientific elements, organized as answers to questions, that explain this focus on 8-to 12-year-olds and which actually sustain our motivation to concentrate on preadolescents as the target of this research.

1.1.1. Focus on preadolescents: from categorization to age choice justification

Can children be “categorized” and “labelized”? What is the interest?

Nowadays, it is widely accepted that children, depending on their age, have a different approach to consumption than adults and must therefore be considered specifically, by researchers, marketing practitioners and regulators. “Consumption” must be understood here according to its various constituting parts. Being a consumer indeed includes different types of tasks, such as experiencing the product but also carrying out choices between options or processing the information available on the product, whether it is derived from advertising exposure or any other source. Even though research on children as consumers still represents a drop of water in the ocean of consumer behavior literature, the impact of these differences have been well documented (Brée 1990; Macklin 1994; Martensen and Hansen 2002; Nguyen Chaplin and Roedder John 2007; Peracchio 1992, 1993; Peracchio and Luna 1998; Roedder 1981; Roedder John 1999; Roedder John and Cole 1986; Roedder John and Ramnath 1992; Roedder John, Sternthal, and Calder 1983; Roedder John and Whitney 1986; Rossiter 1979; Wartella 1982).

Children are commonly categorized according to their age. This categorization originates from the work of Piaget and his Theory of Cognitive Development. According to Piaget, children’s development follows an invariant sequence. First comes the “sensorimotor stage” (0-2 year-old); then children enter the “preoperational stage” (2 to 6 or 7); third begins the “concrete operational stage” (6 or 7 to 11 or 12) and, last they step into the
“formal operational stage” (from 11 or 12 to adulthood) (Case 1991; Meece 2002; Siegler 1998; Vasta, Haith, and Miller 1999). Though criticized, Piaget’s work remains one of the best known, most inspiring and probably most widely used classification, also in marketing. It has indeed been proven useful and effective in describing the age-related patterns of consumption (Brée 1990; Roedder 1981). Furthermore, Piaget’s restrictive view of children’s abilities has been since amended. Information-processing theoreticians for instance believe abilities are strongly related to the specific domain of development considered (Vasta et al. 1999) and have emphasized the importance of problem-solving strategies and working memory limitations in determining categories (Siegler 1998). In their attempt to reconcile Piaget’s structural view of intelligence and information-processing approaches, Neo-Piagetians propose that biologically growth of working memory and automatization of processes allow to progressively overcome processing limits. In other words, Neo-Piagetians believe that children are not limited because of their memory capacities (physiologic restrain) but well because of the way they use these capacities (procedures for solving problems and set of conceptual knowledge structures) (Case 1991). Younger children would indeed lack strategies that allow them to organize information more efficiently. When children are taught new ways of organizing information, the “space” gains can be reallocated to new information and strategies, increasing accordingly their abilities. This conception is sustained by research in the consumer behavior field. Authors such as Brée (1990), Roedder-John and her co-authors (Roedder 1981; Roedder John and Cole 1986; Roedder John and Ramnath 1992) and Wartella (1982) have indeed argued and proven in many experiments related to consumer situations that younger children can achieve older peers’ abilities if they are motivated and trained to do so, if the context is designed in this perspective and if the information is organized in an appropriate way. Nevertheless, in everyday situations, one has to admit that all children are not equal and that “even under optimal social conditions, there is a ceiling on the complexity of the knowledge structure children can construct at any age level” (Case 1991). For instance, age remains the most discriminating factor in the levels of understanding children have of advertisements persuasive intent and in the interpretations they make of it (Martensen and Hansen 2002).

What are the motivations to concentrate on this specific age bracket?
This widely accepted age classification and the specificities of each class motivate our decision to concentrate on a specific age bracket: the Concrete Operational Stage (7-12
year-olds). Interestingly, this population corresponds to 4 grades in the Belgian school system, from the third year of primary school to the 6th and last year. Children belonging to this stage master reading and writing, which is not incidental in such a study (Brée 1993; Goldberg, Gorn, and Gibson 1978). Members of this age group are also known as “preadolescents” and they are identified as holders of many specific characteristics. This uniqueness is also translated in the development of their consumers’ skills. In their respective retrospective of more than twenty years of research on consumer socialization of children, Brée (1990) and Roedder-John (1999) emphasized those differences. First of all, this period of age would actually be the most important as far as know-how and knowledge acquisition are concerned. Pre-adolescents are now able to think under symbolic forms which allow them to have a more complex perception of the market. Mainly these new abilities lead to three main consequences. First, they better grasp concepts such as brand and advertising. Second, they understand that different points of views can co-exist on a specific issue. Lastly, expanding from this ability to take different points of view into consideration, they can also integrate more than one perceptual attribute while making decisions. Those newly acquired cognitive abilities are essential to the success of our objective. Focusing on this age bracket indeed finds support in the different theoretical areas of this research, as it will be discussed in the following sections of this conceptual background.

1.1.2. Focus on preadolescents: from choice justification to implications on advertising perception

What are preadolescent’s perceptions of advertising in our current societies?
As far as their perception of advertising and persuasion is concerned, being able to take more than one point of view into consideration also induces that advertising does not exclusively mean information and entertainment anymore. Children now (around the age of 7) integrate its persuasive intent (Martensen and Hansen 2002; Moore and Lutz 2000; Robertson and Rossiter 1974; Roedder John 1999). Furthermore preadolescents do not believe that advertising always depicts real situations. As Brée states (Brée 1993), becoming aware of this probably explains the decrease in their positive attitude. Robertson and Rossiter (1974) advocate similarly that this trust decline leads to the rejection of advertising. As children grow older, they view advertising as less credible and become more critical of advertising (Martensen and Hansen 2002). One may however
wonders to which extent this rejection of advertising does not also reflect social desirability. Rossiter indeed nuances his previous finding, proposing that “children's increasingly negative attitude towards advertising does not mean much…” (Rossiter 1979), and argues that children tend to dislike advertising because that is socially required. It would actually bear “little relationship to advertising actual effect” (Rossiter 1979). Brée (1990) also emphasized the social dimension behind advertising rejection. Although those conclusions were proposed many years ago, recent research still support the conclusion according to which children like ads and regard them as entertaining. Pecheux et al. (2006) demonstrated that ads were more efficient when placed in programs kids did not like. Authors proposed the contrast theory to explain these results, arguing that ads represent a positive contrast in a negative context. This would tend to prove that ads are still regarded by children as mainly attractive. Children’s hypertrophy of the affective element probably justifies this interest for advertising, ads representing amusing or entertaining shows, being akin in many ways to cartoons (Brée 1990).

Enjoyment probably accounts for one explanation of the “TV advertising paradox” in children. Even though education to the persuasive intent of advertising raises children’s awareness of advertising’s purpose, it does not really contribute to limit the ads’ impact on children’s evaluation of the product advertised (Christenson 1982). It has indeed been repeatedly demonstrated that the attitude towards a particular ad will influence the attitude children will develop towards the brand advertised (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002a, b; Pecheux et al. 2006; Phelps and Hoy 1996; Vanhamme and Chiu 2008). Children’s increased understanding of advertising persuasive purpose does not appear to impact their product evaluation after exposure.

Other elements contribute to the understanding of the paradox children live in, up to their adolescence. As far as information processing is concerned, their “cued processors” condition probably accounts for much of this contradiction. Brucks, Armstrong and Goldberg have demonstrated that preadolescent’s “advertising knowledge must be cued in order to successfully generate advertising counterarguments” (Brucks, Armstrong, and Goldberg 1988). This need of prompts to activate knowledge justifies the “cued processor” terms under which Roedder identifies preadolescents (Roedder 1981). In her 1981 extensive review, she describes three major stages in children’s development, based on their abilities to process information. According to her classification, children would belong to the “limited”, the “cued” or the “strategic” processor group. Piaget’s original age classification can be recognized in Roedder’s organization: the “limited processors”
would represent the youngest children (below the age of eight), the “cued processors” group would consist of children aged from eight to twelve, the “strategic” group would be the oldest one (age thirteen and older). According to Roedder, and in typical television viewing situations, “limited” (younger than 8) as well as “cued processors” (from 8-to 12) learn less central information that “strategic processors” (from 12 years and older). However, in aided learning situation (when prompts regarding the central information are provided), “cued processors” are able to process as much information as “strategic processors”. Retrieval cues indeed significantly enhance memory performances (Macklin 1994). Brucks and colleagues, in their 1988 study, confirm this classification.

It should however be stressed that these pieces of research date back to a few decades now, in a “totally different media landscape” (Pynt Andersen 2007). In the ever evolving media environment (some might even speak of an ever “overloaded” environment), it can indeed be inferred that some things have changed. Different elements sustain this view. First, growing up in an ever present media environment -which also offers substantial means for education- children tend to reach the various stages of their development earlier. As the KGOY acronym symptomizes it, the idea that “Kids are Growing Older Younger” is nothing original (Pynt Andersen 2007). Second, in an overcrowded advertising environment, kids tend to pay less attention to ads (Van Evra 1995). This is supported by the practices in field: nowadays, marketers seek for new ways of advertizing their products. Product placement (De Pelsmacker, Geuens, and Van den Bergh 2007; Poncin 2007; Russell Cristel and Belch 2005), buzz marketing (De Pelsmacker et al. 2007; Greg Metz 2004; Phelps et al. 2004; Tufte 2007) or various guerilla marketing techniques14 (De Pelsmacker et al. 2007) are manifest examples of this phenomenon. Lastly, Martin proposed in her early 1997 meta-analysis that public policies might have had a positive impact on children’s understanding of advertising intent (Martin 1997). Martensen and Hansen further state, “it is confirmed that children today learn to have a more critical attitude towards advertisements than they did 10-20 years ago” (Martensen and Hansen 2002). Even though it has been argued earlier that understanding does not necessarily mean better use of those cognitive abilities, one can infer that today, children’s attitude and behaviors towards advertising must have undergone some changes. According to Martensen and Hansen (2002), children’s socializing process starts earlier but also

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14 A very striking example considering our own target can be found at the http://www.girlsintelligenceagency.com/ (retrieved from the internet on October, 24th, 2008), based on Pr. Langer’s expose at the Aarhus Business School, September 30th, 2008).
develops quicker than it used to. We may indeed assume that 7 year-olds are now a little wiser and more critical as far as advertising is concerned as compared to their counterparts from earlier generations.

Does savvier means better armed against TV advertising’s influence?
Albeit more informed and savvier, children remain influenced by TV advertising. This should not be a question open to conjecture anymore. As Tufte concludes, “tweens are both competent and vulnerable, depending on the context” (Tufte 2007) and “savvy consumers” is not tantamount to being a fully informed critical consumer” (Marshall, Kline, and O'Donohoe 2007). It seems important however to note here that the intensity of the influence identified in research is still somehow questioned and this, for various reasons. To begin with, most studies on children and advertising are usually conducted in non natural settings, not necessary allowing full transposition of results to real life situations. Children’s choices made after ad exposure in a specific setting such as holiday camps (Gorn and Goldberg 1982) do not allow us to automatically infer behaviors in supermarkets. This restraint does not mean that all experimental measurements of consumption will be non predictive of real life behaviors. For instance, snacking in front of the television may be directly influenced by the ads kids are watching, which is said to represent one of the major factors in the increase in children obesity (Ebbeling et al. 2002). Behavioral results that will be achieved at exposure time (or just a few minutes after) will consequently represent a good indicator of a campaign’s effectiveness. Nevertheless, advertisements’ impact on long term behaviors has not been proven yet. Brée (1993) suggests that as children grow old, television looses its influence. This is sustained by the conclusions of an Institute Of Medicine’s (IOM) report which specifies that adolescents are not influenced by food advertising to the same extent younger children are (in Goldberg and Gunasti 2006). One could therefore conclude that adolescents are no more concerned by the advertising ascendant. This appears far too optimistic. Even though these influences may decrease, the habits created in earlier stages remain. It further advocates for interventions before detrimental habits have taken roots. Then, advertising also influences mature and wise adults. Pretending that it has no impact on adolescents appears really naïve.
1.1.3. Focus on preadolescents: form implications on advertising perception to advertising consequences on their diet

In the previous section, it has been proposed that even though savvier and better informed, children largely remain vulnerable to advertising, mainly due to its entertaining nature. As far as food advertising is concerned, things are not different. Pieces of evidence of its influence are nowadays numerous. In 2003, The Food Standard Agency commissioned the University of Strathclyde to evaluate the nature and extent of food promotion to children and its effect on their food knowledge, preferences and behaviors (Hastings et al. 2003). From nearly thirty thousand potentially relevant titles, this systematic review studied more than 200 international papers and refers to 122 content analyses of the effects of children’s food advertising. Hastings and his colleagues (2003) came to the conclusion that food advertising undoubtedly influences children’s preferences and impacts directly, however modestly, children’s food choices (Goldberg and Gunasti 2006; Hastings et al. 2003). In 2006, the Northern American Institute of Medicine (IOM) analyzed the results of 123 peer reviewed studies addressing the same link Hastings and his colleagues identified, adding adiposity to their dependent variables. The IOM came to identical conclusions referring to children and preadolescents. They completed their evaluation arguing that “the idea that some forms of marketing increase the risk of obesity ‘cannot be rejected’” (Nestle 2006 p2528). Very recent studies do not contradict those findings. In their more modest 2007 review of two English, one North American and one New Zealander studies over children’s snacks, Marshall, Kline and O’Donohoe found “little to disturb this picture” (Marshall et al. 2007).

Can this influence be transposed to positive and social goals?

Our approach relies on the effective influence of advertising on children’s preferences and choices. We indeed believe that if advertising may persuade children to eat unhealthily, it can also change the undesirable existing habits. Changing socially unfavorable behaviors represents the fundamental objective of Social Marketing, defined by its “fathers” as “…the design, implementation and control of programs calculated to influence the acceptability of social ideas.” (Kotler and Zaltman 1971). More recently, Social Marketing has been described as “an extremely powerful set of concepts and tools which brings about changes in individual behaviors” (Andreasen 2006). Topics of interest for Social Marketing are numerous, from environmental issues to anti-racism including traffic problems and
domestic violence. Yet, one of its main concerns regards health-related issues. The apparition or recrudescence of numerous problems such as A.I.D.S, breast cancer, drinking and driving, drug addictions, binge drinking… probably explain this booming. Nowadays, people are very familiar with social marketing advertising campaigns. “Nights of Civic Advertising” are now organized and prizes awarded\(^{15}\). Yet, it must be stressed that the implementation of Social Marketing programs around a specific social issue means addressing the 4P’s of the marketing mix. According to Social Marketers, the communication stage, however essential, only represents the tip of the iceberg (Andreasen 2006; Donovan and Henley 2003). In other words, this means that whatever the effectiveness of an advertising campaign may be, it should always be sustained by other upstream actions targeting modifications in the audience’s environment that will eventually facilitate the behavioral changes expected (Andreasen 2006; Donovan and Henley 2003; Goldberg and Gunasti 2006; Thøgersen 2007). Although we believe an appropriately designed advertising campaign for healthy food will positively and significantly influence children’s preferences and choices, we do not expect it to solve the whole epidemical problem on its own.

Other arguments to the implementation of advertising campaigns for healthy food can be found in Goldberg and Gunasti’s plead for creating an environment in which children will be encouraged to eat healthier (Goldberg and Gunasti 2006). The authors indeed argue that the current overload of ads for unhealthy food on TV has distorted children’s perception of what a normal diet is. Increasing the proportion of commercials for fruits and vegetables would most certainly contribute to recreate a sense of balance. Furthermore, it has been demonstrated that frequent exposures to a stimulus creates an increased feeling of familiarity with the stimulus which in turn breeds liking (Harrison, 1977 in Goldberg et al. 1978; Zajonc 1968). This psychological phenomenon of “mere exposure effect” could have very positive effects on our target. Because people prefer things they are familiar with, increasing the opportunity children get to be familiar with healthy food through increased advertising exposure may also contribute to enhance their appreciation of a balanced diet. Last, familiarity increases the salience of product in choice situations (Goldberg et al. 1978). In sum, increased familiarity through numerous

advertising exposures would improve liking and the probability of healthy choices. TV advertising of healthy food finds here further support to an efficient contribution to our objective.

Nevertheless, all advertising campaigns probably do not reach the same levels of success. In the late seventies, Goldberg and his colleagues already emphasized that “appropriately designed” TV programs could be successful in changing children’s short term food preferences even in the face of typical commercials for highly sugared snacks and breakfast cereals” (Goldberg et al. 1978). Our current challenge consists in defining what “appropriately designed” can represent for children living in the year 2000 and in western, and more precisely European societies. Using the knowledge acquired during thirty years of research on advertising to children, our objective becomes the optimization of TV commercials that will be developed for the need of our experimentations.

In order to do that, answers to the following questions must be found: How does persuasion occur within our specific target? Which are the persuasion’s working processes and what pieces of evidence sustain these assumptions? What are the most efficient tools or advertising appeals identified so far? How do they work? Can they be adequately adapted to our own target (children) and object (promotion of healthy food)?

The coming section should allow us to shed some light on those issues.

1.2. Persuasion processes in children’s advertising contexts

1.2.1. The specificities of children and preadolescents

The differences that can be observed between children and adults as far as advertising is concerned probably result from the fact that, as argued by Brée (1993), Moore and Lutz (2000) and Pecheux (2001) children simply do not pursue the same objective than adults when watching advertising. As Brée emphasized in his retrospective (1990), the dominant explaining factor of children’s specific behavior as consumers is probably the affective hypertrophy already referred to earlier. Literature has now widely shown that affective reactions appear as the dominant ones in children’s response to advertising. Derbaix’ early work on the subject provided us with a new hierarchy of effects, explaining and demonstrating the specific sequence through which behavioral changes occur as a consequence of exposure to advertisements (Derbaix 1982). The “Emotional Hierarchy of
Effects” (Derbaix 1982) proposes that following process : Affect -> Behavior -> Cognitions. Transposed to consumption contexts, this means that the child will first react to the ad, the component of this responses being far more of an affective nature than cognitive. Then, because of this affect elicited, he/she will behave directly (buy the product) or indirectly (request it). Then through experience, he/she will develop cognitions on the product. Since this early study, many pieces of research have confirmed these findings. Derbaix and Brée (1997) showed that persuasion happened through a peripheral process (as opposed to Petty and Cacioppo’s central route of persuasion (1983)), with verbal affective variables improving the explanatory power of their model. Information about a brand was secondary in shaping concepts such as the Attitude towards the ad (Aad) and the Attitude towards the brand (Ab). Moore and Lutz (2000) found a direct transfer of ad affect to brand attitude, replicating in this the work of Derbaix and Brée on their youngest target (8 to 10 year-olds). Pecheux and her co-authors confirmed the importance of affect in the persuasion process in three pieces of research (Pecheux and Derbaix 2002a, b; Pecheux et al. 2006), sustaining the findings that brand beliefs do not seem to be formed by children or to impact on their attitude and intentions to behave. As exposed earlier, her recent work also enabled her to emphasize the importance of the program in which ads are embedded in explaining persuasion (Pecheux et al. 2006).

These pieces of research reach the shared conclusion that the affect elicited by advertising will indeed drive children’s level of appreciation of the ad (attitude towards the ad) which, in turn, will impact the attitude towards the brand and intentions to consume. Six studies have shown that a positive link between attitude towards the ad and the attitude towards the product exits (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002a, b; Pecheux et al. 2006; Phelps and Hoy 1996; Vanhamme and Chiu 2008). This direct affective transfer would be akin to Petty and Cacioppo’s peripheral route of persuasion (Moore and Lutz 2000). Furthermore, those last pieces of research also identified a significant link between Attitude towards the brand (Ab) and Intentions to behave (Ib) (Pecheux and Derbaix 2002a, b; Phelps and Hoy 1996).

Nevertheless, it has been argued that the ads will only appeal to children if a relevant meaning according to their norms can be constructed (Pynt Andersen 2007). In other words, it seems that ads of no relevance or that make little sense to children will not be liked.
Our next section will therefore be devoted to review influential factors of advertisements targeting children.

1.2.2. **Features influencing children’s liking of an ad.**

Referring to the preponderance of the peripheral route of persuasion among children and the secondary role played by the brand-related arguments, it appears that the most important elements in persuasion through ads are the executional features. Special attention in advertising among child populations has therefore been devoted to identifying which of those executional techniques were most efficient. Brée mainly reports the following criteria: “entertaining”, “cartoon format”, “presence of animal”, “appealing music” and “action” (Brée 1990, 1993). This is consistent with the content analysis conducted by Reece, Rifon and Rodriguez, a few years later. Authors indicate that the prototypical ad featured real people or animals, cartoon characters for nearly half of the ads and music in the background (Reece, Rifon, and Rodriguez 1999). Celebrities represent another successful feature. Actually, they should be considered as a specific feature of “real people”. Their attractiveness is indeed transposed to the product they advertise. Celebrity endorsement in adults advertising may intervene either on the central or the peripheral route of persuasion (Petty et al. 1983). Famous people who may be considered as experts on a subject will reinforce arguments of the message and will consequently impact the central route of persuasion. Using stars for their sex appeal, for instance, will conversely influence the peripheral route of persuasion. However, this relevancy to the product advertised does not appear in children. As long as the celebrity is liked (and however the unanimity among the audience might be hard to reach), the influence is positive.

The most recent compilation of studies on the subject confirms the relevance of these main elements (entertainment, action, music, animals, cartoons), adding that jingles, heroes, and peers’ presence constituted other appreciated criteria (Guichard and Pecheux 2007). Guichard and Pecheux (2007) also suggest to tell a simple story that entertains (avoiding a too paternalistic tone) and to use older fellows than the targeted ones.

All those elements enhance the probability that the ad will be liked. As stated earlier, attitude towards the ad is related to attitude towards the brand and intentions to behave. In other words, an ad that contains some of those executional criteria presents a higher
probability of being appreciated. Consequently, the evaluation of the product advertised will improve, as well as its likelihood to be asked (or purchased with own pocket money). This is widely accepted by researchers and used everyday by practitioners. Commercials targeting children usually include one or more of those elements, which globally tint positively advertising in the eyes of this specific audience. We will refer to this type of advertising as “typical advertising”.

However, there is little information available for situations in which ads elicit less positive, or even negative, affective reactions and that might eventually lead to ads that are not liked. Although the literature has shown that the attitude towards the ad was positively linked to brand evaluation and intentions to behave, inferences on the effectiveness of ads that elicit negative affective reactions -and are less liked- are difficult to draw. VanEvra (1995) proposes that purposes in viewing represents an important factor in assessing an ad’s effectiveness. According to her, an ad that answers the viewers needs -whatever those needs maybe (entertainment or information), and therefore becomes relevant to them will see its effectiveness increase. This could indeed lead us to suppose that a less “attractive” ad, according to children’s criteria, could still be effective if it refers to topics perceived as relevant to the target.

1.2.3. The specific issue of “significant others” in advertising influence among preadolescents

As indicated in the previous section, peer’s presence in a commercial seems an influential element of ad’s positive evaluation. Although interacting peers -as compared to the mere presence of one fellow- do not seem to impact the ad’s assessment (Derbaix, Pecheux, and Gyssels 2005), this character of a fellow child may contribute to increase young viewers’ involvement. Stoneman and Brody (1981) showed that commercials embedding similar peers (peers to whom viewers could identify themselves with) would enhance the likability of the product advertised, as compared to non similar peers. Explanation to this phenomenon may be found in the role peers play in the consumer socialization of children. Kids would indeed acquire the symbolic, materialistic and affective dimension of consumption through their peers (Brée 1993; Nguyen Chaplin and Roedder John 2007; Roedder John 1999).
Peer’s influence in socialization is, of course, age-related. Although it seems to start at an early stage (around 5), it increases with age whereas parental influences decreases\(^{16}\) (Brée 1993; Roedder John 1999). By the age of 8, peers’ approbation becomes one of the most influential feature in determining preferences (Derbaix et al. 2005). It seems that peers become unconditional “significant others”. According to psychiatrists, preadolescence is indeed one of the most peer-influenced periods in one’s life\(^{17}\) (Field et al. 2003). Self-enhancement is sought and peers’ approbation contributes to its reinforcement. Therefore situations in commercials that depict what is done, chosen, worn, eaten… by significant others are more likely to be copied.

This strong influence often detrimentally resorted to in commercial situations could be used in positive contexts, such as education. For instance, consequences on peers’ relationships have already been identified in the late 70’s as a potential trigger to persuasion in healthy consumption situations (Goldberg et al. 1978). Pechmann and colleagues (2003) identified that this “peer’s influence” was the sole efficient mean in convincing young adolescents not to start up with smoking, emphasizing the consequences of bad breath on popularity. Ten years ago, Peracchio and Luna (1998) pointed out that long term health triggers might not be the most efficient ones to encourage smokers to stop smoking. In numerous research on teenagers, it indeed appears that arguments such as long term health problems are not efficient in inducing behavioral changes (Goldberg and Gunasti 2006; Hastings, Stead, and Webb 2004; Pechmann et al. 2003) or, to the most, not as efficient as social triggers (Ho 1998; Schoenbachler and Whittler 1996).

1.2.4. Let’s pay attention to attention!

In section 1.2.2, it has been underlined that specific executional features are able to increase children’s attitude towards the advertising that embeds them. Nevertheless, in order for those elements embedded in the ad to play their role, attention must be devoted to the ad. The two dimensions of attention must consequently be addressed: direction and strength. Direction refers to what is attended to whereas strength is used to measure how

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\(^{16}\) It must however be said that in her study, Neeley (2007) reported that the family support and encouragement were significantly correlated with adolescents’ fruit and vegetable intakes, while peers seem to have little influence on those behaviors. This would tend to show that for this particular type of consumption, family’s influence is still major. These results are also consistent with Chan, Prendergast, Grønhøj and Bech-Larsen’s (2008).

\(^{17}\) Sentence extracted from experts interviews. Conclusions are available in Chapter 4, section 4.1.1: “Experts interviews”.
much attention is granted. Direction is essential but not sufficient: a poor degree of attention to an ad would reveal itself useless for advertisers. Both dimensions of attention are to be considered in constructing advertising campaigns and this represents a rather challenging objective.

It appears nowadays that less attention is devoted to TV ads, probably due to its overload (Van Evra 1995). Although TV remains one of children’s privileged activities, the ever increasing amount of ads presenting similar formats naturally induces a drop of interest in the audience. Ads embedded in programs depicted by children as boring (such as “the news”) are more efficient than ads broadcasted in an appreciated children’s program (Pecheux et al. 2006). The relief from the boring program ads offers, and consequently the increased attention they are granted then pictures another sign of this phenomenon. Attention has also been identified to be context related. Let us compare situations where many distractions are available to settings free from other sources of entertainment. We can infer that children watching TV in the presence of family, siblings, friends and surrounded by toys will be less attentive to ads than children watching TV alone. Lastly, considering young children (3 to 5 year old), attention appears to be driven by the understanding of the situation (Anderson et al. 1986). Pynt Andersen states that the relevant meaning tweens are able to construct from the ad is essential to appreciation. However, this liking can only be constructed if attention has been granted (Pynt Andersen 2007). In order to succeed in advertising, constructing meaning that is relevant to children appears fundamental.

Consequently, developing a campaign that will be efficient at catching children’s attention in spite of distracting factors should be the first aim of any efficient campaign.

Once the attention is caught, being able to direct it to ad’s elements that will raise its level should be the next objective. In this respect, literature relative to transfer of attention from one stimulus to another is of much interest. This occurrence is indeed the consequence of inhibitory connections, where the attention gained by one stimulus decreases the attention granted to another (Field 2006). This phenomenon is called “attentional bias”. Field’s work aims at identifying the validity of verbal cues as inducers of such bias and the impact of such persistent attentional bias on anxiety on children. His work also confirms that specific attention is forced to threatening information. Referring to our own objective, children evolving daily in an overloaded advertising environment, threats embedded in ads would draw attention to these commercials. At this point, let us emphasize that in his research, Field (2006) worked with pictures of animals associated
with either a positive or a negative comment. Children are particularly sensitive to this stimulus. Lahikainen and colleagues (2003) have indeed identified unfamiliar and familiar animals to be the second and third most common fears in 5-to 6-year-olds. Those are referred to by experts\textsuperscript{18} as “primary fears”. The level of anxiety they cause is probably rather high. Our objective is not to cause such levels of stress in preadolescents. Nevertheless, we may assume that the attention drawing process will persist for less perturbing threats.

1.3. Food and 8- to 12-year-olds

1.3.1. Healthy food and diet: a definition proposal

At this stage of our dissertation, it appears important to outline the various food-related notions that will be used throughout this research. Our first objective is to propose a definition of “healthy food”. We will start within a general nutritional context and will further specify this notion in relationship with this dissertation’s objective. For instance, we will attempt to clarify the motivations, advantages and disadvantages of promoting the consumption of “fruits and vegetables”, as compared to the vast and consequently vague objective of promoting a “healthy diet” (not restricting the message to the promotion of fruits and vegetables). Further, we will also discuss the consequences of promoting fruits and vegetables as compared to discouraging the consumption of unhealthy food. 

*What is “healthy food” and what does “a balanced diet” mean?*

According to dieticians, a “healthy diet” is about balance in the long run. Therefore, a specific total amount of proteins, carbohydrates and fats, but also vitamins and minerals must be consumed on a regular basis. The instrument commonly used by health specialists in order to represent the proportional balance between the different types of food, is the “Food Pyramid”. Although it may present some slight variation across countries, The “Food Pyramid” is known internationally in our western societies. In Belgium, the National Advisory board of Nutrition\textsuperscript{19} proposes recommendations on the basis of which the pyramid is constructed. For the sake of simplicity, the pyramid refers

\textsuperscript{18} Information extracted from experts interviews. Conclusions are available in Chapter 4, section 4.1.1: “Experts interviews”.

\textsuperscript{19} Conseil National de la Nutrition, Ministère des Affaires Sociales, de la Santé Publique et de l’Environnement, 1996
to daily proportions. However, dieticians usually agree to speak on a weekly or even monthly basis. The pyramid is revised every five years in order to be easily transposable into consumption situations of daily life ("for the health messages not to be mummified in sterile discourse" (Absolonne et al. 1999).

This teaching tool (see figure 1) is well known by Belgian children. It is part of class material used by teachers from the 3rd grade on. The principle behind the pyramid is to translate the importance of some foods through the proportional space it fills in the pyramid. The most important ones -that should be consumed in large quantities- are placed in the lower, larger rectangles. The ones to be limited to the most are placed in the top smaller triangle. Yet, “no food is forbidden, all being a matter of quantities and frequencies” (Absolonne et al. 1999). Recent versions of the pyramid have been made available, adding emphasis on the importance of physical activity in a healthy routine (see figure 2). The decreasing level of physical activity has indeed been identified as a major contributing factor to the weight increase in child populations (Ebbeling et al. 2002).

Figure 1: The Belgian Food Pyramid
Source : Health and Food ;
Nevertheless, increasing the quality (nutritionally-wise) of food remains an essential issue. As shown in “Mypyramid for kids” (20), the proportion of fruits and vegetables taken all together is one of the largest one recommended. It is also the first group of food recommended for children on a daily routine by the Food Standard Agency (21). Those quantities are defined on the basis of the nutritional composition of the specific food (Absolonne et al. 1999). Fruits and vegetables bear high values in nutriments while the proportion of fat, salt and sugar remains low. Furthermore, all fruits and vegetables are recommendable in children’s diet which makes fruits and vegetables a prior target on nutritionists’ list. This is not always the case with other food products. In the “grains” section, for instance and despite its essential nature also quantity-wise, very detrimental items on a diet can be found, such as dry biscuits and pizzas. Considering the promotion of a whole product category, working with fruits and vegetables appears sound. Current campaigns, all over Europe, advocating the intake of 5 fruits and vegetables per day is a representative illustration (22).

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22 Campaigns example may be found on the internet: France http://www.10parjour.net/site/pages/home/index.php; Switzerland, http://www.5parjour.ch/page.php?sprache=fr&kid=0
Fat, sugar and salt represent the basic factors that allow distinguishing healthy food from less healthy or unhealthy products, as shown in figure 3. The table relies on the traffic light’s colors to represent what consumption can be encouraged and what should be restricted. Some types of food are easily classifiable when considering those three factors (butter, oil, candies, pastries, chips, etc…). Some other products appear much harder to classify (pastries, fries …). This level of information is indeed generally not mastered for most food products, even by adults. The distinction between the various foods usually remains to a category level, such as the various sections shown in the pyramid.

<table>
<thead>
<tr>
<th>Quantities per 100g food (different figures apply for beverages)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fat</strong></td>
</tr>
<tr>
<td>Low</td>
</tr>
<tr>
<td>up to 3g</td>
</tr>
<tr>
<td>up to 0.3g</td>
</tr>
<tr>
<td>up to 5g total sugars</td>
</tr>
</tbody>
</table>

**Figure 3: Front-of-pack Traffic Light singpost labelling**

Source: UK Food Standards Agency

http://www.food.gov.uk

Consequently, we initially decided to concentrate on the promotion of fruits and vegetables. This resolution rested on four elements. First, two longitudinal studies compared the impact of increasing fruits and vegetables intake versus reducing high energy-dense foods on respectively obesity prevention and cure (Epstein et al. 2001; Epstein et al. 2008). Authors conclude that increasing fruits and vegetables consumption is more efficient. They offer different explanations to this occurrence. They propose that increasing fruits and vegetables intakes naturally enhance satiation, reducing automatically caloric and fat consumptions. They further argue that shifting buying habits will probably decrease junk food availabilities, as consumers tend to keep their budget in balance. But more striking, they found that their “increased intake of fruits and vegetables” intervention also decreased consumption of fat and sugar foods, while the other ways round was not observed. It appears therefore that fruits and vegetables promotion allows targeting two objectives (increase healthy intake and decrease unhealthy ones) while discriminating fat and sugar only achieves the second (decrease the unhealthy consumptions). Our second element concerns the relative proportion of food recommended. As shown in the different pyramids, the fruits and vegetables product category is obviously the most important one (proportion-wise) in a diet. Third, we
believe that gathering all effort on one unique product category will avoid confusion or dilution of our promotional tentative in this dissertation. Finally, a unique message across experiments would also allow better comparisons.

*Shall we promote? Or shall we prevent?*

Yet, the implications of promoting a specific behavior versus criticizing another one in advertising should not be overlooked. Emphasizing the desirable versus the undesirable outcomes, using a positive or a negative orientation appear to impact individuals’ intentions to comply with the recommendation. Health-related situations would be no exception to this (Block and Keller Punam 1995; Rothman and Salovey 1997). However, meta-analysis (Stice et al. 2006) and review (Wofford 2008) do not report studies where the sole impact of TV advertising campaign for healthy food is analyzed. Similarly, the influence of messages preventing from unhealthy consumption, or the comparison of both advertising pro healthy food or against unhealthy ones is never analyzed. We are provided with few clues that enable us to hypothesize the effects of negative recommendations (“do not eat this”) on the target. On the one hand, a message that enjoins not to act in a specific manner might be perceived as a threat to freedom of choice and may trigger the psychological phenomenon of “reactance” (Brehm 1989; Clee and Wicklund 1980; Wicklund 1974). On the other hand, although this occurring is indeed encountered in social marketing campaigns, some argue that children are less likely to experience it. Children’s attempts to restore their potentially lost option(s) (favoring the non advised solution over the recommended one) present little probability of occurrence (Grandpre et al. 2003). Furthermore, it is argued that overweight and obesity are the consequences, as far as diet is concerned, of a disproportionate intake of junk food probably due to a distorted vision of appropriate proportions’ notions (Goldberg and Gunasti 2006; Orlet Fisher et al. 2003; Sharpe et al. 2008). Preventing children from growing old with this fallacious and detrimental perception would probably represent a first positive step. Consequently, we feel this issue cannot be totally ruled out. The literature providing little evidence of the impact of promotion versus prevention may have on child populations, this research could offer a first insight on the issue. We propose to review and discuss this issue more deeply in a following section (1.4.1.3).

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23 According to Brehm, “reactance” is aroused when a person feels that his/her freedom of choice is jeopardized. It often leads to the adoption of concurrent attitudes and behaviors to the recommended ones, which is known under the “Boomerang effect” (Brehm, 1989; Clee and Wicklund, 1980; Wicklund, 1974).
What do children really know about healthy food?

Bearing all those aspects in mind, one question has to be answered. What do children know about nutrition and healthy food product? This represents indeed the basics of our research. If it is expected from children to consume “adequately”, it should be known whether our target understands what is meant by “adequately”. Grasping children’s knowledge and understanding of these nutritional issues will be achieved in the next section of this dissertation.

The question should be considered from two perspectives: what is the level of knowledge and who/what is the source of this knowledge. This second element may indeed also provide information on to which communication channel is efficient to pass nutritional information on, and on the relative quality of the knowledge.

Referring to our second question, it has been briefly discussed in an earlier section that when children reach preadolescence, peers’ influence as socializing informants grows, to the detriment of parents who have been the major source so far (Brée 1993; Roedder John 1999). Based on this commonly shared knowledge, Neeley (2007) found surprising that children in her study indicated that “peers did not really influence their nutrition knowledge or behaviors” (Neeley 2007 p256).

Recent studies have reported that family support and encouragements to eat healthily were the most efficient features in influencing children’s diet (Chan et al. 2009; Neeley 2007), sustaining in this the predominant influence of parents in this specific topic. Nevertheless, we believe these findings need to be moderated. First, we argue that social desirability probably plays a role in those declarations, at least in part. (Pre) adolescents are usually quite reluctant to acknowledge the fact that peers may influence them. Second, although the main influence is probably and fortunately still in parents’ hands, this does not totally rule out other external influences. According to the literature, two other socializing agents are to be taken into consideration in the socialization process: school and media (Ward, 1974 in Brée 1993; Pecheux 2001; Roedder John 1999). As far as media is concerned, the importance of TV advertising on children’s preferences and food choices has already been discussed earlier (section 1.1.3.). Of course, the media impact must not be limited to advertising, neither to TV advertising. Internet represents an increasing part of children leisure time. Websites, whether they are of commercial intent or not, should now be considered as an active educating tool (Tufte 2007). Then, school
by essence intervenes in the process of education. As stated earlier, in French speaking Belgium, as far as nutrition is concerned, specific lessons are included in teaching programs as soon as the 3rd grade. Furthermore, the Belgian government fosters actions dedicated to children’s nutritional education.

Lately, facing the increasing proportion of childhood obesity, public instances of many countries developed targeted policies to be applied in schools in order to sustain the nutrition educational effort. In Wallonia, those policies concern mainly school canteens, availability of dedicated didactic material as well as nutritionists’ advice.

These various pieces of information tend to suggest that, in Europe and in the years 2000, parents and schools are the dominant sources of information and education as far as the construction of children’s food habits are concerned. Nevertheless advertising undoubtedly influences their preferences whereas peers seem to play a secondary role.

At this stage of our study, gaining our own insights on the topic seems important. Eventually, this will allow us to grasp preadolescents’ “food world”, an important prerequisite considering our objective. Qualitative research appears to be the most appropriate technique for doing so. To place qualitative research in our literature review is motivated by the learning this phase will bring and the significant element it represents in the construction of our research’s frame. The next section will therefore relate the two qualitative studies conducted in French speaking Belgium in the 2005 and 2006. The first study aims at providing confirmation about information sources of “tweens” as well as concrete facts on preadolescents’ nutritional knowledge. It also pursues an essential objective to our research: identifying the main motivations for preadolescents to eat a balanced diet.

The second piece of research will deepen the motivational issue. Based on the information gathered in the first interviews, scenarios depicting various situations emphasizing the importance of balanced diet (mainly the importance of fruits and vegetables) will be presented. Preadolescent will then be asked to select and justify one or two scenarios and elaborate over their choices.

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25 “Plan de promotion des attitudes saines sur les plans alimentaire et physique pour les enfants et adolescents de la Communauté française”, Gouvernement de la Communauté française, 18 novembre 2005.
1.3.2. **Qualitative studies:**

1.3.2.1. Children's food world in the early 21st century in French speaking Belgium.

Forty-one French speaking Belgian children participated in the qualitative study that took place in November/early December 2005. The technique of “semi structured interviews” was used. In order to overcome some shyness issues, children were interviewed in groups of 2 to 5. Projective techniques as well as collages were also used. They allowed us to go further into children’s eating motivational patterns. It also enabled us to overcome the vocabulary limits some children may encounter in this type of situations (Haire 1950; Rust and Hyatt 1991). The interview guide is available in appendix 1.1.

Details on our sample are provided in table 1.1. For further information (parent’s professional activities, siblings, sport activities), please refer to appendix 1.2.

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>6th grade (11-12 year-olds)</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>5th grade (10 - 11)</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>4th grade (9 - 10)</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>3rd grade (8 - 9)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>21</strong></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

Table 1.1.: Characteristics of the qualitative research’s sample

Four themes emerged from the content analysis of those qualitative interviews. Furthermore, it allows us to answer many of the above mentioned questions related to children’s nutritional knowledge (quality and source; consequences; overall opinion). A fifth point will draw this qualitative research’s main conclusions.

**A. General perspective on children’s food world**

According to the majority of children, eating is not the most salient activity in their life. When asked to recall important moments of one’s day, eating or drinking was rarely proposed by respondents. However meals are not seen as a chore, even though 4 children mentioned spontaneously the “necessity” of eating. Duality is nevertheless very much present in children’s discourse about food, whether it opposes “reason” to “emotion” or
“bad” to “good”. When they were asked to associate the word “food” to an other one, both sensible answers, such as “balanced food”, “lean food”, “no excess”, “do not listen to ads”, “eat healthily” (manger équilibré, manger maigre, pas d’excès, n’écoute pas les pubs, mange bien”) and sensitive-pleasure associated answers such as “Yummy..., will it (the meal) be good?”, “time to meet and talk”, “family” (Humm, est-ce que ca va être bon?, c’est le moment de se retrouver, de se parler, famille”) are given. Comments solving from this duality were never proposed. Good food (taste-wise) remains considered as bad food (health-wise) and good food (health-wise) has never been spontaneously associated with good taste.

**B. Children’s knowledge and beliefs about food**

A striking learning withdrawn from those interviews is that preadolescents do have a good evaluation of food’s nutritional value. Even the younger ones could easily associate pictures of either healthy weight or overweight children with respectively healthy food or high sugar or fat content foods (see appendix 1.2. for illustrations of collages). To the majority of children, high sugar content food is the most common cause of overweight and surprisingly, fatty products are identified by all children as “bad for your health”. Globally, children’s reported nutritional information was correct three times out of four. Furthermore, wrong answers were given in relationship to complex foods, which tend to puzzle them. For instance, children do not really know whether a quiche is healthy or not, considering respectively its content of vegetables (positive) and “fatty” cheese. However, we may suppose that many adults would be in the same state of uncertainty. Let us however note that some far-fetched propositions were made. Here are a few illustrations: “fish, it’s better for you when it is hot (le poisson chaud, c’est mieux)” ; “starchy food is good for the brain (les féculents, c’est bon pour le cerveau)”. It also seems important to emphasize the fact that preadolescents do not underestimate the impact of drinks on a balanced diet. The lessons on high sugar content sodas seem well learned (“Dr Pepper, is full of sugar (Dr Pepper, y’a beaucoup de sucre)” and the importance of calcium is well known (“Calcium, to be tall and strong... it strengthens the bones... (Le calcium pour être grand et fort, ... ca renforce les os...)”.

**C. Children’s sources of knowledge**

Concerning sources of knowledge, children refer to parents and school, confirming the literature. Fortunately, parents would still widely control children’s consumption. A third
of our respondents informed us that their parents refused to either buy or let them eat food that was not nutritionally satisfying. However, indirectly, the advertising topic was often raised in the discussions. Spontaneously children did mention brands or commercials, either as a credible source of information or conversely, because it “does not always tell the truth (ne dit pas toujours la vérité)”. Interestingly, half of those savvy children (5 out of 10) had been disappointed after a product experience that did not live up to the ad’s promises. Last, children spontaneously mentioned the “Chiquita” brand. This seems symptomatic of their close relationship to brands: mentioning brands for fruits and vegetables is not a common thing. Fruits and vegetables brands are not that numerous. Referring to brands for those products may be interpreted either as a positive sign towards “brands” in general or for the advertised brand(s) in particular. It is indeed probably a clue of the advertising influence on children’s food world.

D. Perceived consequences of bad food habits.

Children were then asked reasons why they would avoid being overweight. All spontaneous motivations allude to social dimensions. Being subject to mockery is the most feared consequence for the vast majority of the children (“I would be ashamed (j’aurais honte), “there would be less people to come to you and play and some would insult you (il y aurait moins de gens qui viennent vers toi pour jouer et y’en a même qui disent des insultes)”). Moving with ease and consequently, being able to take part actively in others’ games represents children’s second motivation to stay fit (“it is not possible to do the same activities than others children (on ne sait pas faire les mêmes activités que les autres), “if they (obese children) have to run, they run not as quickly as others, they are slow (s’ils doivent courir, ils ne sont pas aussi rapides que les autres, il sont lents”)]. Although this second element appears motivated by physical abilities, it is also obviously related to a benchmarking that children make between each other. It is therefore indirectly socially dependant.

As far as gender differences are concerned, boys frequently indicated that their physical activities allowed them not to worry about unsystematic intake of unhealthy foods. Girls appeared less enthusiastic about sports in general and never mention their physical activities as a solution to weight problems. Furthermore, only one group of girls (2) mentioned that overweight people tended to be less aesthetic than healthy weight people.
Last, it appears important to stress that health-related problems have scarcely been cited. Out of 41 children, and after prompted questions, cholesterol and toothaches appeared the only ones to be mentioned.

E. Conclusions
The main learning could be summarized as follow:
In coherence with the literature, the two most important sources in the “food” consumer socialization of children remain family and school. They may be considered as trustworthy sources. This probably explains that most of children’s knowledge as far as food is concerned is correct. Peers have never been mentioned as an influential element, and this, neither during open discussions nor when directly prompted. However, concerning advertising, preadolescents’ discourses lead us to conclude that ads’ influence remains evident, even though it may be of second order as far as food choices and knowledge are concerned.
The most feared consequences of an unbalanced diet are in the vast majority related to social issues and more precisely, to peer’s acceptance. Health issues are seldom mentioned.
Those results widely confirm recent knowledge reported on children in other western societies such as, respectively Australia and the United States (Hesketh et al. 2005; Neeley 2007; Schwartz and Puhl 2003).

Those pieces of information completed by the literature on children’s preferences in advertising and persuasion enabled us to create eight commercials scenarios that were to be submitted to children for evaluation. The objective of this evaluation is to identify the most efficient scenarios for healthy food promotion. The following section proposes a review of this step of our research.

1.3.2.2. Children’s selection of efficient scenarios in motivating to consume healthy food.

Thirty-three preadolescents have been interviewed in this second qualitative phase either alone or by groups of two, and this in various settings (at school, during free time and at youth clubs). These various origins contribute to the variety of socio-demographic
Due to the moderator’s personal acquaintance with some of the children, it was assumed that single interviews for those were not going to limit the richness of the exchanges. This was never done in situations of shy and unknown child. Children were shown commercials’ scenarios, presented as sketches, that they were asked to comment “in order for the researcher to improve them”. Each scenario was twofold. The first one depicted a specific situation built on different advertising tools, either identified as popular with children in the literature (Brée 1993; Guichard and Pecheux 2007; Reece et al. 1999) or extracted from our qualitative study, or both. The second would propose the recommendation, advocating the importance of fruits and vegetables. The literature emphasizing the importance of executional features (Derbaix and Brée 1997; Pecheux and Derbaix 2002a; Pecheux et al. 2006), our ads were developed as Power Point files, which allowed the use of sounds, movements, action, etc. Finally, eight scenarios have been developed.

Table 1.2. summarizes the distinctive elements of those scenarios. Sketches are available in appendix 1.3. (in order to view the Power Point files, please, access to the following page http://www.fucam.ac.be/index.php3?pere=25381 or refer to the DVD provided)

<table>
<thead>
<tr>
<th>Title</th>
<th>Theme</th>
<th>Key tone</th>
<th>Executional features</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Pumpkin”</td>
<td>Fruit and vegetables play</td>
<td>Neutral</td>
<td>Visual: - Cartoon extracts; texts in motion; colors</td>
</tr>
<tr>
<td></td>
<td>famous characters in fairy</td>
<td></td>
<td>Audio: - cartoon’s music, no “off voices”</td>
</tr>
<tr>
<td></td>
<td>tales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Carrot”</td>
<td>Fruit and vegetables become</td>
<td>Humor</td>
<td>Visual: - Movement in texts and sound; characters</td>
</tr>
<tr>
<td></td>
<td>cartoon characters that praise</td>
<td></td>
<td>appearing and disappearing</td>
</tr>
<tr>
<td></td>
<td>the nature’s benefits</td>
<td></td>
<td>- Vivid colors</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- A carrot personified (cartoon character)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sound: - Speaking carrot (adult woman’s voice)</td>
</tr>
<tr>
<td>Mussels</td>
<td>Impact of fat on mussels and</td>
<td>Humor</td>
<td>Visual: - animation in cartoons’ balloons</td>
</tr>
<tr>
<td></td>
<td>sports achievements</td>
<td></td>
<td>- cartoon characters</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sound: - Speaking mussels (adult man’s voice)</td>
</tr>
</tbody>
</table>

Table 1.2.(1/2): scenarios presented to children for selection in phase II- qualitative research
Due to the limited time under which children can remain concentrated, it was impossible to show all eight scenarios to each child. During the first stage of the study (23 children), all scenarios were presented an equal amount of time to each child. The last part of our sample (ten children) provided information that enabled us to improve our understanding of children’s motivation to selected scenarios. Eventually, the viewings were distributed according to the table 1.3.
Four scenarios emerged from these interviews. The next paragraphs will be devoted to
the presentation of the main results achieved through this qualitative phase that
eventually led us to our selection.

A. “Garfield and Gus”
As far as popularity is concerned, the “Garfield and Gus” story is the most preferred
scenario, being selected as a first or second choice by 14 children out of 32. The humor
brought by Garfield is acclaimed and the cartoon format is very much liked. The cartoon
character of Gus however seems too childish for the oldest children. Discussion allowed
us to deduce that the scenario was able to draw attention to the drawbacks of overeating,
even though it seemed sometimes too abstract for the youngest ones. Children seemed
absorbed by the entertainment provided by the nature of the scenario. For this reason, it
is not manifest whether recall will be about nutritional information or recommendation.
Recall will be most probably be prompted by the fun brought by Garfield: “this ad makes
us laugh … but it gives us less to think about (cette pub a le mérite de faire rigoler… mais elle fait moins
réfléchir)” (Boy, 10)

B. “Basket ball”
“Basket ball” has been selected 9 times, either as a first or second choice out of the 28
children. They liked its drawing style, which brought them to think the real ad would be
under the cartoon format. They also enjoyed the physical activity proposed. None of the
children objected or proposed another physical activity. Both elements (cartoon and
sport) were considered as a good attention catcher, as they are effective parts of their life.
Adolescent or older voices appear to be more credible, “An adult voice (would be better)
because we tend to comply more with adult voices as compared to children’s (Plus une voix adulte parce
Chapter 1: What Do We Know So Far? What Do We Want To Learn?

This last element, as well as the cartoon type used probably explains why this scenario was most appreciated among young children. Finally, concerning the message about health embedded in the ad, it appeared clearly understood across all ages, indicating that the use of some analogies is also feasible among the youngest children.

C. “Marie”

“Marie” is by far the message that grabs and retains the most attention, and to which reactions are the most vivid, positively and negatively. Negative evaluations were induced by concerns regarding the sadness it may create among obese children. “If Marie really exists, she will think we pay her out (Si Marie elle existe, elle va penser qu’on se moque d’elle)” (Boy, 9). When positively evaluated, it is the ability of the message to shock and hence, to force reflection, that is the most valuable. Children also speak of the indirect positive impact this ad might have on parents. While parents might not always be aware of the difficult times their overweight children go through, this ad could bring them into their reality. “This will make sad dad and mum who realize she (Marie) has no friends” (Et ça rend papa et maman tristes parce qu’ils comprennent qu’elle a pas d’amis) (Margaux). “With this ad, they will see what their children go through and eventually, they may react”. (Parce que si ce sont nos enfants, ils voient plus ce que leurs enfants vivent et alors, ils vont peut-être réagir) (Boy, 10). It should however be noted that the valence of the evaluation is also related to the age-group. The youngest ones seem to experience more difficulty understanding the motivational purpose of the ad.

D. “Carrot”

“Carrot” comes as the fourth most liked ad. The non patronizing tone used by the carrot character appears to be responsible for that success. The complex message according to which fruits and vegetables are important, emphasizing that pizzas’ consumption should be decreased and that the nature and natural products are to be preserved appear well understood. “It’s interesting because it joins the importance of eating healthily and also environmental issues (C’est intéressant parce que ça joint l’importance de bien se nourrir mais aussi l’environnement)” (Boy, 10); “In the plants, there are no products euh…. (boy thinks)… here, it makes us think about nature (Ben, dans les usines, y’a pas de produits…. Ici, c’est réfléchir à la nature)” (Boy, 8). However this ad appears to be the less likely one to attract children’s attention in an everyday life setting. “Us, during free time, we speak about the ones (ads) which shock or make us laugh, so for this,
This qualitative study also allowed us to gather some information regarding the importance and role of specific executional features in our ads. The first one concerns the sounds (background music for example) and off-voices. Those elements seem really important to catch and keep attention. Next, images and more specifically moving ones, illustrations and colors contribute to the liking of the ad. Although it does not seem as essential as sounds to catch the attention, it seems to play an essential role, enabling children to remain concentrated on the story. In summary, sounds appear as an attention catcher whilst colorful and moving images were able to hold it.

We may summarize our findings as such: referring to the themes, it appears that social consequences of an unbalanced diet and its detrimental impact on physical abilities are efficient triggers to promote healthy food. Emphasizing threats on social relationships or on physical abilities – that eventually influence social relationships- seems a relevant trigger. Last but not least, it was also identified by children as a possible pointer of children’s weight problems to parents denying the problem. We emphasized earlier (section 1.2.4) that the two dimensions of attention needed to be addressed in order to attract and hold children’s attention. Consequently, we may consider this a hint to the potential power of negative affective reactions. Cartoon and humorous characters also achieved this goal, however probably in a too successful way. Although attention is caught, the characters seem to distract children from the real message, eventually loosing in effectiveness. Lastly, children declared enjoying being informed in a non patronizing way: a friendly carrot character was appreciated. Yet, it was probably not powerful enough to grab attention.

This qualitative study allowed us to sense what could be considered efficient in promoting healthy eating habits among preadolescents. We have indeed highlighted the potential of appeals using negative consequences of non recommended behaviors as triggers. Considering the fact that literature emphasizes how incorporating the views of the target does improve the likelihood of prevention programs’ success, we believe this information is of much relevance. Ascertaining the target’s barriers and/or motivation to
behave is indeed highly recommended in many health-related contexts (Donovan and Henley 2003; Hesketh et al. 2005; Peracchio and Luna 1998; Thøgersen 2007).

Yet, although childhood obesity has been subject to numerous prevention programs, so far, to the best of our knowledge, prevention programs preceded by studies on children’s motivations to eat healthily are scarce. And successful programs on the long run appear to be rare exceptions.

At this stage of our research, it appears pertinent to review the content of prevention programs and the success those programs have encountered.

This is what we propose to achieve in the following section.

1.3.3. Existing programs fighting obesity: review and comments

As described by Andreasen, (2006), childhood obesity has gone from a state of “dawning awareness” to a “growing urgency”. Fortunately, the issue is now on the political agenda. Public authorities start to take actions. Over the world, the implementations of prevention programs increase, to the initiative of alerted governments. Prevention indeed appears to be the best – if not the only- way out. Wofford (2008) emphasized in her systematic review of childhood obesity prevention that it remains the best and only feasible cure to this epidemic, due to the “recalcitrant nature of obesity”. Ebbling and his co-authors confirm that cures to childhood obesity are inefficient, stating that leading specialists consider non-chirurgical approaches as “unrealistically optimistic” (Ebbeling et al. 2002 p477).

Most of the time, those programs propose both upstream and downstream approaches, aware that for changes to occur, a dual focus is needed. Concretely upstream public policies are nowadays usually focusing on two aspects: the means allocated to school canteens and school nutritionists; investments in sports facilities and infrastructures. Downstream information to parents and children about the importance of a balanced diet is organized²⁶.

However, a meta-analysis conducted on more than 46 studies including 61 different obesity prevention programs provides rather disappointing results (Stice et al. 2006). These programs usually include changes in school diets, information to parents and/or to children and positive shift in physical activities. It appears however that only 13 out of the 61 prevention programs have been successful in limiting the weight gain. In the long run, only 3 cases have persisting effects over a significant follow up period. Based on Moyer and Butler (2004) and including her own review on obesity prevention for preschoolers, Wofford concluded that the work of various health organizations offered little effectiveness evidence. Changing behaviors in the long run seems indeed a particularly harsh task that will probably require all possible energy. Yet, let us not be too pessimistic. Changes are possible. As mentioned earlier, a comparison study between the impact of supporting fruits and vegetable consumption versus preventing fat and sugar intakes within families gave very encouraging results. It significantly improved children eating patterns over a one-year period, decreased their Body Mass Index and prevented the increase of overweight (Epstein et al. 2001).

An analysis of prevention programs to the light of social marketing theories reveals lacks in the approaches implemented. The framework developed by Rothschild (1999) indeed proposes that according to individual’s motivation, opportunities and abilities to act, either law, education or social marketing campaigns should be emphasized for social changes to occur. Nevertheless, researchers usually agree that the combination of upstream and downstream approaches will be the most efficient (Andreasen 2006; Rothschild 1999; Thøgersen 2007).

This specific issue is no exception. Due to the combining causes of the current obesity exponential increase, including sedentary hobbies, advertising exposure, packaging size increase and overabundance of food supply, the prevention approach should target a variety of factors (Andreasen 2006; Wofford 2008). Those prevention programs indeed face an incredibly high level of competition. First and most obvious, promotion for unhealthy food whatever its form, has never been this important. Second, our societies tend to use unhealthy food as rewards or “consolation means”. This well engraved cultural practice eventually leads to assimilations such as “sugar” is “good”; “healthy” is “not fun”. Unfortunately, this does not help to resolve the difficult trade-off between short term pleasure and long term health consequences individuals are confronted with (Andreasen 2006; Bazerman and Moore 2009; Walton 1996). We, as adults, regularly experience the difficult task of resisting temptation. One may imagine how difficult this
rationalization must be for children. Mischel’s “Delay of Gratification Paradigm” illustrates how uneasy it is for children to wait, even if this delay consequently enhances the reward (Mischel, Shoda, and Rodriguez 1989). Furthermore, optimistic bias in risk perception should not be overlooked. This bias has been documented in many risky situations such as developing a cancer, drink driving, etc. and usually leads to the underestimation of individual exposition to risk (see Arnett 2000; Branstrom, Kristjansson, and Ullen 2006; DeJoy 1989). In other words, this means that populations are not yet aware or attentive to the prevention programs, probably because “they (families with obese children, for instance) may think that there is no need for action” (Andreasen 2006 p 140).

Parents indeed appear to ignore -or avoid to take notice of- their offspring’s real weight situation (Andreasen 2006; Carnell et al. 2005 in Pelicand and Doumond 2005). Eventually adding up to one another, not paying any attention to the issue is heavily encouraged.

Then, researchers in social marketing have stressed the kingpin role of motivation for behavioral changes to occur (Andreasen 2006; Rothschild 1999; Thogersen 2007). Research also shows that children prefer food they have chosen themselves (Schwartz and Puhl 2003). Increasing children’s motivation to eat healthily should therefore be a prior concern.

Considering this, the scarcity of strong actions targeting children’s motivation for healthy eating habits is surprising. Children are often seen as victims of actors in the market (mainly industries and their packaging or advertising practices). Their active role in food choice situation is consequently too often overlooked. Then, even though industries’ practices have been identified as a more than a probable cause of the current problem (Hastings et al. 2003; Nestle 2006; Orlet Fisher et al. 2003; Pecheux et al. 2006; Sharpe et al. 2008; Wofford 2008), governments seem rather reluctant to impose scientifically based efficient policies on advertising practices (Pecheux et al. 2006) or packaging sizes (Orlet Fisher et al. 2003; Sharpe et al. 2008).

Waiting for stronger political actions, research may go on. For instance, effective intervention programs in other health-related contexts should be scrutinized for inspiration. It has been reported that sixty percent of anti-smoking programs for instance are successful (Stice et al. 2006). Although it has been argued that this success rate is supported by a declining smoking trend, this specific topic is interesting for two main reasons. First, it often concerns a population (adolescents) close in age terms to our own
target (preadolescents). Nevertheless, we emphasized earlier that age differences were not to be considered a secondary factor. Stice et al. (2006) indeed propose that age moderates effectiveness of weight gain prevention programs, the effects being “the stronger for children and adolescents relative to preadolescents, with the strongest emerging for adolescents” (Stice et al. 2006). However, it has been stressed before that prevention remains the most realistic option to curb the epidemic. Consequently, it has been advocated for the implementation of prevention programs on target as young as preschoolers (Wofford 2008). Targeting populations before the first signs of obesity appear and at a time when the proportion of self-made food choices significantly increases seems relevant. In this perspective, the age of twelve represents a boundary under which decisions related to addictive behaviors such as smoking are not made yet (Peracchio and Luna 1998). Communication encouraging healthy behaviours would therefore aim at building rather than changing attitudes, which is likely to be a more beneficial use of resources (Freeman and Brucks 2002). These arguments taken altogether argue in favor of direct actions on preadolescents. Nevertheless, let us stress again that no prevention program should be limited to one specific action or audience but should be the combination of upstream and downstream multi audiences approaches.

Second, smoking prevention programs resort to some specific, original themes that may explain their positive results. Recently, smoking prevention programs have seen the rise of uncommon topics, stepping away from the typical health appeals, and known as “threat/fear appeals”. Pechmann et al. (2003) showed that only ads conveying severe social disapproval risks (as compared to health issues or role models) enhanced adolescent’s intentions not to smoke. Schoenbachler and Whittler (1996) demonstrated its superior effectiveness in giving up smoking.

Referring to our own work, social motivation also appeared as a powerful trigger in younger populations. The fear of undesirable social consequences was indeed raised in our qualitative work. Yet, to the best of our knowledge, fear arousal and more specifically social disapproval risks have never been applied to a preadolescent target in healthy food promotion.

Quoting Donovan “the question is not whether it (fear appeals) can be effective but where and for whom fear appeals are effective” (Donovan 1991 in Donovan and Henley 2003), it appears that our next objective should be to reach a better understanding of “if” and “how” fear appeals can be effective on our target. The following section will be devoted to this, with a review of seminal research on fear and threat appeals.
1.4. From fairy tales to threat appeals: can fear and threats change children’s behaviors?

Donovan and Henley (2003) propose the following definition of fear/threat appeals: “A threat appeal consists of a source stating that some negative outcome will result -or increase in likelihood- as a consequence of non-compliance with the source's recommendation”.

According to the threat/fear appeal theory, fear/threat appeals work on the premise that people will adopt the recommended behavior in order to relieve threat, and therefore fear. Threat/fear appeals inducing behavioral changes are actually neither recent nor uncommon. For as long as the world has existed, story tellers have been scaring children in order to pass their messages across. Little Red Ridding Hood, Ugly Duckling -from Danish Hans Christian Andersen- and many similar stories indeed aim at teaching ways to behave either in a protective or social way. Hence, parents threaten their children of terrible outcomes if they do not comply with orders.

Bringing this to Consumer Behavior, although some exceptions can be found in commercial advertising too (LaTour, Snipes, and Bliss 1996), fear/threat appeals are most common in health prevention campaigns. Through the next pages, we will try to highlight the specific conditions under which fear/threat appeals seem to operate well, eventually leading to the hypothesis that the promotion of healthy food to children can be efficiently organized through those appeals.

1.4.1. Fear and threat appeals in Social Marketing: a theoretical approach

1.4.1.1. Fear appeals or threat appeals: just a matter of words?

The first objective while discussing fear/threat appeals should be a clarification one, denomination-wise. Although there seems to be plethora of papers on the topic, up to recently, little specification about the authors’ motivations to propose one or the other term seemed available. The terms “fear appeals” and “threat appeals” appear to be used in an interchangeable way, probably due to the linear relationship assumed between these two constructs. The degree of fear would indeed -and according to author-, often be erroneously defined as synonymous with the severity of the threat (Rotfeld 1988).

Fortunately, current research tends to unanimously refer to “threat appeals”. Donovan and Henley (2003) argue that the distinction’s relevancy rests on the need of identifying the cause from the consequence. In their view, the threat would actually
be the trigger while fear would be the response to it. Moreover, they point that the “fear appeal” denomination is restrictive. According to these authors, fear represents only one of the affective reactions that can be elicited by “threat appeals”. Many other emotions or affective states can indeed be experienced under those appeals. This view seems nowadays widely shared by other researchers working in social areas. Shame, guilt, sadness, discomfort and remorse would be often at play, alone or in a combination (Bagozzi and Moore 1994; Becheur, Dib, and Valette-Florence 2007; Brooker 1981; Gallopel-Morvan 2006; Lavoisier-Mérieux 2002). Recently, Becheur and her co-authors (2007) tried to differentiate « fear » from « guilt » and « shame » regarding their specific effectiveness in threat appeals. Results seem to indicate that maximum persuasion is achieved by a combination of those three emotions. Confirming that many more negative affective reactions than “fear” are at play, this also sustains the idea that the “fear appeals” denomination is not really appropriate, as it is too restrictive.

Lastly, Donovan and Henley (2003) argue that the “fear appeals” terminology focuses on the affective component of the responses to threat appeals albeit many studies have identified cognitive processes as the dominant ones in persuasion. This view refers to the Protection Motivation Theory -PMT (Rogers 1975, 1983) which is defined by its author as an appraisal process. PMT indeed represents one of the most empirically validated model (see Milne, Sheeran, and Orbell 2000; Sutton 1982; Witte and Allen 2000 for meta-analysis) and appears to be theoretically strong (see Gallopel-Morvan 2006 for her State of the Art). The terminology shift consequently seems relevant. Yet, this predominantly cognitive view of threat appeals appears increasingly questioned. Models accentuating affective components are now offered. In the next section, we will look at different theories, skimming through thirty years of research on threat appeals and the many other models proposed, both prior and subsequent to the PMT. This will eventually enable to get a better grasp of threat appeals’ working processes and reasons to believe of their effectiveness on the preadolescent target.

1.4.1.2. Models proposed

Over the years, models have been proposed in order to explain the originally called “fear appeal” process. A first distinction can be made between these models according to the relationship identified between the emotional response and the
persuasion level (Snipes, La Tour and Bliss, 1999). On the one hand, inverted-U type models argue that an optimal level of persuasion results from a moderate level of fear (a low level of fear would cause no persuasion at all (no reaction), whereas a high level would provoke a threat denial (through maladaptive coping responses, ignorance of the threat ...)). The best-known models falling under this category are “The Fear-Drive Model” (Janis 1967 in Tanner, Hunt, and Eppright 1991) and “The parallel Response Model (Leventhal 1970 in Tanner et al. 1991). On the other hand, linear models propose that persuasion increases with the level of the fear. “The Protection Motivation Theory (PMT)” (Rogers 1975, 1983) is probably the most cited model of this trend. As stressed earlier, PMT has indeed been validated in many empirical researches and meta-analyses (Milne et al. 2000; Sutton 1982; Witte and Allen 2000), eventually sustaining the linear theory to the detriment of inverted-U ones. Both the threat and the solution provided -that will eventually alleviate the threat- must be favourably evaluated. This means respectively that the threat must be perceived as severe and probable, the solution must be efficient and workable. The model consequently rests on processes of appraisals which are per se cognitive.

However, the predominant mediating role Rogers assigns to cognitive processes has since been discussed. Plethora of studies have been presented in order to compensate for the models’ remaining unsolved issues. For instance, target's motivation to use “maladaptive coping behaviours”, defined as coping behaviours that reduce the level of fear without actually eliminating the danger (Ripptoe and Rogers 1987) represents one of the main development (Norman, Boer, and Seydel 2005). Nevertheless, an increasing number of studies question the persuasion process and the specific role of emotions in the process identified by Rogers (see Gallopel-Morvan 2006; Norman et al. 2005 for reviews). In 1991, Tanner and his co-authors proposed the Ordered Protection Motivation (OPM), which represents a first step towards less cognitive models in threat appeals. Authors indeed granted the fear emotion a constituting role as compared to the mere “by-product” it represented according to Rogers. Tanner and co-authors insist that “emotion may increase attention to and believe in a persuasive message… the audience is then more likely to continue processing threat-related information” (Tanner et al. 1991 p37). Then, they also insist that the threat cannot be considered independently of past experiences. The longer this life experience, the more probable it is that the audience has already included maladaptive behaviours to their solution repertory. Furthermore, recent research has demonstrated the negative impact of prior
knowledge on threat appeal effectiveness, advocating for this negative correlation between past experience and threat appeals (Nabi, Roskos-Ewoldsen, and Carpentier 2003). Finally Tanner and his co-authors emphasize the impact of the context. They argue that in difficult social contexts such as in condom use, the health consequences might be relegated to a second order consideration in comparison to imminent social consequences. In this, the OPM also represents a first emphasis of the impact of social contexts in threat appeals. In conclusion, Tanner et al. (1991) draw attention to elements that may enhance effectiveness (the affective process that is necessary to trigger the coping strategies activation) as well as to features that may in contrast cause its decline (contexts and past experiences).

Witte’s Extended Parallel Process Model (EPPM) represents what could be considered as a transitory model from the cognitive theories (1992, 1994). Witte indeed offers support to a more central role of affective reactions in the persuasion process. She states that “the overemphasis on cognitions in current theories coupled with the relative neglect of emotions, are potential reasons for the lack of convergent findings” (Witte 1992). More specifically, she emphasized the increased probability of success and risk of failure of threat appeals in situations of intense phobic emotions. According to EPPM-, if the threat is proportionally greater than the perceived effectiveness of the solution proposed, there will be a denial of the threat and maladaptive coping responses in order to manage the fear elicited. In other words, threat appeals would work when the solution’s perception of efficacy is higher that the perceived threat and the fear experienced. In this, Witte’s model also emphasizes the importance of affective reactions.

To our view, even though EPPM and OPM have been developed independently and lie on different working processes, their respective contribution emphasize influential features of threat appeals that do not necessarily operate contradictorily. Witte (1992, 1994) stresses the importance of a superior level of solution efficacy as compared to the perceived level of threat severity, arguing that in a reverse situation, the process is inefficient. Tanner and colleagues (1991) offer tools to enhance this solution effectiveness. Last, both models stress the importance of the affective variable. All authors argue that the emotion variable should be granted a more central role in persuasion.

This last decade, a large body of studies have come to sustain the non-solely cognitive dimension of threat appeals. Research in the context of HIV/AIDS cast serious
doubts on the notion that health decisions are necessarily based on a cognitive process (Umeh 2004). A safe-driving study demonstrates that the affective trigger could be the only one at play (Lavoisier-Mérieux 2002). Milne et al. (2000), in their meta-analysis also report significant medium correlations between the fear emotion and intentions to behave. Those results were comforted by Gallopel-Morvan and Valette-Florence (2002) who show the same direct positive effect in smoking prevention. Lazours and Folkman (1984) in Norman et al. (2005) propose that when well-being is involved, individual consider information differently to the extent that it becomes “hot information”. Consequently, it may be that in health-related context specifically, original and magnified affective mechanisms that eventually lead behaviors may be encountered. The recent affective dimension granted to threat appeals could find greater support when health concerns are stressed in threat appeals campaigns. Nevertheless, whatever the persuasion processes considered, it is now widely accepted that threat appeals effectiveness rests on two main elements: a “plausible” threat and an “efficacious” solution.

Besides those two components, an important body of research is devoted to the potential moderators of threat appeals. According to Burnett and Oliver (1979), those moderators can be classified using the basic segmenting approaches in marketing: personality, usage and socioeconomic segmentation. “Socioeconomic” factors include mainly age, education and gender, but also income and race. Let us note that more recently, cultural orientation (individualistic or collectivistic societies) was also often considered a potential moderator (Rotfeld 1988). “Usage” would correspond to the “topic relevance” or “vulnerability” perceived by the target to a specific threat. This variable would impact significantly intentions to behave and behaviors (Burnett and Oliver 1979; Gallopel-Morvan 2006; Norman et al. 2005). “Personality traits” refer for instance to self-esteem, locus of control, risk-seeking arousal, coping style, etc. Recently, Bandura’s self-efficacy (1977, 1994) has also been granted much attention. Defined as “people’s beliefs about their capacities to produce effects”, it represents a central variable in many studies in health-related contexts (Block and Keller Punam 1995). Self-efficacy appears to be particularly relevant to our own target. It indeed represents

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27 The PMT was originally developed in relation to fear-appeals. Nevertheless, it is nowadays commonly used in the larger scope of decision making under “threats” situation (Milne et al. 2000). Considering the above mentioned arguments in favor of the “threat appeals” terminology, it appears relevant to refer to “threat appeals” when considering the PMT.
one of the four conditions of Bandura’s vicarious learning (also known as Social Learning Theory or Observational Learning) (Bandura 1970, 1976) and it is now widely accepted that children learn much of their (social) behaviors by observing theirs siblings, parents or peers (Schiffman, Lazar Kanuk, and Hansen 2008). According to the theory, children’s perception of self-efficacy (or the perceived ability to behave) represents a necessary condition to act according to the new behaviors this young target has learned through observation of others (Pajares 2005). Last, “others” or the specific source of the information (or indirect recommendation) will enhance this perception. Vicarious learning would indeed be positively influenced by the target’s perceived similarity with the source through increasing the perception of self-efficacy (Pajares 2005; Stoneman and Brody 1981). If children observe peers applying successfully a specific recommendation, their perceived ability to act accordingly may significantly increase. Consequently, the proportion of adequate behaviors will increase as well. In contrast, children would learn how to recognize inappropriate behaviors through identifying the negative consequences of actions. This appears particularly relevant when discussing threat appeals effectiveness among children population and the positive versus the negative outcome issue.

It must be said however that although effectiveness of threat appeals has been proven in many different contexts, including health prevention, from anti-smoking campaigns to anti-drug, safe-sex, safe-driving, binge drinking, exercising, breast cancer detection, …, (Norman et al. 2005) the audience considered has mainly been adults or young adults. Yet, an increasing number of studies have demonstrated the ability of threats to modify intentions and/or behaviors in smoking prevention (Henley and Donovan 2003; Ho 1998; Pechmann et al. 2003) drug use, (Schoenbachler and Whittler 1996), pregnancy prevention (Greening, Stoppelbein, and Jackson 2001) of teens, …

Considering this specific target, the works of Ho (1998), Pechmann et al. (2003) and Schoenbachler and Whittler (1996) have in common the original type of threat they identified as the most efficient ones. According to those studies, risks of social consequence would be the most efficient one. A health-related threat in contrast could be counterproductive. According to Pechmann et al. (2003) and Walton (1996) health risk severity messages could have opposite effects among the young population which views itself as “invincible” or “immortal”.

It must be mentioned that although some pieces of research seem to contradict those findings, we find those non conclusive. Shore and Gray (1999) found that social consequences did not prove to be more persuasive than physical threats. However, two explanations may be proposed. First, the population is somehow older than teens, which may cause this difference. Second, authors propose that the topic itself - drink driving - might explain the results. A previous study (Gray and Shore 1997 in Shore and Gray 1999) indeed allowed them to state that the fears of financial and legal consequences (e.g. being caught by the police, getting fined, losing one’s license) were the main reasons for New Zealand adolescents not to drink and drive. To our view, it may also be interpreted that a social trigger would have been efficient but the topic was misused. For instance, let us take the famous French campaign claim “tu t’es vu quand tu as bu”. Although it was supposed to enhance self-perception and change attitudes after observing self behavior, it is far from certain that nowadays, being drunk is socially unacceptable, which rejects the social threat appeal as severe. However, being caught by the police or losing one’s license could have social consequences that would be more efficient than “looking” drunk. In the same perspective, proposing “group exclusion” as a danger in smoking prevention campaigns might be totally non effective, smoking being too often associated with “looking cool” by adolescents. In contrast, stressing the “bad breath” or “yellow teeth” risks obviously works. Although out of context, both arguments may be classified as social threats, only the second one appears to be concrete for the target. A study by Henley and Donovan (2003) claims that adolescents do not feel invincible, advocating that a health threat could be efficient too. Yet, this study did not per se consist into a comparison between different types of threats but merely assessed different levels of health threats, up to death ones. As stated earlier, Ho (1998) came to the same conclusion in a smoking context. However, his study compared various types of threats (health and social) and revealed the social one as the most effective.

This sustains the elsewhere suggested importance of identifying the strongest motivations of a certain population in a certain context to act in a protective way (see section 1.3.2). We indeed argued that identifying a specific population’s motivations to act remained the most efficient way to arouse expected reactions, in this particular context too. Doing so confirms the findings put forward in our second qualitative study’s conclusion. It indeed supports social threats as the most efficient theme.
Hence, without directly aiming at investigating threat appeals as such, Goldberg and colleagues (1978) successfully tested this hypothesis on child populations in the late 70’s. Their research on potential influence of TV programs on children’s preferences for breakfast and snack foods analyzed the impact of the “Fat Albert” programs. The T.V. show emphasizes the undesirable consequences of “too much junk food”. The consequences stressed in the program refer to visits to the dentists but also, and notably, losing esteem in the eyes of one’s friend. They conclude that the program’s effectiveness was evident, “even in the face of typical commercials for highly sugared snacks and breakfast food” (Goldberg et al. 1978 p79).

To sum up, although pieces of research combining preadolescent, health related contexts and threat appeals are scarce, the available evidence led us to investigate further the threat appeals literature.

Another issue appears indeed relevant to consider, due to its importance in communication and especially in the promotion of socially desirable behaviors: “message framing”. According to Andreasen, “a frame is a context offered for interpreting a set of data” (Andreasen 2006 p 46). Framing therefore refers to a large concept that concerns the formulation of information proposed to individuals. People would interpret the same information in different ways, depending on the perspective under which those facts come to their knowledge. Referring to our own research, we have stressed earlier that the promotion of a healthy diet could be proposed in different terms (either increase the consumption of healthy food or decrease the consumption of unhealthy products). Considering these elements, the potential influence of our final recommendation’s formulation needs further enlightenment. With children, would indeed the promotion of an act -or positive orientation- be more effective than the prevention -or negative orientation- of another one? The following section will present elements that might eventually allow us to propose hypotheses.

1.4.1.3. Shall we promote or shall we prevent?

Whether “UNESCO estimates (in 1997) that there are 300,000 to 500,000 cases of malaria around the world” or “A child in sub-Saharan Africa dies of malaria every 30 seconds”, while reporting the same facts, does not raise the same amount of attention to the problem (Andreasen 2006 p. 49).
“Framing” is usually considered as the process influencing individual's perception of the meanings of phrases due to the use of specific words. This large definition underlies many different conceptions of framing. Nevertheless, it usually refers to the manipulation of words in order to emphasize different outcomes. Tversky and Kahneman’s Prospect Theory represents a well-known example of this framing issue. It is widely referred to in the literature under the labels of “losses” and “gains” resulting from the adoption of a specific course of action. The Prospect Theory tells us that “losses loom larger than gains” (Kahneman 2003; Kahneman and Tversky 1979). This would naturally draw us to the conclusion that emphasizing the losses one incurs if he does not comply with the recommendations will than be more efficient. Yet, as far as health-related promotional messages are concerned -and threat appeals in particular, it appears that the trade-offs individuals are facing increase the issue’s complexity. To infer relevant conclusions is therefore uneasy. Further, considering our own specific health context and position, the positive and negative orientations propose different actions, amplifying the complexity. Although one could promote “a healthy diet”, we argued earlier that offering concrete illustrations of a healthy diet is desirable. Consequently, a positive orientation would recommend increasing the consumption of fruits and vegetables, while the negative orientation would suggest decreasing the consumption of fat and sugars. This departs from most studies in health prevention where the same action may either be framed positively ("Quit smoking") or negatively ("Do not smoke") (Block and Keller Punam 1995). Nevertheless, it appears that alternative frames proposed in prevention campaigns are often more complex than these two options, explaining further research’s lack of unanimous results. According to Zhao and Pechmann (2006), the same threat appeal message may be constructed in four different ways, depending on the outcome type and the outcome valence. The outcome type refers to either the benefits (positive-outcome orientation) or the costs (negative-outcome orientation) of complying with a specific recommendation. In our context, this would be translated in either the probability of increasing health or decreasing it. It could also refer to improving or deteriorating social life. Expressing the consequences of an act in either positive or negative terms (using negation) is related to the outcome valence. One may “avoid being sick” or “not insure himself of a long healthy life”. The first one uses positive valence, although the outcome is of cost type. The second is of negative valence and benefit type. According to Zhao and Pechmann (2006), there is often confusion between the
two encoding procedures and consequently, interpretations that may be made of findings are difficult. Then, Rothman and Salovey (1997) emphasize how determinant the campaign objectives may be in the selection of the effective recommendation type. According to the authors, benefits would be more favorable to prevention whereas costs frame would enhance success for illness detection. The specific health topic also probably matters. People may not react in the same way whether diet or sexual transmitted diseases are concerned. Last, let us not underestimate the impact of individual differences. The Regulatory Focus Theory for instance states that people may have a promotion focus (or concerns about achieving desirable goals) or a prevention focus (concerns about avoiding undesirable states) and that the predominant type of focus is determined by personality traits and situations (Higgins, 1987 in Zhu and Meyers-Levy (2007). In other words, this means that depending on the context and on individual’s personality, it would be either more efficient to promote positive goals or to communicate about negative prevention aims. Finally, the fact that our target is children probably adds up to the complexity of the issue (table 1.4. summarizes the various levels of possible framings considered through examples). First, it should be stressed that children’s perception and understanding of a specific message may already differ from adults’ ones. To ensure the same level of comprehension represents a primary constraint. Then, to the best of our knowledge, no studies directly address the question of how a message’s frame (outcome, recommendation…) may impact its effectiveness among this target. Health message do not appear to have been more investigated. In fact, we have little evidence it influences children at all. Consequently, at this stage, we have no indisputable formulation of our message to propose. Determining the best formulation (if any) for our outcome or recommendation should therefore become one objective of this research.
Chapter 1: What Do We Know So Far? What Do We Want To Learn?

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<td>Orientation</td>
<td>Benefits: “Increase your health”</td>
<td>Costs: “Avoid health problems”</td>
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<tr>
<td>Valence</td>
<td>Affirmation “Quit smoking”</td>
<td>Negation “Do not smoke”</td>
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<tr>
<td>Recommendation</td>
<td>Actions to follow “Wear condoms”</td>
<td>Actions to avoid “Do not go out unprotected”</td>
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<td>Regulatory focus</td>
<td>Promotion “Remember those moments all your life: buy camera X”</td>
<td>Prevention “Do not miss those precious moments: buy camera X”</td>
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Table 1.4. Elements that may be considered in the framing issue and illustrating its complexity

As an introductory research on the topic, and considering both the complex issue of framing and the specific context of healthy diet promotion, we decide to focus on the orientation of our recommendation (positive vs. negative). We will therefore investigate the impact of promoting the consumption of fruits and vegetables against the prevention of fat and sugar intakes. In order to evaluate this potential influence, it appears necessary to break down the complex issue into its various components.

In this respect, we first examine children’s persuasion processes. It has been argued earlier that children do not process the arguments of an advertising message; they merely react according to the affect elicited. Little elaboration is generally observed. Consequently, counter-argumentation has also a low probability of occurrence, whatever the message and the recommendation’s formulations may be.

This consequently induces a low risk of reactance\(^2^8\) (phenomenon however observed in adult and in adolescent populations). This represents our second argument. Banning, forbidding or discriminating may indeed produce a specific psychological phenomenon due to the perceived loss of freedom. This reaction usually produces a “boomerang effect”, a side effect that enhances the preference for the threatened/lost option(s) (Brehm 1989; Clee and Wicklund 1980). With an older

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\(^2^8\) See section 1.3.1. “Shall we promote, shall we prevent?”
target than ours, banning fat and sugar intake could induce an increase in preference for those foods, which is counterproductive. However, in the absence of elaboration and because children do not tend to reject recommendations to the same extent adolescents and adults do (Grandpre et al. 2003), reactance has low probability of occurrence.

This would consequently sustain the assumption that the positive or negative orientation has little impact. Some elements however lead us to advocate for positive framing. A recent piece of research states that at the age of 8, children tend to learn more from positive comments than from negative ones (van Duijvenvoorde et al. 2008). Lastly, let us remind that two studies strongly advocate for actions leading to the increase of the fruits and vegetables consumption as compared to the decrease of fat and sugar intake (Epstein et al. 2001; Epstein et al. 2008). Nevertheless, we feel that the specific context of negative affective reactions elicitation may induce unexpected results. For instance, it still needs to be demonstrated that persuasion process is of affective type in threat appeals. Therefore, we believe that recommendations expressed under a negative outcome orientation should not be removed from this pioneering work. It would be damaging for instance to conclude that threat appeals are inefficient on the preadolescent target because we have not used the right framing.

1.4.2. Arguments in favor of ‘Threat Appeals’ effectiveness on the children target

Up to this point in our conceptual background, we have documented threat appeals mechanisms and effectiveness as well as preadolescents’ advertising persuasion processes. Based on this information provided, we will now present the arguments sustaining the hypothesis that threat appeals dedicated to children will be efficient in promoting a healthy diet. More precisely, we argue that it will be more efficient than advertising using typical\textsuperscript{29} tools.

\textsuperscript{29} For clarity purpose, the term “\textit{typical tools in advertising}” or “\textit{typical ad}” will be used throughout this dissertation and will refer to the themes and executional features typically used in advertising and identified by experts as the most efficient ones in advertising persuasion with children (see section 1.2.2). The “typical ad” term
Two main arguments support this assumption. The reevaluated role of emotions in threat appeals effectiveness among adult populations represents our first point. As stressed earlier, numerous studies have demonstrated the central role of emotions in threat appeal effectiveness (Gallopel and Valette-Florence 2002; Grandpré et al. 2003; Lavoisier-Mérieux 2002; Umeh 2004; Witte 1992; see also Gallopel-Morvan, 2006 and Norman et al., 2005 for their state of the art and Milne et al. 2000 for their meta-analysis). As far as children are concerned, persuasion would happen quasi exclusively through the affective reactions elicited by the ads. This allows us to expect a high level of persuasion through threat appeals on child populations. The occurrence of maladaptive coping behaviors (MCB) in adults’ situations represents the second piece of support to our assumption, considering the specificities of our young target. We have indeed stated earlier that the probability of adopting solutions that would alleviate the fear and not the threat (MCB) can be enhanced by either the social context (positive health effect of condom use as compared to negative social effect of showing willingness to use a condom), past experiences (recommended behavior compared to the behavior already applied in the past), or a solution offered in the message not evaluated as sufficient to relieve the threat. In other words, in order to elicit MCB, the audience must evaluate the message’s recommendation (coping appraisal) and the threat (threat appraisal) and compare it to its own repertoire of solutions, constructed over past experiences and retrieved from memory.

This course of action is unlikely to happen with children. Firstly, we have shown that children usually react to advertising much more than they analyze its content. Research on persuasion through advertising with preadolescent audience has indeed shown that elaboration is low. We can therefore infer that in normal exposure situation, in other words, in situation where no forced elaboration is induced, children will not involve themselves into complex cognitive processes such as evaluation and comparison. Furthermore comparison supposes at least two solutions. One would be recommended in the message, the other one would have to be retrieved from previous experiences and stored information by the child. Literature provides considerable evidence that this action presents a low probability of occurrence. This is what actually makes them vulnerable to advertising. Cued processors preadolescents

has been used in previous research on the topic (Goldberg, Gorn and Gibson, 1978; Phelps and Hoy, 1996; Pechmann et al. 2003) and seems to fit adequately our purpose.
require triggers to retrieve information stored in memory that could eventually produce this alternative solution. Yet, the range of own solutions must be regarded as limited due to a shorter life experience. Furthermore, the probability that a corresponding, however maladaptive, solution is retrieved depends on the condition that a trigger is used.

In short, the cognitive abilities of preadolescent and their specific behavior confronted to advertising lead us to believe that maladaptive coping behaviors have a lower probability of occurrence.

It has also been demonstrated that under limited cognitive resources conditions, “using an overall readily available affective impression can be far more easy than weighting the pros and cons or retrieving from memory many relevant examples” (Finucane et al. 2000 p3). In other words, this means that under cognitive constraints, it is likely that individuals will use affective cues to make judgments. While Finucane and her colleagues introduced time pressure to simulate the constraint, it is reasonable to state that our own audience is, per se, characterized by cognitive limitations. The assumption according to which heuristics may be used as tactics in difficult tasks for low cognitively developed subjects such as children has already been made by researchers in the field (Pecheux and Derbaix 2002a). Furthermore, Finucane et al. (2000) elaborated their study to test decision making in risk or benefit situations which also allows inferences for our own research, considering the threats (and therefore the risks) highlighted in our own ads. We assume from this piece of research that children, in risk versus benefit situations will rely solely on their affective impressions to evaluate the situation and make decisions related to their consumption choices.

Lastly, while Tanner and colleagues had to conclude that the overwhelming impact of social consequences on intentions to behave health-safely was a drawback, considering their specific context (1991), we believe this can be used as an advantage in ours. This is sustained by recent studies on adolescents (Pechmann et al. 2003; Schoenbachler and Whittler 1996) and the results of our qualitative study.

*Consequently we propose that a threatening ad eliciting negative affective reactions such as fear, sadness, guilt, …, will be effective to promote a healthy diet characterized by high fruits and vegetables intake (or low fat and high sugar content foods). This effectiveness will be materialized through a positive modification of intentions to behave and behaviours of*
preadolescents. Furthermore, we hypothesize that this ad will be more efficient than typical advertising using typical commercials tools such as humour, action, fun, endorsement, etc…

Yet we realize that working with threat appeals with such a young audience may raise concerns. Although our primary objective seeks a theoretical and scientific understanding of persuasion processes in threat appeals among the children audience, the practical consequences of this research cannot be overlooked. Furthermore, we do hope that this research will represent a stepping stone in tackling one of the greatest challenges of our current societies. Consequently, ethical issues cannot be undervalued. In the following section, we will therefore propose a discussion that should offer relevant elements to the ethical debate.

1.5. Ethics in Marketing, in Social Marketing and in Threat Appeals addressing children

Marketing practices have so often been considered unethical, manipulating, creating greed and misleading that the term “ethical marketing” is often considered as an oxymoron. Ethics in marketing, however, is a fundamental issue, and a sense of social responsibility should prevail in any marketing actions, looking beyond what is legal and allowed.

Ethics may be defined as “inquiry into the nature and grounds of morality where the terms morality is taken to mean moral judgments, standards and rules of conduct” (Taylor, 1975 in Hunt and Vitell 1993a). Ethics denote “a moral philosophy or refer to a system of moral or value judgments” (Donovan and Henley 2003 p161), representing what is morally right. These definitions nevertheless imply complexity. The variants of morality across the world, cultures and generations induce different perspectives which lead to non standardized perceptions of ethicality. Then, it appears that ethicality may be analyzed according to different views: either the one of the individual responsible of the action (that will be referred to as the actor) or the one of the person targeted (the target). We will propose hereunder a brief overview of research, according to both assessments, starting from the actor’s perspective.

At a macro level, it appears that a specific action’ ethicality may be evaluated differently according to the philosophical reasoning adopted. Two main normative ethical theories in moral philosophy are indeed usually considered and applied, also in management sciences: deontology and teleology. According to the Deontological Moral Reasoning Theory, acts are (un)ethical by their nature, not by their consequences. The key issue is “the inherent righteousness
of a behavior” (Hunt and Vitell 1993a). The Teleological Moral Reasoning Theory, in contrast, considers that acts are (un)ethical by their consequences, not their nature. “The amount of good or bad embodied in the consequences of the behaviors” represents the central element to be considered when evaluating the teleological ethicality of actions. Although Hunt and Vitell advocate, in their General Theory of Marketing Ethics, that individuals generally resolve their ethical dilemma through combining both deontological and teleological approaches (Hunt and Vitell 1993a, b, 2006), specific contexts may lead to an extreme emphasis of one theory over the other depending on the individual. For instance, the use of threat appeals among child populations may be one of those situations. Children as target may indeed be viewed by some as a typical situation where deontological considerations must be stressed, considering the intrinsic morality of eliciting negative affective reactions in children. In contrast, the positives consequences of threat appeals, if contributing significantly to the resolution of one of the century’s most worrying health problems, may lead others to support the action, referring then to a teleological perspective.

Hunt and Vitell’s model (1993) aims at enabling individuals -and more specifically managers- to evaluate their doings and to solve ethical dilemmas in troublesome situations, integrating actions’ effectiveness into evaluations of ethicality. Nevertheless, it seems that knowing what should be done in ethical conflicts does not insure consequent actions. The nature of action’s impact on others, and the public assessment of these actions, for instance, were identified as moderators of personal responsibility which in turn influences decisions (Wilkins et al. 1990). Last, research in health contexts emphasizes the importance of the approach under which ethics are considered. For instance, one may favor the ethics of justice over the ethics of care. The first one refers to offering an impartial and fair treatment to all people. The second emphasizes the importance of harmonious relationships, involvement and empathy (Botes 2000). Those opposite perspectives would often lead to conflicting ethical decisions.

When the target’s view is assessed, it appears that the degree of effectiveness may be moderated by the perceived degree of ethicality. This is contrasting with what is assumed in the teleological approach, where the degree of ethicality is assumed from the degree of effectiveness. Decrease in perceived effectiveness has indeed been observed in situations where practices were considered has highly unethical. More specifically, it was demonstrated that high effectiveness was not always balancing the low ethicality that social threats conveyed in safe-driving campaigns (Arthur and Quester 2003). It is however noteworthy that this relationship has not been found constantly: perception of low ethicality may not impact
effectiveness. For instance, LaTour, Snipes and Bliss observed that despite the highly controversial ethical issue of their ad (gun possession for female protection), it was perceived as effective (LaTour et al. 1996; Snipes, LaTour, and Bliss 1999). These researches illustrate the elsewhere demonstrated impact of the context in ethical assessments (Smith 1999 in Donovan and Henley 2003).

Summing up, it appears that the degree of ethicality of an action depends on the philosophical perspectives (combination and proportion of the deontological vs. the teleological approaches), the specific context of this action, including cultures and time and the perspective (actor or target). In the next section, we propose to consider our issue according to those various viewpoints.

Referring to the contextual issue, past research unfortunately does not allow us to size up the ethicality of this study. As argued earlier, this piece of research represents a first tentative of threat appeal effectiveness’ appraisal among preadolescents and in the context of the healthy diet promotion. Further, and although an increasing number of papers focus on the ethics of children’s television advertising (Austin and Reed 1999; Moore 2004; Sharp Paine 1996), none appear to consider the specific situation of social marketing campaigns. Last, as argued earlier, assessment of the effectiveness of a campaign may be based on its perceived ethicality when resting on the target’s perception. A question consequently arises: when children are the target, who should then be consulted? Should parents be interviewed because of their direct involvement or would unrelated adults and professionals (doctors, teachers …) insure less emotionality? Hunt and Vitell indeed argue that emotional heat should be avoided in significant social issues (Hunt and Vitell 1993a). Consequently, proposing a scholar analysis, referring to the moral philosophy appears appropriate. According to deontology, threat appeals used on children would most certainly cause more outcry than a teleological reasoning. Children’s perceived vulnerability, defined as “a state of high exposure to certain risks, combined with a reduced ability to defend oneself against those risks and cope with their negative consequences,” 30 probably justifies this reaction, sustaining consequently the deontological thoughts. To many researchers, the “trust” and “integrity” rules proposed by Laczniak and Murphy (2006) does not indeed always seem sufficient to insure ethical practices, especially when children are targeted.

This perspective leads us to consider the ethicality of threat appeals under the teleological moral system. Referring to the health and psychological dangers of obesity and the increasing proportion of victims among child populations, teleological ethicality would be supported by the effectiveness of threat appeals. This discussion can consequently only be proposed in the light of this research’s findings. This will be done in its concluding chapter. Nevertheless, some essential preliminary elements may already be discussed. Indeed, we have already gained knowledge on various elements that tend to minimize the potential detrimental effects of threat appeals that would account in the global evaluation of consequences.

First, experts in children psychology\(^{31}\) do not reject the use of fear and threats as a learning tool. They validate the idea that presenting a “way-out” to a critical situation through the solution offered in the message can be salutary. Specifically, experts consulted on the issue indicate that empowering children through solutions provided in real and adverse situations could be considered as highly favorable to children’s development. It could even help both the mistreating and the mistreated children in situations that do exist and happen anyway. Yet, the preadolescence stage is highly sensitive social-wise. Psychiatrists acknowledge children’s lack of compassion in their relationships with peers. Although considered vulnerable, children, especially in preadolescence, can be cruel to one another (Andreasen 2006).

While the preponderance of social relationships represents an asset for the effectiveness of social threat, it might also be a perverse tool, affecting at-risk ones. For instance, overweight children could be specifically affected in their self-esteem, raising attention to an extent that may not exist beforehand. Concerns about inducing anorexia nervosa in preadolescent girls have also to be addressed here. It appears however that causes of anorexia nervosa are much more complex than mere media exposure (and although we realize it may amplify the phenomenon). It would be influenced by genetic factors, would be highly linked to either depression (sharing a common etiology) or operating in the transmission of affective disorders (Wade et al. 2000), and would appear predominantly in “dysfunctional families” (Tozzi et al. 2003). In other words, it seems reasonable to believe that the exposure to our message cannot produce anorexia nervosa itself. This represents the second supporting element.

Third, listening to and watching children’s reactions to the ads can also contribute assessing the degree of teleological ethicality of our work. Andreasen (2006 p138) indeed proposes to “rely on target audience for guidance”. In an earlier section of this monograph (1.3.2.2), it has been

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\(^{31}\) See section 3.2.1. for an in-depth review of the discussions
highlighted that social threat ads were cited by many children as most able to make them reflect about the issue. The challenge may consequently consist in developing ads that combine efficient threats with an efficient solution that succeeds in relieving the negative affective states elicited by the threats. The attitude towards the ad evaluation that children will report may further help us assess the ethicality of our ads. Equal evaluations of threat ads and typical ads would tend to sustain the idea that children do not feel uncomfortable about it. According to experts, the skills and subtlety with which threats and the solution will be set in the ad are actually the stumbling stone of effectiveness within the frame of ethicality.

We nevertheless realize that this teleological evaluation will be limited to two extents. First, we have no manifest indication on the long-term potentially detrimental psychological effects of threat appeals on preadolescents. This, of course, is of major concern. The second limitation refers to the comparison of this research’s effectiveness to other prevention means. This indeed appears essential according to the perspective mentioned above. For instance, teleological theories expect that an ethical behavior will outperform “any other available alternatives” in producing a greater balance of good over bad consequences (Hunt and Vitell 1993a). This implies that different downstream communication campaigns (targeting directly the audience considered) but also other upstream approaches (aiming at the facilitation of behavioural changes through environmental modifications) should be integrated in the comparison. Subsidiary theories sustain this view. Andreasen (2006) proposes three conditions to assess ethicality of marketing practices. First, he recommends ascertaining the wishes and preferences of the audience. Then, no decrease of social welfare as a consequence of the campaign should be perceived. Lastly, the overall welfare of alternative choices should not outdo the one considered. Other authors actually state similarly that alternative strategies (or creative approaches) should be considered. Any option equivalent in terms of results that would be ethically more comfortable should always be favoured (Donovan and Henley 2003; Hastings et al. 2004). This offers a complementary view to the teleological reasoning. According to these authors, not only positive consequences will induce ethicality but its relative effectiveness compared to other means will determine it. However, it appears difficult to evaluate the effectiveness of those alternatives. Referring to various existing programs 32,

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impacts of complementary means (school canteens, nutritionists, better training for teachers, improved sport infrastructures and access) should be compared to other healthy diets and behaviors promotion instruments. Unfortunately, effects of such environmental changes do not occur overnight. This ambitious comparison supposes implicitly longitudinal studies, many years being necessary to assess the long terms effects of each campaign. At this stage of the obesity epidemic, one may wonder whether we can be afford to wait. Furthermore, it is generally accepted that combined upstream and downstream programs offer the best return on investments (Andreasen 2006; Rothschild 1999; Thøgersen 2007). This idea would also be indirectly supported by the poor results recounted by Stice, Shaw and Marti (2006) in their meta-analysis over Obesity Prevention Programs. As exposed earlier, not paying attention to the issue is encouraged by many societal factors, including the heavy promotion for unhealthy food, the natural tendency in our society to crave for it, parent’s apparent ignorance of their offspring’s situation and the difficult trade-off between short term pleasure and long term consequences (Andreasen 2006; Walton 1996). Considering this competition encountered by prevention programs, it will probably take all possible energy to even the situation.

In conclusion, it appears that assessing the ethicality of threat appeals use in the context of obesity prevention among preadolescent finds no simple answer. Although demonstrating threat appeal effectiveness may contribute to its ethical positive appraisal, questions will remain opened. For instance, whatever the obesity’s impact on psycho-social issues such as self-esteem and achievement (Ebbeling et al. 2002; Schwartz and Puhl 2003; Stice et al. 2006), this research will not be able to state threat appeals consequences on the population. Even though obesity represents the second cause of death in the United States of America (Bazerman and Moore 2009), although it leads to less healthy life for children as compared to their parents for the first time in modern history, the solution proposed here should be exempt of alternative complaints.

1.6. Conclusion

Through this chapter, we have tried to shed some light on the different themes evoked in this dissertation and, more important, to argue in favor of our assumptions. First, we have proposed arguments sustaining the targeting of children and more precisely, of preadolescents. It has indeed been proposed that pursuing this objective, increasing the motivation of the population at-risk itself to eat healthily is the most efficient way for prevention programs (identified as the most realistic mean to curb the epidemic) to work
efficiently, considering the competition (parents who are not aware of the situation, optimistic bias in health situations, heavy advertising for unhealthy food, delay gratification paradigm…). Further, the focus on the 8- to 12-year-olds has found roots in the cognitive development and consumer socialization theories. Children of that age are able to understand the dual objective of advertising; they can refer to various elements when making a decision, which also includes the views of others. They have now entered an age where their influence in family decision making has reached an impressive level. They influence up to half of all family purchases, not to mention the ones made on pocket money (twenty percent of which being spent on food). Furthermore, children at this age are still developing their food preferences and habits. This presents two main advantages. First, our objective becomes contributing to attitudes’ formation or construction. We indeed intend to reach a positive evolution, not drastic changes. Second, children tend to like better food they have chosen themselves. Based on those factors, focusing on preadolescents consequently enhances the probability of effectiveness. Lastly, referring to more practical elements, preadolescents are able to work with paper and pencils, which enables larger samples to be tested.

Then, our review led us to consider past prevention programs conducted on the issue and the target. It appears that typical approaches (for instance increasing investments in school canteens, sport infrastructures, information to parents, children and teachers) do not reach the level of effectiveness required. Obesity threatening children to shorter lives, a striking need for innovative means is now felt.

A review on other health-related issues informs us of original (to this target) leads: the use of threats in advertising. More specifically, social threats seem particularly efficient on an adolescent audience. Peers are indeed very influential in preadolescent’s lives. This has been shown in many pieces of research and confirmed by our own qualitative work: fear of being excluded or mishandled would be the strongest motivation to avoid overweight and consequently, to eat healthily. Further, although threat appeals have not been studied on the preadolescent target, we found arguments that sustain our effectiveness assumption. Literature on children’s persuasion process is a first indicator. When children are considered, information processing and elaborations do not appear be induced by TV advertising. The affect elicited by the ad (and more precisely by executional features as compared to the message) is the predominant factor of persuasion. As far as research on threat appeals is concerned, a recent trend among adults proposes similarly that emotions, and more generally any affective trigger, could outcast the original cognitive process assumption.

Second,
preadolescents’ characteristic of cued-processors decreases the likelihood of non solicited maladaptive coping reactions (MCB). MCB are the consequences of non efficient solutions to a threat (or solutions perceived as such) or of denial of a threat. They will be adopted by the target after appraisal of the threat, the solution and personal solutions’ repertoire. Those solutions are mainly based on past experiences and knowledge. Referring to preadolescents’ specificities, the probability of this occurrence is low, advocating for the effectiveness of threat appeals on this audience.

Lastly, we have discussed the ethical issue this research is bound to raise. Although we realize this issue will be highly dependent on individual’s sensitivity, we have proposed an analytical grid based on various streams of research that may eventually enable individuals to deduce their perception of our work’s ethicality. Combining normative ethical theories in moral philosophy and normative perspectives for socially responsible marketing and finally experts’ comments, we have indeed suggested various elements that should guide our post research analysis of ethicality.

Considering the negative impacts of obesity on health, self esteem and achievements, it is time to offer effective solutions to the problem. That is one of our objectives. In Chapter II, we will show that threat appeals may be effective of on a preadolescent target. Then, we also seek to understand the persuasion process under threat appeals. Chapter III will be devoted to this. We will also demonstrate how threat appeals may change behaviors. Chapter IV will study repeated exposures and its influence in the specific context of threat appeals. Beyond the theoretical learning it may bring, this will also contribute to the ecological validity of our research, multiple exposures being inherent in advertising campaigns.
Chapter 2: Can children really learn from threats and change their intentions to behave and behaviors? Two experiments to determine the effectiveness of threat appeals

Summary

This chapter will be devoted to two first experiments investigating threat appeals effectiveness among preadolescents.

Our preliminary experiment used print ads and revealed increased intentions to consume healthy food (fruits and vegetables) for children exposed to social threat ads. However, results do not offer the expected reliability.

A second experiment involving audio-visual commercials was consequently implemented. This experiment included a control group and monitored behaviors. Our findings replicate experiment one’s results. Further, this experiment tends to demonstrate that typical advertising will be inefficient at promoting fruits and vegetables consumptions. After discussing these experiment’s contributions, a presentation of limits and the studies it calls for closes this chapter.
2.1. Motivation

Through our conceptual background, four main ideas have been developed.

First, we stressed that current obesity prevention programs seemed to reach poor effectiveness, considering the devastating epidemic that obesity represents among children. Although those programs usually combine upstream and downstream approaches, as recommended by the social marketing literature (Andreasen 2006; Thøgersen 2007), results often appear as non satisfactory. Specifically, interventions such as education to parents and children, increased means devoted to school meals and investments in sport infrastructure are usually implemented. However, it seems that they do not succeed in changing the target’s motivation to act, which has repeatedly been identified as essential in related domains (Andreasen 2006; Ölander and Thøgersen 1995; Thøgersen 2007).

Second, the relevancy of developing obesity prevention programs for preadolescents has been emphasized. It indeed appears that childhood represents a favorable developmental period to these approaches, for two main reasons. First, we have stressed that prevention remains the most efficient defence tactic against obesity (Ebbeling et al. 2002; Stice et al. 2006). Therefore convincing children of the importance of eating healthily at the time when they acquire increased autonomy in their consumption decisions appears sound. Acting earlier may, in this perspective, not be so efficient. Second, it has been proposed that entering adolescence could be synonymous with enhanced reactance. This phenomenon would consequently decrease receptivity to public health messages (Freeman and Brucks 2002; Grandpre et al. 2003; Pechmann et al. 2003; Stice et al. 2006). Further, it has been shown that the vast majority of decisions relative to addictive behaviors happen before the age of 12 (Peracchio and Luna 1998). These various elements argue in favor of targeting preadolescents.

We then proposed that advertising campaigns could represent an efficient mean to persuade children of the importance of a balanced diet. Systematic reviews of advertising impact on children’s food preferences confirm the persuasive power of commercials (Hastings et al. 2003; Nestle 2006). Intuitively, it may be suggested that if advertising is efficient at influencing children’s food preferences, the nature of the food may be secondary to the effectiveness of the

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33 Reactance appears when a person feels that his/her freedom of choice is jeopardized. It often leads to adoption of attitude and behaviors that are contrary to the recommended ones (Brehm, 1989; Clee and Wicklund, 1980; Wicklund, 1974).
campaign. Supporting this idea, Goldberg and his colleagues already proposed in the late 70’s that efficient pro-healthy communication on the issue should address children. They indeed demonstrated that appropriately designed programs or Public Service Announcements (PSA) “could be successful in changing children’s short term food preferences even in the face of typical commercials for highly sugared snacks and breakfast foods” (Goldberg et al. 1978 p79). Authors argue further that the programs success probably rests on a set of co-occurring factors: animation but also meaningful themes. They emphasize that teaching “adverse personal and social consequences… arousing concern (fear) regarding the issue and then provide effective coping strategies” to children could indeed be successful. In a more recent paper, Goldberg and Gunasti further stress how some advertising themes that appear relevant to other health prevention domains have remained unstudied (Goldberg and Gunasti 2006).

Fourth, and this is an interesting link with our previous point, in our conceptual background, reader’s attention was drawn to a specific theme recurrent in health-prevention contexts: threat appeals. Investigated since the early 70’s, threat appeals are now widely accepted as efficient. Plethora of studies have demonstrated their effectiveness to the extent that now, it is not a matter of “if” (it can be efficient) anymore but well a question of “when” and “to whom” (Donovan, 1999 in Donovan and Henley 2003). In our context, “to whom” is of much interest. The literature has indeed identified that age was also a potentially moderating variable to the effectiveness of threat appeals (Burnett and Oliver 1979). However, to the best of our knowledge, preadolescents have never been studied as a plausible audience of threat appeals. Although older adolescents have often been targeted, younger teenagers only appear to be studied in a limited number of contexts, mainly smoking and drug prevention.

Combining those four elements, our objective may be described according to two main sub-objects. First, we will demonstrate that efficient prevention communication approaches can be proposed for 8-to 12-year-olds. Specifically, we will show that “threat appeals” embedded in ads may be more persuasive than “typical appeals” in ads, (conveying fun, action or non moralizing information for instance). Beyond demonstrating effectiveness, this successful comparison may indeed support this research’s ethicality. As stated earlier, teleological moral philosophy considers that superior effectiveness of ethically troublesome acts may indeed represent arguments in favor of their usage (Hunt and Vitell 1993a). This is further supported by research in social marketing (Andreasen 2006; Donovan and Henley 2003; Hastings et al. 2004). Second, we will analyze the persuasiveness of a social threat as compared to its counterpart, a physical threat.
The following section will be devoted to the translation of these research objectives into hypotheses.

2.2. Hypotheses

In the previous section, the effectiveness of threat appeals on a slightly older target than ours has been summarized. The lack of research on preadolescents has also been stressed, although a scarce production on young adolescents appears encouraging. Schoenbachler and Whittler (1996) indeed showed that 12-to 14-years-olds were very much influenced by anti-drug PSAs that use social threats. Pechmann and colleagues (2003) bolstered 12-to 13- and 15-to 16-years-olds’ intentions not to smoke by exposing them to ads that conveyed severe social disapproval risks. These two studies used respectively Rogers’ Protection Motivation Theory/Model-PMT (1975, 1983) and Tanner et al.’s Ordered Protection Motivation Theory/Model (1991) to draw up their hypotheses. This model’s interest rests on the answer it provides to Rogers’ PMT various shortcomings emphasizing the importance of the sequence of the variables, the social context, the role of a probable pre-existing solution repertoire and, last, the role of emotions.

Of particular interest to us is the support for a more central role of fear in the persuasion process brought by the PMT and by many pieces of research since then. Witte (1992, 1994) emphasizes either the increased probability of success or the risk of failure when the level of the phobic emotion is high. According to her, when the solution is perceived efficient, the success increases. In contrast, extreme negative emotions would hold up individual’s motivation to protect. In this, her model (the Expended Parallel Process Model) appears less cognitive. Later, an increasing number of studies have reconsidered emotions and their function in threat appeals. The direct relationship between emotions and intentions to behave has been repeatedly demonstrated, in various contexts. For instance, Gallopel and Valette-Florence (2002) identified a direct effect of fear on behavioral intentions in anti-tobacco campaigns. In a study on young adults and safe driving, Lavoisier confirms the affective route predominance, as compared to the cognitive one (Lavoisier-Mérieux 2002). She indicates that an affective persuasion mechanism appears to determine more accurately the attitudinal changes than cognitive processes would do. Those changes would, in turn, predict behaviors. Umeh’s findings sustain these conclusions, indicating that decisions relative to health might not necessarily be based on cognitions (Umeh 2004). Lazarus and Folkman (1984), in Norman et al. (2005) view the information appraised by individuals for their health as “hot information”, people not processing to the same extent the data available. These findings consequently emphasize the emotional dimension of threat appeals.
Consistent with those, a meta-analysis conducted on health prevention contexts reports significant correlations between the negative affective reactions elicited by the ad and the intentions to behave (Milne et al. 2000). These various studies led Gallopel-Morvan to call, in her state of the art (2006), for reconsidering the role of emotions in threat appeals.

These findings are indeed of particular interest for those working with children. Children’s specific persuasion mechanisms have indeed been studied and research offers today relevant knowledge on this topic. Specifically, the affective dimension of the persuasion process through the mean of advertising has been stressed. This affective nature may be identified through the way attitudes are formed, but also through the decisive constituting parts of advertisements that appear to persuade. Hence, advertising to children presents an original hierarchy of effect, the “emotional hierarchy”; demonstrated by Derbaix (1982) and globally confirmed since by various pieces of research (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002a, b; Pecheux et al. 2006). Further, affect generated by the ad, and most specifically by the execution features of the ad, as opposed to arguments of the message, would be the best predictor of the attitude towards the ad (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002a, b; Pecheux et al. 2006; Vanhamme and Chiu 2008). In turn, this attitude towards the ad foresees the attitude towards the brand advertised (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002a, b; Pecheux et al. 2006; Phelps and Hoy 1996; Vanhamme and Chiu 2008) and the intentions to consume (Pecheux and Derbaix 2002b; Phelps and Hoy 1996). In addition, this predictive characteristic would not depend of the child’s involvement, his mood or, for instance his knowledge of the product category (Pecheux and Derbaix 2002b).

Relying on these conclusions and on the knowledge on children advertising persuasion, we propose the following hypotheses.

**H2 (1)**

*a) Among 8-to 12-year-olds, those exposed to “Threat ads” promoting fruits and vegetables will form a more positive Attitude towards the Product Category advertised (Apc) than those exposed to a “typical” ad.*

*b) Among 8-to 12-year-olds, those exposed to “Threat ads” promoting fruits and vegetables will form more positive Intentions to Consume healthy food (IC) than those exposed to a “typical” ad.*

Further, and interestingly, authors who focus on a young target (12-to 15-year-olds) emphasized that although “social threats” were efficient, their counterpart, “health threats” (in other words, threats emphasizing risks for the health), could be counterproductive among young people...
Children, healthy eating and “threat appeals”

(Pechmann et al. 2003; Schoenbachler and Whittler 1996). Authors indeed suggest that adolescents feel invincible and consequently, threats to their health and physical abilities would be of limited impact. This is also supported by research in philosophy (Walton 1996). Although it could be argued that the populations considered in the above-mentioned studies are slightly older than our target, it appears that social phobia develops during the preadolescence period (Field et al. 2003). Fears related to social relations are indeed expressed by children, even though their abstract nature (as compared to animals, monsters etc.) requires them to be prompted (through picture-aided interviews, for example) in order to be unveiled (Lahikainen et al. 2003). This probably explains why children do not spontaneously speak of social fears but do indeed experience them. Our above-mentioned qualitative research (section 1.3.2.) and expert’s interviews (section 3.2.1) further sustain these statements. Social marketing theory advises specifically to refer to this qualitative work, costs of adopting new behaviors being often higher than in “commercial” studies (Andreasen 2006; Thogersen 2007). Consequently, we propose the following hypotheses.

H2 (2)

a) Among 8-to 12-year-olds, those exposed to “Social threat ads” promoting fruits and vegetables will form a more positive Attitude towards the Product Category advertised (ApC) than those exposed to “Health and physical abilities” threat ads.

b) Among 8-to 12-year-olds, those exposed to “Social threat ads” promoting fruits and vegetables will form more positive Intentions to Consume healthy food (IC) than those exposed to a “Health and physical abilities” ad.

2.3. Experiments 1 and 2

In order to test our hypotheses, experimentation appears as the most appropriate methodology. It will indeed allow comparisons between the various versions of our ads while a maximum of external elements can be controlled. Considering the novelty of threat appeals within the preadolescent target, we decided to conduct a preliminary experiment to test our hypotheses. In this first experiment, priority was given to a “print” media. This decision was motivated by practical concerns: print ads represent a much easier type of commercials to construct and to manipulate in order to answer the specific needs of our research. Budget constrains further convinced us to proceed as such. Therefore, this preliminary experiment seems to justify the use of prints.
Our second experiment will strive to replicate conclusive results achieved in print ads with audio-visual commercials. TV indeed represents the natural media associated with kids. Demonstrating threat appeal effectiveness with ads exploitable on TV would automatically insure a larger audience. We realize however that the type of media may impact on our results for two main reasons. Audio-visual media affects more senses than print ad. Consequently and considering the role of emotions in recent research on threat appeals (Gallopel-Morvan 2006; Gallopel and Valette-Florence 2002; Lavoisier-Mérieux 2002; Milne et al. 2000; Norman et al. 2005; Umeh 2004), this media could be more appropriate. Furthermore, TV enables to depict a more complete story, as compared to a still picture in a magazine. This, in turn, probably elicits a larger repertoire of affective reactions. Consequently, if threat appeals’ effectiveness among children is consistent with the literature on children’s persuasion, audio-visual ads will be more efficient. The affective route of persuasion has indeed been repeatedly shown among this target. On the other hand, we cannot totally rule out that the central “cognitive” route of persuasion identified in early literature on Protection Motivation Theory (Rogers 1975, 1983; Tanner et al. 1991) may be at work in this specific context. Print media would then respond more adequately to the elaborations requirement.

Considering this duality, it appears interesting to investigate both media. Then, considering our technical restraints, we consider appropriate to approach our experiments in the following sequence: first, print, second audio-visual.

2.3.1. Experiment 1: effectiveness of threat appeals in print ads

2.3.1.1. Method

Experimental design

In this first experiment, the effectiveness of three types of ads will be compared. Two will embed threats (social, and health/physical abilities) and will be evaluated against each other and against a typical ad. Our participants were consequently assigned to one of the three experimental conditions.

Participants

Subjects were one hundred and eighteen children (118) enrolled in 4th, 5th and 6th grade of a catholic school of Mons, in the French-speaking area of Belgium. Sexes and age are represented equally in both conditions. Children’s socio-demographic information was requested (parent’s job, for instance). It appeared however that many children, even
within the oldest groups, could not specify the nature of their parents’ work, (although they often knew the name of the employing company). We are nevertheless confident that the school offers a fairly good representation of the economical situation of the Belgian population. Children were tested in groups (minimum 2, maximum 4). Parental consent was obtained. When the principal required us to specify our study’s object in the letter addressed to parents, we stressed the importance of not revealing it to children, in order not to bias the research. Thanks to the social object of our research, we encountered a lot of support form parents and teachers throughout the whole process.

**Material**

**Ads**

The “social threat ad” of our experiment depicts a situation where a child is being bullied by his peers due to an obvious weight problem.

Our second message represents the “physical abilities threat ad”. It embeds a picture of an obese child that experiences difficulties practicing gymnastics.

The “typical ad”\(^3\) uses a cartoon character to deliver its informational, non moralizing message.

All ads present the same two A4 pages format. The first one is devoted to picturing the threat (or the cartoon character); the second one contains the recommendation\(^3\). The various ads' lay-outs may be considered identical. Working with print ads indeed made possible to achieve high similarity between ads.

Ads were embedded in a real children’s magazine which contained others existing ads designed for the target (Harry Potter glasses, DVDs, etc…). Those ads are represented by A, B, C and D. The magazines only differed by the treatment ad.

**Measurement instruments and advertising effectiveness indicators**

Classical indicators tried and tested in advertising research on adults (Brown and Stayman 1992; MacKenzie and Lutz 1989; MacKenzie, Lutz, and Belch 1986; Muehling and Laczniack 1992) will be used. **Attitude towards the ad** (Aad), **Attitude towards the brand** (Ab) and **Intentions to request the brand or to consume the brand** (IC) are

\(^3\) A “typical” ad should here be understood as an ad that uses the typical themes and tools of efficient advertising, as described in our previous chapter, section 1.2.2.

\(^3\) Scenarios are available in appendix 2.1.
indeed also commonly evaluated in targets just as ours (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002a, b; Pecheux et al. 2006; Phelps and Hoy 1996; Vanhamme and Chiu 2008). **Attitude towards the ad** is defined as a “**predisposition to respond in a favorable or unfavorable manner to a particular advertising stimulus during a particular exposure occasion**” (Lutz 1985). **Brand attitudes** represent “**predispositions to respond in a favorable or unfavorable manner to a particular brand after advertising stimulus has been shown to the individual**” (Phelps and Hoy 1996). **Intentions to consume the brand** concern the probability that children will request or consume the product. They are adapted from children’s purchase intentions (Phelps and Hoy 1996)

To the contrary of early research on children, validated scales for child populations are now available. It has indeed been stressed how important it is to work with instruments that are appropriate for the specificities of our target (Moore and Lutz 2000; Pecheux and Derbaix 2002b; Vanhamme and Chiu 2008). Consequently, Derbaix, Blondeau and Pecheux’ scale of Attitude towards the Ad (1999) will monitor our ad’s evaluation. Further, Pecheux and Derbaix’ Attitude towards the brand scale (1999) will help us evaluate children’s attitude towards the product advertised. However, our specific context forced us to slightly adapt the attitude towards the brand scale. First, healthy foods (such as fruits or vegetables), are not always known by brands. Second, a correct representation of attitude towards healthy food requires a larger scope than just considering a specific brand or product. Product categories indeed appear to reflect more adequately the concept of healthy food than what a specific product may be able to do. Consequently, “Attitude towards the brand” scale (Ab) will refer to within those two experiments as “Attitude towards product category” (Apc), such as fruits and vegetables, candies, biscuits, etc.

Last, the experiment will also include an evaluation of children’s affective reactions. This will be done through the use of an **Affective Reactions Elicited by the AD scale** (AREAD) based on Derbaix and Brée specific study: “The impact of Children's Affective Reactions Elicited by Commercials on Attitudes toward the Advertisement and the Brand” (1997). Originally, the study included 13 affective reactions of both valences (entertained, nervous, worried, joyful, interested, happy, disgusted, angry, bored, sad, afraid, happy, surprised).

In our experimental design O1, O2 and O3 represent the post-treatment measurements as presented above. Consequently, they include
- a manipulation check of affective reaction which consists in an evaluation of the affective reactions elicited by the various ads (AREAD), based on Derbaix and Brée (1997), as exposed above. Each affective reaction is evaluated on a four-point scale.
- the **Attitude towards the ad**, (Derbaix, Blondeau, and Pecheux 1999), scores range from 6 to 24 (four-point -NON NON; non; oui; OUI OUI-six items scale).
- **Attitudes towards product, product categories and brands**, based on the work of Pecheux and Derbaix (1999). The considered food or food categories are fruits and vegetables, potato chips, soft drinks (Coke) and dairy products. The scale is four-point; seven items (scores vary between 7 and 28).
- **Intentions to behave**, which will be evaluated through the means of multiple choices questions such as “If I were asked to decide about my recess time snack, I would choose chips, or candies, or a piece of fruit or a yogurt”. Four items (two healthy and two unhealthy types of foods) were proposed on a four-point Likert type scale. Scores may vary from 4 to 16.

**Assignment**
Children were randomly assigned to one of the following conditions
- **condition 1 (“social” threat ad)**
- **condition 2 (“physical abilities” threat ad)**
- **condition 3 (typical ad)**

**Procedure**
The experiment unfolded according to the following sequence. After a brief introduction of the researcher by the teacher, explaining also the global procedure of the study that will be carried out over several days, children were welcomed by groups of maximum four in a separate room to their own class room. Children did not know the sequence according to which they would be called nor the child that would accompany them. Teachers were however asked beforehand to point out peers who might have relational problems, in order to avoid inhibited children. A guise story was exposed by the researcher. Each child was invited to leaf through the magazine that he/she was handed. Within a group, all magazines were identical. When a child declared that he was done with its discovering of the magazine, the “test” ad was looked for in the magazine by the researcher who presented it again to the children. He/she was then asked to look at it a second time. It has indeed been argued that showing the ads twice increased the validity
of tests (Phelps and Hoy, 1996). Then, the child was asked to fill in a short questionnaire, our post-exposure measurements. When all group members had completed the task, they were led back to their classroom.

2.3.1.2. Results

Our first analysis concentrates on the affective reactions elicited by our ad. Although our ads were evaluated by children through the means of a pre-test, it appears necessary to confirm the elicitation of negative affective reactions by our ads. More specifically, we seek the ability of our ad to elicit “fear”. ANOVA were used to analyze the level of fear elicited by each ad. Results, reported in table 2.1, confirm the validity of our work (based on the assumption that our test ad will elicit negative affective reactions). Our threat ads raise significantly more fear than the typical ad (Msocial threat= 2,59; Mphysical threat=2,10; Mtypical ad= 1,16, F=23,83; p<0,001).

<table>
<thead>
<tr>
<th></th>
<th>Cond1 (n=29)</th>
<th>Cond2 (n=60)</th>
<th>Cond3 (n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear</td>
<td>2,59</td>
<td>2,10</td>
<td>1,16</td>
</tr>
<tr>
<td>( p )-value</td>
<td>S**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>23,83</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2.1.: Comparison of levels of “fear” elicited, *significant at \( p<0,05 \); **significant at \( p<0,01 \)

Our first hypotheses (H 2 (1)) predicts that “threat appeals” ads will outperform the typical ads on attitude towards fruits and vegetables (a) and intentions to consume (b). Hypothesis 2 (2) indicates that the most efficient threat will be the social one. ANOVA and contrasts analyses were performed in order to test our hypotheses. Findings identified no significant differences between the different types of threat and typical ads at \( p<0,05 \) in attitude towards the product category advertised (Msocial threat= 24,83; Mphysical threat=24,07; Mtypical ad=23,2). Our hypotheses (1) (a) is not supported by our data.

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36 Score min= 1; max = 4.
Findings relative to intentions to consume indicate that there is no significant overall experimental effect (see table 2.2). However, a trend is identified (p-value= 0.145). Children exposed to a “social threat” declared more intentions to consume healthy food (Msocial threat = 6.28)\(^{37}\) than children exposed to a typical ad (Mtypical ad = 5.37; p>0.025) (cf. table 2.3).

<table>
<thead>
<tr>
<th>Intents to consume healthy food</th>
<th>Social threat (n=29)</th>
<th>Phys. threat (n=60)</th>
<th>Typical ad (n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6.28</td>
<td>5.85</td>
<td>5.37</td>
</tr>
<tr>
<td>P-value</td>
<td>NS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>...</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2.2: Comparison of intentions to consume across conditions, *significant at p<0.05; **significant at p<0.01

<table>
<thead>
<tr>
<th>Intends to consume healthy food</th>
<th>Social threat ad (n=29)</th>
<th>Typical ad (n=30)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6.28</td>
<td>5.37</td>
<td>0.025</td>
</tr>
</tbody>
</table>

Table 2.3: Results of contrasts analysis: IC in social threat ad vs. typical ad

However, children exposed to the physical threat compared to typical ad did not present any reliable difference in their intentions to consume (Mphysical threat = 5.85; M typical ad = 5.37).

Last, a comparison of effectiveness between the types of threats did not reveal significant differences. Even though the results follow the expected direction, children exposed to social threat did not report significantly more intentions to consume healthy food than children in the physical threat condition (Msocial threat= 6.28; Mphysical threat 5.85).

**Our hypotheses (1) and (2) (a) are not supported by the data** of our preliminary experiment, although attitude towards fruits and vegetables appear to increase more after exposure to social threat (as compared to other ads). **Furthermore, hypotheses (1) (b) and (2) (b) are not supported at a level of Type I error = 0.05.**

\(^{37}\) Score min= 4; max=16
However, social threats enhanced children’s intentions to consume healthily. Considering the low scores achieved on intentions to consume healthy food (6.28; 5.85 and 5.37 when the maximum score is 16), an increase of one point seems an encouraging trend. Nevertheless intentions to consume healthily after exposure to physical threats were not statistically different to those of children exposed to typical ad and no significant differences were identified between the “physical” and the “social threat” conditions.

**Additional analyses: effectiveness of threats according to gender.**

Although our first results do not provide a clear evidence of “physical threat appeal” effectiveness, we performed a complementary analysis that could eventually identify differences between sexes. Our qualitative phase indeed let us anticipate differences in advertising effectiveness when comparing boys and girls. This difference between both genders emerged specifically when discussing sport activities. Sport practice was indeed part of their daily routine to the vast majority of boys. This did not appear for girls. Furthermore, these expected differences between gender did not emerge in the social threat context.

The results obtained through mean comparisons (reported in table 2.4) did not provide support for our assumption. No further information to the potential influence of this type of threat according to sexes was found.

<table>
<thead>
<tr>
<th></th>
<th>Physical threat</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys N=30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Girls N=29</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Afly</em></td>
<td>24.37</td>
<td>23.76</td>
<td>NS</td>
<td>...</td>
</tr>
<tr>
<td><em>Ahealthy food</em></td>
<td>24.21</td>
<td>23.47</td>
<td>NS</td>
<td>...</td>
</tr>
<tr>
<td><em>IC healthy food</em></td>
<td>5.83</td>
<td>5.86</td>
<td>NS</td>
<td>...</td>
</tr>
</tbody>
</table>

Table 2.4: Comparison of attitude towards product category and Intentions to consume healthily, physical threat ad between boys and girls; *significant at p<0.05
2.3.1.3. Discussion

It was expected that this preliminary experiment would demonstrate the effectiveness of threat appeals in encouraging preadolescents to eat healthy food. Our empirical results offered some support to our hypotheses. Although attitudes towards the product category advertised did not evolve reliably, intentions to behave were influenced by our threatening ads. More specifically, ads that clearly depicted situations of social rejection increased intentions to consume healthy foods when compared to intentions of children exposed to typical ads. Of the two threat messages tested, however, only social threat bolstered noticeably preadolescents’ intentions. Nevertheless, intentions to consume healthily after exposure to physical threat differed from those after viewing a typical ad, and this, in the expected direction.

These findings are consistent with research among older children (12-to 15-years-olds), in other health contexts (Pechmann et al. 2003; Schoenbachler and Whittler 1996). However, these studies differ from our work in different aspects. First, the age difference between their target and ours is noteworthy. Even if it only represents a few years, it is not inconsequential as far as reactions towards advertising are concerned (Roedder-John 1999; Roedder John and Cole 1986). Second, Schoenbachler and Whittler (1996) also managed to enhance adolescents’ attitude towards the healthy behavior (no drug use). Third, these studies either used audio-visual ads (Pechmann et al. 2003) or investigated different levels of threats and affective reactions elicited (Schoenbachler and Whittler 1996). Consequently, in both studies, we may suppose that the level of affective reactions elicitation was more appreciable.

We argue that a more adequate media, using more vivid ads may bolster our findings. Action, for instance, has been identified as a preponderant executional element in advertising effectiveness within child populations (Brée 1990, 1993; Guichard and Pecheux 2007; Reece et al. 1999). Further, Goldberg and his colleagues emphasized the probable positive impact of animation in the successful programs that would arouse concern (fear) (Goldberg et al. 1978). A print ad may lack in ability to describe vividly a threatening story. Further, as argued earlier, the print media may be less adequate to threat appeals effectiveness with children to the extent that it probably forces the target to use more cognitive abilities than what TV ads (considered a passive media) would request. If this assumption is confirmed, this would argue in favor of an affective process.
of persuasion. According to Derbaix and Brée (1997), Moore and Lutz, 2000; Pecheux and Derbaix, (2002a,b); Pecheux et al. (2006), persuasion in child population indeed occurs mainly through an affective process that produces little elaboration.

Considering these elements, we trust this theme deserves further research. Consequently, experiment II, working with audio-visual ads, was developed and conducted.

2.3.2. Experiment 2: effectiveness of threat appeals in audio-visual ads

This experiment aims mainly at replicating the findings of experiment 1. Using a media that appears more adequate to this specific target, we expect our results to be bolstered. We may indeed suppose that working with a complete story (compared to a punctual situation depicted in a print ad) and adding a sound track will probably impact the level of affective reactions elicited. Peracchio indeed demonstrated that audiovisual stimuli were superior to verbal ones, as far as children’s capacity to retain information was concerned (Peracchio 1992). It is plausible that the combination of audio and visual stimuli -more than the nature of the source- explains these results. We therefore predict that the effectiveness we touched upon through print ads will be significant here. Similarly, we expect significant changes to occur in the attitude towards the product category advertised.

Last and beyond those typical indicators of advertising effectiveness, we predict that behaviors of children exposed to threat ads will be healthier than those of children in the typical ad condition. Although the literature offers little empirical evidence of behavioral changes in children after exposure to commercials (Galst 1980; Gorn and Goldberg 1982), this would offer considerable strength to our demonstration. Further, Bullen and Benton in their study exploring the challenges of changing children’s food perceptions insist that most healthy eating interventions do not result in behavioral changes (Bullen and Benton 2004). This research would consequently offer a precious original contribution.

Consequently, the following hypotheses complete our previous ones (exposed on pages 65 and 66).
H2 (3)

Threat ads to 8-to 12-year-olds promoting fruits and vegetable are more persuasive than “typical” ads in terms of healthy consumptions

Social threat ads to 8-to 12-year-olds promoting fruits and vegetable are more persuasive than physical threat ads in terms of healthy consumptions

Last, and although this is usually demonstrated in advertising research, we do not expect that attitude towards the threat ad will be superior to the attitude towards the typical ad. Although it is always preferable to insure that the ads are not rejected by the target, threat ads indeed do not intend to please to the extent with which typical ads do. Furthermore, the scientific objective of this research somehow induces us to “force” the negative content of the threatening ad. A too mild appeal could lead to conclude to ineffectiveness albeit it would be a matter of intensity, not of appeal type.

Findings supporting our assumption, however, would have various consequences. First, it would lead us to reinterpret the explanatory role of the attitude towards the ad in attitude towards the brand and in intentions to consume indentified in the literature. If the highest Aad score does not predict the highest Ab and IC scores, moderating or mediating variables are to be considered. Consequently, the typical model of advertising persuasion should be amended. Second, attitude towards the ad may also represent an “indicator of ethicality”. Although not sufficient, it will probably guide us in our evaluation. We have indeed argued earlier that feelings of discomfort experienced by children will probably be reported in their attitude towards the ad. Consequently, if attitudes towards our threat ads reported by children presenting weight problems (identified through their BMI) are not significantly weaker than those of other children, positive inferences will be authorized. For all these reasons, controlling for acceptance of our threat ads by our target appears essential.

2.3.2.1. Method

Experimental design

Beyond the elements exposed above, this experiment will differ from the preliminary one in its design. A control group has indeed been added. Our objective, through this, is to increase the external validity of our work.
Participants

We interviewed 184 children between 8 and 12 coming from two schools in our university town. However, the questionnaires of only 137 pupils (56% girls and 44% boys) were considered in the analysis. Beyond children’s absence at one of the two sessions, many questionnaires were not complete which led us to discard them. Post experiment, we realized that this young target needed to be reminded many times that answers to all questions were necessary for their opinion to be valid.

According to school authorities, children came from various social backgrounds although extremes were avoided or represent a very small minority (two children in total). We were not able to gather more detailed information on the topic. School authorities appeared reluctant to reveal each child’s specific profile and information from the children themselves appeared frequently unclear, as already experienced in experiment 1 and in qualitative studies. Parent’s approval was requested by the mean of a letter addressed directly though the headmaster.

Material

Ads and treatment

The “social threat” ad depicts a situation where a child is putted aside by his peers because of a weight problem. The “physical abilities threat” ad shows a comparison of a boy’s achievements in a “normal situation” and when weighted down by a heavy back pack, representing the extra kilos overweight people wear every day. The “typical ad” presents information on the importance of healthy food, uses bright colors, a young boy’s hands and special effects that create action. In our control group, children will not be exposed to any type of message. The treatment ad will be placed in a pod among filling ads. Those ads and the sequence according to which the ads were presented were identical across all conditions.

Audio-visual ads were created (conceptually and technically) with the precious help of the Mons School of advertising (IRAM) and its section director, Michel Petteau. Although a lot of thoughts were devoted to the scenarios, it appeared difficult to present stories that were identical in terms of execution, due to the very different types of threats to depict. We were also confronted by another technical constrain: directing an obese child in our
commercials appears ethically questionable. Consequently, the various scenarios presented led us to develop commercials that present a number of executional differences. These ads can be viewed at the following address http://www.fucam.ac.be/index.php3?pere=25381 or on the DVD provided.

Measurement instruments and advertising effectiveness indicators

Pre-exposure measurements were assessed. It indeed appears that the validity of our work could be enhanced if we controlled important aspects that could influence our results. For instance, two factors were taken into consideration: the sensitivity to the notion of healthy food and children’s BMI. Intuitively, we may indeed assume that children who beforehand already present a high involvement towards this issue may react more positively to ads promoting healthy food than others, whatever the type of promotion. Similarly, children presenting weight problems may also differ from peers in their attitudes or behaviors after exposure. However, the direction of this influence is harder to predict. From our qualitative work, we inferred that obese children coming from obese families often underestimated the impact of unhealthy food. However, obese children with normal weight parents appear to be very sensitive to nutrition. Therefore, an overrepresentation of one of these characteristics in one condition could bias our results and jeopardize our findings. Consequently, pre-exposure measurements instruments were especially developed. First, the concept of sensitivity to healthy food was assessed through the mean of three elements: children’s nutrition knowledge, parents’ involvement in their diet, and children’s attitude towards various product categories (healthy and unhealthy). Children’s nutrition knowledge was evaluated by the mean of multiple-choices questions related to balanced meal contents, nutritional value of specific foods, etc… This first part of the indicator was developed with the help of Dr. Anne-Pierre Pickaert, Director of the Nutrition and Environment Program of the French National Institute of Cancer in Paris, (Prevention and Screening Section) and of Mrs. Waelput, professor of pedagogy, psychology and future teacher’s methodology at the “Haute Ecole Provinciale” de Mons, Belgium. It indeed appeared relevant to seek the help of professionals for the purpose. Then, parents’ involvement into their children’s consumption was also integrated in our monitoring. This was however measured indirectly, through children’s answers on different items related to the choice of snacks at

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38 We were not exposed to the same considerations with print ads. Many pictures are indeed available on the internet that may be suitably adapted to our own objective. This of course can not be done with audio-visual scenarios. As explained earlier, this indeed justified the use of print ads in our first experimental approach.
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recess or mid-afternoon. Children’s attitude towards food products categories will be assessed with the Attitude towards the brand scale (Derbaix, Blondeau, Pecheux, 1999), as in experiment 1. To our measurement of sensitivity to healthy food, *children's BMI* was added. Each child was weighted and measured. This was made with the consent of the school headmaster, although it did not appear as an uncommon practice in the classroom (for most teachers). It was therefore possible to conduct our measurements in a very natural and recreational way. Categories of BMI, according to WHO references were then evaluated. Although BMI does not represent the most elaborated mean to estimate children’s potential weight problems, it is considered as a non arbitrary measurement, commonly used in international studies (Cole et al. 2000 in Pelicand and Doumond 2005). These elements will enable the assignment of children to a condition respecting experimental group equivalence.

The post-treatment measurements include
- a manipulation check: an evaluation of the affective reactions elicited by the various ads *(AREAD)*, based on Derbaix and Brée (1997). Although monitoring AREAD is essential to assess our hypotheses, we also expect AREAD to play a role in the persuasion process, as it will be argued later.
- the *Attitude towards the ad* (Derbaix et al. 1999),
- *Intentions to behave*, which will be evaluated through the means of multiple choices questions such as “If I were asked to decide about my recess time snack, I would choose chips, or candies, or a piece of fruit or a yogurt”. Four items (two healthy and two unhealthy types of foods) were proposed on a four-point Likert type scale. Consequently, scores vary from 4 to 16.
- *Behaviors* will also be measured through children’s consumption of M&M’s. M&M’s were chosen because they represent a candy liked by most Belgian children and are easy to operationalize. Quantities (in grams) consumed will be weighted for each group in each condition ad will then be compared. The most efficient ad will be identified according to the smallest amount (in grams) consumed. We expect that children exposed to the most efficient ad will consume significantly less M&M’s than children exposed to less efficient ad.

Assignment

Children were assigned randomly to one condition after blocking on two variables: BMI and Sensitivity to healthy food. ANOVA was then performed in order to assess that our conditions were equal on those variables. Results are shown in table 2.5. They allow us to state that no significant differences existed between our experimental conditions on variables that could impact our post-exposure treatment measurements.

| Condition | BMI category | Sensitivity | p-value
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (n=35)</td>
<td>2.35</td>
<td>6.9</td>
<td>NS</td>
</tr>
<tr>
<td>2 (n=37)</td>
<td>2.37</td>
<td>6.78</td>
<td></td>
</tr>
<tr>
<td>3 (n=31)</td>
<td>2.45</td>
<td>6.74</td>
<td></td>
</tr>
<tr>
<td>4 (n=34)</td>
<td>2.32</td>
<td>7.00</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.5: BMI categories and sensitivity to healthy diet, experimental groups equivalence

* = significant at p<0.05; ** cf. page 79

Procedure

During a first session, the headmaster introduced the researcher to the children. The latter then explained the objective of her presence to the whole classroom, for instance, a search for information on children’s interests and likings. No reference to food or diet was made. The pre-measurements were then taken. Children were given questionnaires called “Small quizz for smart kids” (“petit quiz pour grand connaisseurs”). The questionnaire was organized according to the following sequence: first, the questions on nutritional knowledge, balanced with general knowledge (political, geographical, etc.); second, scales evaluating parental involvement and attitude towards food products categories. When all questionnaires were filled, children were then asked to write down their eyes and hair colors, their weight and size, “in order for the researcher to remember you more easily”. If children did not know their weight or size, it was checked in the classroom. When all questionnaires were handed back, correct answers to all questions were provided.

About 5 months after this first event, children were exposed to our treatment ads. Children were welcomed by groups of three (for the youngest ones) or more (up to seven for the oldest ones) in a separate room to children’s classroom, devoted to the
Chapter 2: Can children really learn from threats and change their intentions to behave and behaviors? Two experiments to determine the effectiveness of threat appeals

experiment. Desks had been set in front of the screen with bowls of M&M’s accessible at hand reach every two or maximum three children. The total amount (in grams) of M&M’s presented to each group was noted down. Since group sizes could vary (minimum 3, maximum 7 depending on age) and the same amount had to be available for each child, the total amount presented per group varied depending on group size. While children were asked to sit at desks in front of the screen, the procedure was explained to them: they were expressly told that their opinion on ads was going to be requested. No mention was made of the M&M’s bowls, in order not to catch special attention or provoke suspicion. The ads pod was then presented. Differences between experimental groups rested in the third ad that represents our treatment. The position of the ad in the pod remained unchanged to avoid priming or reminiscence effects. A first set of general questions referring to all five ads were then submitted through a first written questionnaire. When all children were done (participants were given sufficient time and worked at about equivalent pace), the treatment ad was then presented again. Attitude scales and intentions to consume were then measured through the mean of a second written questionnaire. Questionnaires are available in appendix 2.3. When the task was completed for all of them, they were sent back to their classroom. Quantities of M&M’s consumed were then deduced, comparing the total weight of M&M’s presented to the group and the total M&M’s left-over in the same group after experiment. This represents our behavioral measurement.

2.3.2.2. Results

Manipulation check/affective reactions
The nature of affective reactions elicited has been checked using the Derbaix and Brée original AREAD scale (1997).

The results of Post-Hoc tests, reported in table 2.6 show interesting findings. First, fear does not appear to be elicited in a reliably different proportion across conditions (Msocial threat = 1.17; Mphysical threat= 1.22; Mtrad= 1.13). As indicated in our literature review (section 1.4.1.1.), this is however not uncommon. Threat appeals generally elicit various types of affective reactions (Becheur et al. 2007; Brooker 1981; Gallopel-Morvan 2006; Lavoisier-Mérieux 2002) and according to some authors, it is indeed this combination that enhances its effectiveness (Becheur et al. 2007). Second, our second ad treatment (“physical abilities” threat), which was supposed to elicit negative affective reactions in a
significantly more important proportion than our typical ad, did not. Further, significant differences were neither identified between condition 3, our “typical” ad and condition 2, nor condition 1 on affective reactions elicited. Therefore, it appears that children exposed to condition 3 will shed little light on our issue. In order to test our hypotheses, we indeed require ads that elicit reliably different types of affective reactions. Then, the attitude towards the ad in condition 3 is significantly lower than in condition 2 without provoking a wider repertoire of affective reactions. Consequently, on the basis of measured data, the ad presented in condition 2 cannot be considered a threat ad. Condition 2 will now be refereed to as the “low negatively affectively charged” ad, as compared to condition 1 which will represent the “high negatively affectively charged” ad.

<table>
<thead>
<tr>
<th>Condition</th>
<th>“fear”</th>
<th>“sadness”</th>
<th>“disgust”</th>
<th>Aad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Threat ad</td>
<td>1,17</td>
<td>1,37</td>
<td>2</td>
<td>13,44</td>
</tr>
<tr>
<td>Physical threat ad</td>
<td>1,22</td>
<td>1,05</td>
<td>1,45</td>
<td>16,16</td>
</tr>
<tr>
<td>Typical ad</td>
<td>1,13</td>
<td>1,19</td>
<td>1,65</td>
<td>13,79</td>
</tr>
<tr>
<td>p</td>
<td>NS</td>
<td>NS</td>
<td>$^{*}$</td>
<td>$^{**}$</td>
</tr>
<tr>
<td>F</td>
<td>…</td>
<td>…</td>
<td>2,80</td>
<td>4,14</td>
</tr>
</tbody>
</table>

Table 2.6: Comparisons of affective reactions elicited in social vs. physical threat ad; *significant at p<0,05; **significant at p<0,01

**Attitude towards product category, intentions to consume**

In order to analyze threat appeals effectiveness, attitude towards the productadvertized, intentions to behave and consumptions of M&M's of children exposed to the social threat/negative ad will be compared to both condition 2 (low negative affect ad) and condition 4 (control group).

No reliable difference was identified in attitudes toward the product category advertised (Mhigh negative ad =22,69; Mlow negative ad=23,2; Mcontrol group=22,10; table 2.10). Concerning intentions to consume, although an overall effect of treatment is not observed (see table 2.10) contrasts tests indicate that results follow the expected direction for intentions to consume (Mhigh negative ad =9,1; Mlow negative ad= 7,4; p=0,04) (reported in table 2.7,2.8 and 2.9)
Chapter 2: Can children really learn from threats and change their intentions to behave and behaviors? Two experiments to determine the effectiveness of threat appeals

Furthermore, contrast tests show that this difference is also observable when comparing the "social threat" group and the control group ($M_{social} = 9,14$, $M_{control group} = 7,55$, $p = 0,05$; Table 2.12.).

Last, a very interesting finding is identified when comparing intentions to consume between the typical ad and the control group through contrast tests. No significant difference is identified on intentions to consume between the two groups. ($M_{low negative} = 7,40$; $M_{control group} = 7,55$). It appears that an ad using advertising themes eliciting few and little negative affective reactions (according to research on the topic cf. section 1.2.2) would not provide better results in changing positively intentions to consume healthy food than what would happen in the absence of promotion actions.

<table>
<thead>
<tr>
<th></th>
<th>Social Threat ad/ High negative ad</th>
<th>Low negative ad</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Af&amp;v</strong></td>
<td>22,69</td>
<td>23,20</td>
<td>22,10</td>
</tr>
<tr>
<td><strong>p-value</strong></td>
<td>NS</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td><strong>Intentions to consume healthy food</strong></td>
<td>9,14</td>
<td>7,40</td>
<td>7,55</td>
</tr>
<tr>
<td><strong>p-value</strong></td>
<td>0,14</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>F</strong></td>
<td></td>
<td>1,97</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.7: Comparison of various indicators across conditions; *significant at $p<0,05$

<table>
<thead>
<tr>
<th></th>
<th>Social Threat ad/ High negative ad</th>
<th>Low negative ad</th>
<th><strong>p</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Af&amp;v</strong></td>
<td>22,69</td>
<td>23,20</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Intentions to consume healthy food</strong></td>
<td>9,14</td>
<td>7,40</td>
<td>$S^*$</td>
</tr>
</tbody>
</table>

Table 2.8: Contrast analyses- Af&v and IC healthily in social vs. typical ad; *significant at $p<0,05$

<table>
<thead>
<tr>
<th></th>
<th>Social Threat ad</th>
<th>Control group</th>
<th><strong>p</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Af&amp;v</strong></td>
<td>22,69</td>
<td>22,10</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Intentions to consume healthy food</strong></td>
<td>9,14</td>
<td>7,55</td>
<td>$S^*$</td>
</tr>
</tbody>
</table>

Table 2.9: Contrasts analyses – Af&v and IC healthily in social vs. control group; *significant at $p<0,05$
Our hypotheses (1) and (2) (a) and (b) are not supported by our data when controlling for familywise error rate. However, findings for (b) follow the expected direction: Intentions to consume healthy food are enhanced by exposure to ads threatening of negative social consequences.

**Consumptions**

Hypotheses 2 (3) predicted that children exposed to a social threat ad will consume significantly less M&M’s than other children. The ANOVA did not reveal reliable differences in consumptions of M&M’s between groups. Consumptions were evaluated in grams of M&M’s consumed within each group of child, in each condition (Mhigh negative=41.45; Mlow negative=42.11; Mcontrol group=42.00). This lack of difference between groups further seems to indicate that all children tended to consume a lot of M&M’s, assimilating the phenomenon to a ceiling effect. **Our hypothesis (3) is not supported by our data.**

**Additional analyses:**

1) **Attitude towards the ads**

As shown in the section “manipulation check”, analyses performed on the attitude towards the ad indicator revealed significant differences (see table 2.10). The attitude towards a “social threat” ad is reliably lower than the attitude towards our typical ad. (Mhigh negative = 13.44; Mlow negative = 16,16; p<0,01). However, let us remind that children exposed to our “social threat” ad reported higher intentions to consume healthy food than children exposed to the typical ad.

<table>
<thead>
<tr>
<th>Aad</th>
<th>Low negative ad</th>
<th>Social Threat ad/ high negative ad</th>
<th>p-value</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16,16</td>
<td>13,44</td>
<td>$^**$</td>
<td>-2.72</td>
</tr>
</tbody>
</table>

Table 2.10: Comparisons of Aad across conditions; *significant at p<0.05; **significant at p<0.01

---

40 Min score = 6; max score = 24
2) **Attitude towards the social threat ad among obese and healthy children**

However, comparisons between overweight and obese children (category 4 according to W.H.O) and healthy children (category 2) indicate no differences\(^{41}\). Further, they do not report different levels of negative affective reactions, except for the “disgusted” item (Mobese=1,25; Mnon obese=2,16). However, children showing no weight problem appeared more affected than obese children (see table 2.11). It may be surprising to note that this difference only concerns one specific negative affective reaction: “disgusted”. This affective state was identified by Vanhamme and Chiu (2008) as the potentially most effective one in advertising persuasion among child populations, leading the authors to suggest its use in social marketing campaigns. Two explanations may however be proposed in order to interpret these findings. On the one hand, we may suppose that social desirability has played a role. Obese children may be more reluctant to admit that they are affected by these situations. On the other hand, we should not overlook the possibility that obese children may be less affected by those because they indeed experience them. They may have learned -to some extent- to cope with them and consequently perceive the affective reactions with lower intensity.

<table>
<thead>
<tr>
<th></th>
<th>Obese children (n=4)</th>
<th>Non obese/overweight children (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Aad (social threat)</em></td>
<td>11,75</td>
<td>12,5</td>
</tr>
<tr>
<td><em>Sad</em></td>
<td>1,25</td>
<td>1,28</td>
</tr>
<tr>
<td><em>Disgusted</em></td>
<td>1,25</td>
<td>2,16</td>
</tr>
<tr>
<td><em>Worried</em></td>
<td>1,25</td>
<td>1,39</td>
</tr>
<tr>
<td><em>Afraid</em></td>
<td>1,00</td>
<td>1,11</td>
</tr>
</tbody>
</table>

Table 2.11: Comparison on Aad and AREAD healthy vs. obese children

3) **Relationship among variables**

Although this experiment did not primary aim at this, it also appears interesting to search for relationships between variables. For instance, the correlation between Aad and other advertising effectiveness indicators elicits curiosity. We have indeed shown that the most effective ad in modifying intentions to consume healthy food is not the preferred one.

\(^{41}\) Data report very small samples of children, specifically in the obese category. Consequently, this does not allow us to infer statistical validity. However, results remain interesting.
The literature has however repeatedly demonstrated that attitude towards the ad was predictive of the attitude towards the product advertised (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002a, b; Pecheux et al. 2006; Phelps and Hoy 1996) and intentions to consume (Pecheux and Derbaix 2002b; Phelps and Hoy 1996). Considering the original context of mixed (positive and negative) affective reactions elicited regression analyses will allow us to touch upon the relationships among those indicators.

Results, shown in tables 2.12 and 2.13 indicate respectively that Aad and Apc significantly predict Intentions to Consume. Aad and Apc explain respectively 25.4% and 11.7% of the variance in intentions to consume. Furthermore, a mediation analysis was performed. It appears that the Aad-IC relationship is not fully mediated by Apc.

Last, and unexpectedly, no significant correlation has been identified between Aad and Apc.

<table>
<thead>
<tr>
<th>Aad</th>
<th>p</th>
<th>β</th>
<th>SE</th>
<th>F</th>
<th>R²</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>A f&amp;v</td>
<td>NS</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>IC healthy foods</td>
<td>S**</td>
<td>0,40</td>
<td>0,12</td>
<td>11,27</td>
<td>0,25</td>
<td>0,50</td>
</tr>
</tbody>
</table>

Table 2.12: Attitude towards the ad regression analysis, **significant at p<0,01

<table>
<thead>
<tr>
<th>Aad</th>
<th>p</th>
<th>β</th>
<th>SE</th>
<th>F</th>
<th>R²</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>A f&amp;v</td>
<td>S*</td>
<td>0,26</td>
<td>0,12</td>
<td>4,38</td>
<td>0,12</td>
<td>0,34</td>
</tr>
</tbody>
</table>

Table 2.13: Attitude towards the product category regression; *significant at p<0,05

2.3.2.3. Discussion

These findings represent an encouraging support for our work. First, they show that ads conveying a form of threat may be successful at influencing children’s food choices. Although statistically not acceptable at p-value <0,05, our results indicate that young respondents exposed to social threat ads declared healthier intentions to consume than those exposed to a typical ad or the control group. Most notably, it also shows that commercials using typical appeals -and eliciting positive affective reactions- will not be the most efficient at promoting the consumption of fruits and vegetables. No reliable
differences in intentions to consume healthy food have been measured for children exposed to an entertaining ad as compared to those not exposed to such an ad. However, threat appeals did not emerge as influential on children’s attitude towards the product categories advertised. These are unexpected findings considering the recurrent demonstrations of changes in intentions to consume predicted by changes in attitude towards the product category provided by the literature. This may also be considered disappointing if one considers the long term behavioral changes sought. However, it appears premature to conclude that threat appeals cannot induce attitude changes. Let us indeed remind that children were only exposed once to our threat ads.

Another interesting conclusion in our experiment is that scores of attitude towards the ad do not predict ad’s effectiveness to the extent proposed in the literature. Highest scores of attitude towards ads promoting fruits and vegetables do not induce healthier intentions to consume. Although this may sound contradictory with the literature on children’s advertising persuasion, our original context -eliciting negative affective reactions- may be responsible for these findings. Further, Aad explains a very significant proportion of the variance in intentions to consume healthy food and this relationship is not fully mediated by attitude towards the product category advertised. This is however consistent with the literature on children (Pecheux and Derbaix 2002b; Phelps and Hoy 1996). Nevertheless, no significant relationship between Aad and Apc has been identified. This represents an original contribution to the literature.

Further, our experiment was not able to produce reliable differences in behaviors. In this regard, however, our behavioral measurement design should probably be questioned. First, children could see each other when consuming. This has most certainly caused imitation. This phenomenon, identified in adult populations (Tanner et al. 2008) is most plausible among a young audience. Furthermore, it appears that the lack of difference between conditions may be assimilated to a ceiling effect. Children indeed seem to be drawn to consumption. Once a child started to eat, peers consumed similarly. Second, it has been demonstrated that when asked to perform unattractive or hard tasks, respondents tend to show lower abilities in controlling themselves (Baumeister et al. 1998). Considering the (long) questionnaire submitted and the exclusively unhealthy food proposed, we may blame our experiment for not having provided a neutral setting for preadolescents’ consumption. Third, we do not know to what extent children are able to infer from an ad promoting fruits and vegetables their behaviors relative to candies.
Coherently with Peracchio and Luna’s findings in a comparable situation of health promotion through the means of advertising (1998), our setting may have required analogies that our youngest target has not been able to make. Last, attitude towards candies has not been evaluated before proposing it to children. It should not be excluded that prior differences in attitude may explain the absence of results at the end.

Then, it is also worth mentioning that children with a weight problem did not appear to evaluate our threat ad in a different way than non-overweight/obese children. To the contrary, obese children reported less negative affective reactions than others on the ‘disgusted’ item. It is a plausible explanation that obese children experience these situations of social exclusion quite frequently and that consequently, they “learn” to be less “disgusted” than other children. Results on other negative affective reactions are comparable. Consequently, this appears to be a relevant piece of information in the debate related to the ethicality of this research.

2.4. Discussion, limits and conclusion

This chapter reports the results of two studies, representing two original experiments which combine print and audio-visual materials and examine children’s responses to threat appeals.

Our findings revealed influences of ads emphasizing social risks caused by obesity on preadolescent’s intentions to consume healthy food. Nevertheless, social threats appeared to be the sole type of threats able to persuade the preadolescent target to consume healthy food. Our first experiment did not reveal effectiveness of its counterpart, “physical abilities” threats, whatever the gender of our target. Unfortunately, our second experiment did not enable us to test this hypothesis (although our audio-visual ads had been pre-tested, data of our experiment did not report significant negative affective reaction for the “physical threat” ad). We however predicted that other differences would emerge between our experiments. For instance, we expected audio-visual ads to present more significant results. We considered that print may indeed be less adequate to depict threatening situations that will elicit sufficient affective reactions. Furthermore, the print media is usually considered as a less passive media than TV. It may indeed require more cognitive processing. If the persuasion process depends mainly on affective reactions, as suggested by the children’s literature (Derbaix 1982; Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002a, b; Pecheux et al. 2006) and recent
studies on threat appeals (Gallopel-Morvan 2006; Gallopel and Valette-Florence 2002; Lavoisier-Mérieux 2002; Milne et al. 2000; Norman et al. 2005; Umeh 2004), the type of media could consequently impact our effectiveness. However, these experiments did not provide any clear evidence. First, the levels of “fear” reported in print ad were higher than those of various negative affective reactions elicited by the audio-visual ad. Then, T.V. ads did not appear more efficient than magazine ads, albeit the opposite was not observed. These findings unfortunately do not allow us to state on the media-effectiveness relationship.

Further, and although our experiments provide encouraging results concerning intentions to consume healthy foods, we did not succeed in demonstrating changes in attitude towards the product category advertised, i.e. fruits and vegetables. This, of course, is unexpected. Further, Aad appears an explanatory variable of intentions to consume but not of attitude towards the product category, which is also disconcerting.

Then, our perfectible experimental setting and incomplete behavioral instrument, as discussed earlier, did not allow us to expend our conclusions to modifications in behaviors.

These represent important limits to our work. Other limits cannot be overlooked. For instance, we realize that our audio-visual ads were constructed around executions that were rather different. Post qualitative tests were conducted in order to size the extent to which these elements -more than the theme itself- may have impacted our results. They did not provide evidence to that hypothesis. However, we can not totally exclude it.

Considering precisely the lacks identified in our experimental designs and our findings, it appears relevant to devote further research to the topic. Most specifically, we believe three aspects should be further investigated.

First, behavioral measures should be rethought. Based on our experience, two main points are to be focused on. Risks of imitation have to be avoided through an original setting and both healthy and unhealthy consumptions have to be presented. This should allow us to investigate more adequately the effectiveness of threat appeals to change immediate behaviors.

Second, the persuasion process has to be studied further. Although we expected our findings in experiment II to advocate in favor of an affective route of persuasion, the print (and less passive) media offered similar results. Therefore, the question related to the nature of the process remains. Further, the unexpected findings relative to attitude towards the product category advertised and its role in the process calls for further studies. Last, we cannot exclude the fact
that promoting fruits and vegetables may not be the most efficient element when aiming at changes in children’s diet. Although previous research seem to advocate for larger impacts of healthy-food based action as compared to unhealthy food (Epstein et al. 2001; Epstein et al. 2008), this remains unclear when threat appeals are considered. Threat appeals’ effectiveness in promoting the importance of a healthy diet may indeed be increased through the criticism of junk food.

Then, we could also consider increasing comparability across ads on executional aspects. We indeed intend to pursue our research with audio-visual ads. Although we have not demonstrated higher effectiveness through this material (but no lower efficacy either), we consider that it will enhance the validity of our managerial contributions. As argued earlier, TV remains indisputably “the” children’s media. Consequently, we will strive to propose more comparable executions in the scenarios developed.

We propose to implement and conduct experiment III. Chapter 3 we will devoted to this study. Starting with our motivation, we will present our hypotheses, sustained by appropriate research. Then, the experiment will be proposed. A discussion of the results will close our chapter.
Chapter 3: How do children infer how to behave from threat appeals? An experiment to understand the persuasion processes at work.

Summary
This chapter is mainly devoted to our third experiment.

This experiment’s objective is twofold. First, we attempt at improving the results achieved in our two first experiments, also expanding those findings to behavioral measurements. Second, we seek to understand the nature of the process leading to persuasion.

To introduce the third experiment, we propose a qualitative research and experts interviews that have been conducted in order to better grasp children’s experience of negative affective reactions. Hypotheses are then proposed after presenting the literature that sustains each of them. A detailed review of the experiment conducted and the motivations behind each specific aspect of its operationalisation is explained. Results are then summarized and conclusions are proposed.

A discussion on this experiment’s contribution and limits as well as an analysis of future experiments close this chapter.
3.1. Motivation

In the second chapter, through experiment I and II, we have shown that children exposed to threats embedded in ads demonstrated more intentions to consume healthy food than children exposed to ads that used typical advertising tools (action, fun, etc.). We have also been able to show that a significant link exists between the attitude towards the ad and the intention to consume, which is coherent with the literature (Pecheux and Derbaix 2002a, b; Pecheux et al. 2006; Phelps and Hoy 1996).

Although these findings support our hypothesis, they are also disconcerting considering the respective levels of Attitude towards the ad achieved by our social threat ad and our typical ad. Our results are puzzling to the extent that they are not coherent with previous research. As pointed out in the concluding part of experiment II, the positive linear relationship between Aad and Intentions to behave documented in the literature should have led to other conclusions. However, our results reveal that the highest score on Aad does not predict the highest intentions to behave. Although the specific appeals we use may explain these findings, it appears pertinent to investigate further the process at work, identifying for instance other moderating or mediating variables. The primary purpose of our third experiment will therefore consist in analyzing further the relationship among variables. This should eventually enable us to understand further the persuasion process at work in threat appeals among preadolescents.

Understanding the nature of the process when threat appeals among child populations are considered is of much theoretical interest. Seeking the elicitation of negative affective reactions through ad exposure is indeed of an uncommon nature in this context. As stressed in an earlier section (1.2.2), ads created for children tend to play on positive affective reactions. Consequently, advertising effectiveness has always been considered according to positive affective factors. Under this scenario, the prevalence of an affective model in children persuasion has been repetitively demonstrated (Derbaix 1982; Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002a, b; Pecheux et al. 2006). Although elaboration occurred within the 10-12 age group in Moore and Lutz (2000), authors explain it by a potential increased involvement in purchasing tasks in older children, probably made more salient due to their specific experimental context. To sum up, considering the importance of affect in advertising and persuasion, it seems important to analyze the role played by affective reactions of the opposite valence.

However, to the best of our knowledge, this research represents the first attempt to grasp the persuasion mechanism at work under negative affective reactions or, more probably, mixed
feelings. Will it follow Derbaix’ “Emotional Hierarchy of Effects” (1982) where the affective component tends to be predominant (Derbaix and Brée 1997; Moore and Lutz 2000), or even the unique nature of persuasion (Pecheux and Derbaix 2002a, b; Pecheux et al. 2006)? Will it support recent findings on threat appeals, rehabilitating the role of affect in the persuasion process (Gallopel and Valette-Florence 2002; Lavoisier-Mérieux 2002; Milne et al. 2000; Norman et al. 2005; Umeh 2004)? Or contrary to our expectations, will it confirm a cognitive appraisal as in early research among adults? This represents the second objective of this third experiment.

Third, although the intentions to behave reported after exposure to a “threat appeal” appear favorable to future healthy behaviors, experiment II has not enabled us to demonstrate changes in children’s consumption observed during our experiment. As argued in the concluding section of our previous chapter, we believe this lack of results is due to perfectible measurement instruments. This experiment will therefore also be devoted to the demonstration of effectiveness that leads to changes in behaviors. Achieving behavioral differences will indeed strengthen our work and will enrich fundamental research in the field. As exposed in Experiment 2’s conclusions, studies on children and advertising effects bringing their conclusions to effective behaviors are to be considered scarce (Galst 1980; Gorn and Goldberg 1982; Scammon and Christopher 1981). Improving the operationalization of our behavioral measurements within child populations will also represent an interesting contribution of this work.

Fourth, this experiment will also represent a tentative approach to the impact of the ad’s orientation (either positive or negative) on the intentions to behave and the behaviors. It has been argued earlier that the way the recommendation is framed or formulated, emphasizing either “do” or “do not do”, may influence the ad’s effectiveness, convincing -to various extent-to act according to what is recommended. This research’s objective however presents a specific issue: a healthy diet may be either achieved through either the promotion of healthy food consumption or the prevention of unhealthy food. This is somehow typical to this research, most social marketing campaigns indeed usually refer to one specific behavior either to drop or to adopt. In this experiment, we will therefore focus on investigating the persuasive potential of each of the two different behaviors that compose a healthy diet. This will be referred to respectively as “positive orientation” and “negative orientation”.

Bearing in mind the essential issue that negative affective reactions represent in this research, it seems important to acquire an advanced knowledge of children’s understanding and experience
of negative affective reactions before starting our third experiment. As stated by Lahikainen and colleagues (2003 p84), “if we want to obtain information about children’s fears, then we have to ask the children themselves, taking into account the limitations of young children’s cognitive and verbal capacities”. Two points have to be considered.

The first one concerns the instrument that has been used in order to measure children’s negative affective reactions. Up to this point in our research, we have indeed used the AREAD scale developed by Derbaix and Brée (1997) in order to assess the levels of affective reactions elicited by the ads. However, it was pointed out earlier that this scale was originally designed for research on “typical” advertisements which generally seek for positive affective reaction generation. The nuance between the different terms used or the scope of negative affective reactions proposed in the scale might not be large or sufficient enough, for our own purpose.

The second point relates to our target’s ability to properly express and differentiate those affective reactions. By “properly”, we mean here “in accordance with adults’ interpretations”. Adult’s perceptions will indeed remain our benchmark for the evaluation of the ads created. Qualitative studies allow this type of information to be grasped and will therefore constitute our next task with children. Then, it also appears important to understand how the target copes with negative affective reactions. This should be sought from a general perspective, but also and more specifically for threat appeals in advertising. PMT indeed suggests that an efficient solution should relieve the negative affective state. Confirmation of this theoretical ability is to be found for our own target. Further, in our discussion about the ethical dimension of our research, we have indeed proposed that, according to various authors (Andreasen 2006; Donovan and Henley 2003), “threat appeals” would be ethical if, among other conditions, the threats present a real probability of occurrence. We had to obtain experts’ point of view on this issue. Two psychiatrists specialized in children were consulted in order to achieve those objectives.

The main conclusions of those two qualitative studies are presented in the following sections.
3.2. Exploratory research on negative affective reactions and preadolescents

3.2.1. Experts interviews

Dr Didier Wegimont, from the Psychiatric Center of Liège, Belgium (Centre Hospitalier Psychiatrique de Liège) and Dr Barbara Crommelinck, private practitioner in Brussels, Belgium, answered to our questionnaire (see appendix 3.4.) during face-to-face interviews, respectively in May and March 2008. The questionnaire had been submitted beforehand with a document summarizing this research’s objectives, in order for the experts to get accustomed to our project and perspective.

This discussion also represented the opportunity to discuss the scenario depicting the social threat used as our treatment ad in our experiment 2 and that we planned to use in the third one. More specifically, the scenario used in experiment 2 was discussed with Dr Crommelinck and slightly amended in order to enhance the time proportion devoted to the solution. Our second expert, Dr Wegimont endorsed this second version of our social threat ad.

The main learning from those discussions have been classified under 3 topics: (a) the role and importance of negative affective reactions in children’s everyday life, (b) the understanding and experience of negative affective reactions and (c) the potential impact on children’s social and psychological development of negative affective reactions.

They are presented hereunder.

a) Role and importance of negative affective reactions in children’s life

According to our experts, raising awareness through the use of threats is an old and common educative process. The mechanism behind it is based on the idea that children’s attention must be drawn to the fact that acts have consequences, sometimes of an unwanted nature, and that negative affective reactions are fairly efficient at attracting attention. The survival instinct is probably responsible for the mechanism that increases attention to threats of any kinds (This idea is also sustained by Case et al. 1988). The learning potential of those negative affective appeals would rest on the method proposed to overcome those emotionally negative situations. In other words, positive lessons can be learned from negative (direct or indirect) experiences if fair solutions are offered. In addition, this is what basically differentiates fairy tales or any educative story from violent (physically or
psychologically) films or cartoons, these last ones lacking any educative sense due to the absence of a fair solution.

b) Understanding and experience of negative affective reactions

As proposed in the previous paragraph, the survival instinct is probably responsible for greater attention devoted to threats. In turn, this emphasized attention enables a better learning. Consequently, knowledge and understanding that children have of negative affective reactions -as compared to positive affective ones would be richer. Children learn quickly to identify them. Eight-years-olds are able to verbalize their negative emotions albeit it might be difficult for those young ones to do this spontaneously. The expression of these affective states often needs to be provoked, as it would not happen naturally. Paper-and-pencil tasks, with prompted negative affective reactions, are therefore adequate for the age group. A short delay (minutes) in time between the experience of the affective reaction and its transcription would not be of a major impact. According to our experts, from 8 years on, children would be able to remember them. The “temporal” memory would indeed be the one most activated in this young target.

Our list of prompted affective reactions was also analyzed during this discussion. It was suggested to add terms such as “uncomfortable” (je me suis senti(e) mal à l’aise) and “feeling bad” (je me suis senti(e) mal) in our discussions with children and in the scale used. Considering the mild level of the threat contained in our ad, these terms, according to our experts, would depict more precisely and in commonly used terms for the target, their own perceptions. This is indeed consistent with Brooker’s recommendation when working with mild fear appeals (Brooker 1981). Finally a complement to “be afraid” (être effrayé) such as “be scared” (avoir peur) was also advised, this late term corresponding more closely to children’s current vocabulary.

c) Impact on children’s social and psychological development of negative affective reactions elicited by threatening ads.

According to our experts, the age bracket 8-to-12 is a critical period in children’s social development. As a consequence, it seems to be the most sensitive time as far as mockery and exclusions are concerned. Therefore emphasizing the risk of social exclusion, and the fear elicited along, is a delicate work. Nonetheless, according to the experts, the threat used in our messages is indeed of a “real” nature. Not only does it
Chapter 3: How do children infer how to behave from threat appeals? An experiment to understand the persuasion process at work.

depict situations that one may encounter in everyday life but it also offers solutions to overcome the problems evoked. Taking the “reality principle” (principe de réalité) into account, fear (and threats) may help. Whether it is from the mistreated or the mistreator’s point of view, the message -and its solution demonstrate that such situations are not to be considered as a fatality. Victims can take reachable and efficient actions to get away from the tormenter. The risk that children’s imitation of the ad’s course of actions will induce exclusively negative consequences is limited: if a “threat” ad embeds a solution, imitation can also bring it to one’s problem. The positive progression offered in our message can indeed eventually lead to positive impact on the mistreator’s actions and on the perception that mistreated children have of the situation. The empowering feeling that solutions bring about are to be taken into consideration while evaluating the ethicality of this project.

To sum up our experts’ interviews, we may say that, albeit delicate, “threat appeals” have to be considered as an educational instrument. No general conclusion can be drawn regarding their systematic acceptance or rejection. It would indeed be a matter of “how” (it is constructed) not a matter of “may/may not”.

3.2.2. Qualitative research

Method

Different qualitative techniques were considered in order to achieve the twofold purpose of this study: assess the validity of the Derbaix and Brée’s scale (AREAD) according to our specific objective and achieve a better understanding of children’s negative affective reactions’ world.

Considering the sensitive and “touchy” topic of this qualitative research, we first comply with Rust and Hyatt’s recommendation to work with pairs of children (Rust and Hyatt 1991). This procedure, already used earlier in our study in order to insure a more relaxed atmosphere, seemed most appropriate here in our attempt to elicit as many spontaneous

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42 It is relevant to stress here again how essential the parental involvement is according to experts, in the eating issue as in any other educational topics. As emphasized in our chapter I, we rejoin the expert’s point of view. Nevertheless, literature has provided us with various motivations to combine upstream and downstream approaches as well as to target other audiences, increasing children’s motivations to act. The target itself indeed needs “to take ownership of the challenge for anything (change) lasting to take place” Andreasen, Alan R. (2006), Social Marketing in the 21st Century, Thousand Oaks, California: Sage Publications.
reactions as possible during the half-hour discussion. It would also allow deeper and more honest exchanges: the mere presence of a friend reinsures and increases comfort but also insures that what is told is accurate, acting as a control. Furthermore, as stressed by Lahikainen and colleagues (2003), significant others can help reduce feelings of anxiety and insecurity that the presence of an unknown adult may produce.

Second, different qualitative techniques were used in order to achieve the purposes of this study. Combining various approaches has indeed been recommended in the literature. Driessnack (2006), for instance, suggest to use drawings as a starting point of discussion, in order to overcome the difficulty that the younger ones may experience in expressing negative feelings. Lahikainen et al. (2003) used two different interview methods adding pictorial representations of situations they wanted to talk about to semi-structured interviews. It has indeed been observed that it was easier for children to relate and speak about abstract concepts, such as negative affective reactions, when iconic representations have been presented as support (Bauer, 1976 in Lahikainen et al. 2003).

A visual task was therefore added to the exercise: aided by pictures of children’s faces expressing different affective reactions (both positive and negative), children were asked to evaluate how much of different affective reactions were experienced by the children on the pictures (the booklet referring to negative affective reactions is available in appendix3.1.). The affective reactions listed are those proposed in the AREAD scale of Derbaix and Brée (1997). Following our experts’ advice (see section 3.2.1.), the scale was enriched with a couple of new affective reactions: “uncomfortable” (mal à l’aise) and “bad” (mal), and one was improved: “is afraid” (effrayé) was completed by “is scared” (a peur), which, according to our experts, depicted more precisely how children would express themselves experiencing such affective states.

As indicated earlier, a specific objective was attached to this last task: assess the degree of convergence between children’s perception of affective states and those of adults, finally allowing us to state that our adult’s interpretation of nuanced affective states such as “uncomfortable”, “worried” or “annoyed” was compatible with those of children. This procedure has been previously used in the literature (Roedder 1981).

Participants

Our sample was composed of thirty-two primary school pupils, distributed according to the following pattern: 3rd grade (8-9 year olds) : 6 girls and 2 boys; 4th grade (9-10 year olds) : 6 girls and 4 boys; 5th grade (10-11 year olds) : 4 girls and 6 boys; 6th grade (11-12
year olds): 2 girls and 2 boys. According to the school director, different socio-economic levels were represented in our sample, although extremes on the social ladder were avoided.

Our adult benchmark was composed of twelve adults (doctoral students and post doc, aged from 25 to 38).

**Material**

For the in-depth interviews with children, two types of material were used. A set of children’s pictures expressing various affective states (negative and positive) completed by affective states scales were developed in order to measure children’s knowledge of negative affective reactions. We focused on negative affective reactions expressions although some positive affective reactions were illustrated too in order to balance the affective state the pictures may elicit. Then, paper and color pencils were also made available for the younger children to be able to draw their fears, as recommended by Driessnack (2006). The adult group received the same set of pictures children evaluated.

**Procedure**

**Children**

The pairs of friends were welcomed in a small room used for after school child-minding. They were told that their opinion was going to be required on various topics and were asked whether they agree to participate. The discussion then begun. As a closing task, children were asked to fill in the scales related to the set of pictures. Children were then debriefed, at the end of the interviews and in front of the whole class, making sure the discussion did not impact their state of mind.

**Adults**

Adults were explained the task’s objective and procedure. They were then shown identical pictures to the ones submitted to children, on the same scale.

Results were then compared. The most frequently (or the two most frequently) pointed out negative affective reactions relative to a specific face in adult population was compared to the most frequent negative affective reaction for the same picture identified by children. Our motivation here is to be able to state that our interpretation (as adult) of children’s evaluation of negative affective reactions elicited by our ad is correct.
Results

1) AREAD scale adequacy with our specific objective

Information collected in our adult and children’s samples present a high coherence, as shown in table 3.1. The table lists the various negative affective reactions proposed. Numbers in the table illustrate the force according to which one emotion was assigned to one face. For each face, most children and most adults assigned the same affective reaction although adult showed more variance in their judgments than children. The discrepancy between 100% and the percentage obtained for each emotion represent the other emotions assigned to the picture. This number is usually more important for adults than children.

Children also demonstrated their familiarity with all the terms used in the scale. As far as our sample is concerned, children did not seem to experience difficulties in understanding any of the terms proposed in the scale. This allows us to consider our amended AREAD scale adequate to the purpose of our research.

<table>
<thead>
<tr>
<th>Pictures (see appendix 3.1.)</th>
<th>Most frequently selected emotion(s) relative to a specific pictured face.</th>
<th>Scores Adults (n=12, 2-point; max.= 24)</th>
<th>Scores Children (n=32; max.= 64)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picture 1</td>
<td>Worried</td>
<td>8/24 (33%)</td>
<td>33/64 (52%)</td>
</tr>
<tr>
<td>Picture 2</td>
<td>Sad</td>
<td>14/24 (58%)</td>
<td>58/64 (71%)</td>
</tr>
<tr>
<td>Picture 3</td>
<td>Disgusted</td>
<td>13/24 (54%)</td>
<td>45/64 (90%)</td>
</tr>
<tr>
<td>Picture 4</td>
<td>Bored</td>
<td>11/24 (46%)</td>
<td>41/64 (64%)</td>
</tr>
<tr>
<td>Picture 5</td>
<td>Angry, Irritated</td>
<td>10/24 (42%), 12/24 (50%)</td>
<td>51/64 (80%), 53/64 (83%)</td>
</tr>
<tr>
<td>Picture 6</td>
<td>Scared, afraid</td>
<td>8/24 (33%)</td>
<td>42/64 (66%)</td>
</tr>
<tr>
<td>Picture 7</td>
<td>Uncomfortable</td>
<td>10/24 (42%)</td>
<td>20/64 (31%)</td>
</tr>
</tbody>
</table>

Table 3.1: Comparison identification of affective reactions - adults vs. preadolescents

2) Interviews

Our face-to-face interviews aimed at a better understanding of children’s knowledge and use of negative affective reactions. Further, we also felt necessary to perceive to what
extent the negative affective reactions elicited by our ad could trouble children; whether any lack of comfort was elicited; and to what level this lack of comfort was perceived in comparison to other types of negative affective reactions. Last but not least, we also expected these discussions to teach us about children’s abilities to cope with those affective reactions.

A report of our main findings is therefore organized according to the two main following dimensions: “Terminology and understanding” (section A.) and “Coping” (section B.).

A. Terminology and understanding

According to our discussions, children interpret correctly the affective state related to a specific term and they adequately use each affective states (joyful, happy, interested, bored, worried, angry, scared, uncomfortable, sad, unhappy ...), both positive and negative. Nevertheless, it seems that they qualify and specify better negative affective states (NAR) than positive ones (PAR). It indeed appears from our discussions that preadolescents differentiate and explain better the difference between “sad” and “unhappy” than the difference between “joyful” and “happy”. For instance, according to 8-to 12-year-olds, the first NAR (sad) would present a more punctual character as compared to the second (unhappy) that would be more enduring. They however find more difficult to explain the difference between ‘joyful’ and ‘happy’.

These results are perfectly coherent with research on adults. People would indeed tend to treat negative affective states with more vigilance and efforts than positive affective states (Pham 2004). We can therefore assume that knowledge and understanding of NAR start at a very young age.

Preadolescents also seemed able to moderate their use of each different term. For instance some fear would also raise uncomfortable feelings while others wouldn’t. It is however necessary to mention that two 3rd graders (8 or 9-year-olds) experienced difficulties explaining “uncomfortable”. It also appears that although their understanding was correct, the vast majority of children did not use this term.

Last, all children interviewed admitted that some fears were not “socially” acceptable, or more specifically, that boys were not “expected” to fear the same things than girls (although they did). For instance, girls would be scared by spiders and more afraid of fights. In the same perspective, older pupils are expected to be less scared or feel less uncomfortable than younger ones in front of blood.
These interviews also shed some light on our experiment II findings as far as affective reactions elicited are considered. More specifically, those interviews enabled us to propose an explanation to the lack of “fear” elicitation after exposure to our ad, although a mix of other NAR were induced (sadness and disgust). The “fear” (peur) emotion seems to be linked to direct threats to their own persons. “Anger” (fâché), “bad” (se sentir mal), “worried” (inquiet) were also very often evoked. Other terms were used to express how they felt in situations where others were bullied (for instance: “sad” (triste) and to a lower extent, “uncomfortable” (mal à l’aise). “Angry” was also evoked when others were concerned.

B. Coping

It appears that children’s automatic reaction when facing a scary situation is to turn to adults. Most of the time children turn to their parents. However children also declare talking to their teachers. We may conclude that children will turn to trustworthy adults in order to relieve the fear. They will seek comfort, under any form (information, cuddle…). This is worth pointing out since it directly concerns the “source of recommendation” issue. Children still appear to trust adults when their advice is perceived as sound. To the same extent, the risk of reactance appears as low if children have not been prompted to think of the relevance of the injunction.

As far as children’s emotions and ability to cope with peer’s rejection or mockery are concerned, the majority of children differentiate between “others as subject” (situation in which they played no role) and “me as subject”. Their perceived vulnerability to the danger, in other word, the perceived probability that they may face the same situation, may determine the type of felt emotions. As indicated in the previous section, “fearful”, “worried” and “feeling bad” would be more appropriate to situation when they feel vulnerable. Consequently, it appears that the locus of control is also decisive in the nature of feelings elicited by the situation.

It is manifest that children are confronted everyday with mockery situations, whether it concerns them directly or not. However, during our discussions, victims of mockery or brutalities often spontaneously talked about their situation. Talking might here been interpreted as a form of relief.
Through those two pieces of qualitative research, we have achieved 3 main objectives. First, we have consolidated the adequacy of the original AREAD scale in a negative affective context. Second, we have identified assets of threat appeals in educational purposes for preadolescent populations. We have confirmed the importance of the provided solution that will lead to some sense of empowerment among the audience. Lastly, it has been shown that children manipulate negative affective reactions with ease. Confirming our expectations, they appear to grasp differences with greater mastery in negative affective reactions than in positive affective reactions.

This allows us to proceed further with our research. Our next section will therefore be devoted to the translation of our current research objectives into hypotheses.

3.3. Hypotheses

The first purpose of this experiment is to demonstrate threat appeals’ ability to change behaviors. Although consumer’s self-reported intentions are generally used in order to evaluate behaviors, it appears that they do not perfectly predict those (Chandon, Morwitz, and Reinartz 2005). Consequently, measuring behaviors directly seems the most appropriate indicator of the effectiveness of advertising campaigns built around threat appeals. Further, obesity prevention programs are often subject to criticism to the extent that they increase knowledge that does not necessarily lead to behavioral changes (Bullen and Benton 2004). Demonstrating behavioral changes would support the superior effectiveness of threat appeals as compared to other types of approaches. It will also consequently sustain our work’s ethicality according to the teleological perspective.

In other words, we expect healthy consumptions to be significantly more numerous for children exposed to threat appeals than for those exposed to typical ads.

_Hypothesis 3 (1)_

Children’s consumption of healthy food after exposure to “threat” ads is significantly more important than children’s consumption of healthy food after exposure to “typical” ads.
This experiment’s second objective consists in determining whether a positive orientation of the message \(\text{increase the consumption of fruits and vegetables}\) may offer significantly different effectiveness in persuading children to improve their diet than a negative orientation \(\text{avoid the intake of fat and sugars}\). As argued earlier (section 2.4.1.2), the consequences of the information’s presentation on ad’s effectiveness has been studied and demonstrated in many contexts, including health-related ones (Block and Keller Punam 1995). However, it appears that the successful formulation is highly topic- and objective-dependent (Donovan and Henley 2003; Rothman and Salovey 1997) as well as tied to the outcome valence (“do” and “don’t”) and type (benefits or costs) (Zhao and Pechmann 2006). Consequently, it appears difficult to predict the most effective orientation for our recommendation. Further, children and the context of healthy food promotion appear not to have been studied in this perspective, providing little information to the potential of either the positive or the negative orientation of our recommendation. Nevertheless, some elements guide our hypothesis. First, we expect children’s elaboration level to be low. It has indeed been demonstrated that children do not tend to analyze the content or the arguments of the message. They react affectively to the ad and this affective state elicited would induce the persuasion (Block and Keller Punam 1995; Derbaix and Brée 1997; Pecheux and Derbaix 2002a, b; Pecheux et al. 2006; Vanhamme and Chiu 2008). Furthermore, Roedder (1981) classified 7-to 11-years-olds as “cued processors”. Consequently, they would not be able to concentrate on “central” aspects of the ad such as the arguments of the message (in our case, the increase of fruits and vegetables intake or the decrease of sugar and fat consumption) but do process executional elements, the ad’s history etc. In turn, these peripheral aspects of content would induce an affective state that would drive the persuasion. We have also argued earlier that threats tend to attract attention and, due to attentional bias, the increased proportion of attention preadolescents devote to the threat reduces the probability that focus will be granted to other elements of the message (Field 2006). This also supports the idea that little attention will be devoted to the message’s orientation. Lastly, as supported by Grandpré et al. (2003) and by psychiatrists, we argue that preadolescents have not yet entered a psychological developmental stage that would lead them to reject threats to their freedom of choice. In other words, we believe that children will not demonstrate psychological reactance to negatively oriented recommendations. Although this psychological phenomenon may appear if children are led to think about the threat to their freedom, it appears reasonable to state that “cued-processors” will not present this type of reactions without arousal.

Consequently, we hypothesize that, \textit{under normal situations of exposure} (in other words, when children are not forced to elaborate on the message), children will concentrate on the threat and
Chapter 3: How do children infer how to behave from threat appeals? An experiment to understand the persuasion process at work.

on the provided solution that relieves of the threat, without analyzing the various elements of the threat appeal message. We assume that their affective hypertrophy will lead them to react to the ad and not to analyze the orientation under which it is constructed. Therefore we suppose that advocating for the consumption of fruits and vegetables or preventing the consumption of fat and sugars will produce little difference on their attitudes, intentions to behave and behaviors. Our hypotheses are therefore the following:

Hypothesis 3 (2)
When preadolescents are exposed to threat ad emphasizing the social consequences of obesity, whether the message is positively or negatively oriented (respectively promotes the consumption of fruits and vegetables consumption or prevents the intake of fat and sugar) has no impact
a) on children’s attitudes towards healthy good categories.
b) on intentions to behave healthily.
c) on behaviors

Our third main objective concerns the persuasion process at work in threat appeals in child populations. As mentioned earlier, recent studies on children persuasion through advertising exposure propose quite unanimous conclusions. They indicate that the process tends to be of a preponderant affective nature, transferring the global affect elicited by the ad (ad liking) on the attitude towards the brand (brand liking). This view has been proposed and demonstrated by Derbaix in the early eighties (1982) under the “Emotional Hierarchy of Effects” and has been confirmed in many studies since then (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002a, b; Pecheux et al. 2006). Although Moore-Shay and Lutz also identified an indirect route of persuasion through cognition for older children, the authors propose that their involvement in decision about product purchase may explain this cognitive path. Nevertheless, as stated by Pecheux and Derbaix (2002b), we also believe that using known ads probably influenced the formation of beliefs by the oldest ones. This is indeed consistent with the simple observation of children watching TV commercials: ads are much more an entertainment than an information source (Brée 1993). Further, Derbaix and Brée (1997) demonstrated that although evaluation of executional features was a better predictor of Aad than arguments, including affective reactions measured through verbal tools improved significantly the prediction of Aad and Ab. Elaboration under these circumstances, and in opposition to adults contexts (Petty et al. 1983), is no indicator of long term persuasion (Pecheux and Derbaix 2002b). Last, the hedonic dimension of the attitude towards the brand appears as the best predictor of the behavioral
variables (Pecheux and Derbaix 2002b). In conclusion, according to all these studies, affective reactions that are elicited by the exposure to the ad appear as the main drivers of its effectiveness in child populations.

In a previous section, we have also indicated that research on threat appeals has recently emphasized the role of emotions in the persuasion process. Tanner and his co-authors’ work (1991) represents the first attempt to grant the fear emotion an importance that exceeds a catalyst role defined in earlier cognitive models. The authors argue that fear arousal can increase the motivation to protect oneself and therefore does by itself affect the probability of success. From then on, an increasing number of studies have emphasized the central role of emotion in threat appeals. Witte (1992, 1994) proposes a model that integrates the fear emotion—and more specifically the level of the felt emotion—as the key element to either success or failure. In their meta-analyses, Milne et al. (2000) reported significant correlations between “fear” and “intentions to behave”, of a considered average strength (R=0,20; sample weighted average correlation). These results were comforted later on by Gallopel and Valette-Florence (2002) who demonstrated the same direct positive effect in smoking prevention. Lavoisier-Mérieux (2002) in her research targeting young adults and anti-speeding behaviors found that negative emotions initiate all adaptive responses. According to the author, this confers to the felt emotion the status of behavioral change driving force, negative affect predicting much more intentions than any cognitive processes. These conclusions are also sustained by a recent research stating that as far as health decisions are concerned, cognitive processes might not always be at play (Umeh 2004).

Lastly, Lazarus and Folkman (1984), in Norman et al. (2005) consider that information relative to health is actually “hot information”. In other words, in threat appeals, information would become a variable presenting a major affective dimension as compared to the cognitive one. Consequently, in health-related contexts, effectiveness of threat appeals should also be considered as derived from affective variables.

Summing up, four elements have been considered. First, we have stressed the recent “affective” trend in threat appeal research, the hypothesis of the affective dimension of persuasion being increasingly supported in health-related contexts. Second, it has been stated that this affective dimension is also identified as essential in children persuasion. Although our ads are expected to elicit negative affective reactions, we aim at producing ads that will not be rejected by children (and therefore achieve respectable levels on the Aad scale). Then, we do not consider children to be involved in fruits and vegetable’s purchases to the same extent that they may be in other branded products. Further, we believe our behavioral measurement (post-exposure consumption
choices between food products) will avoid introducing the bias evoked by Moore and Lutz (2000). Consequently, we postulate that the persuasion process in child populations will be deemed equivalent to a model of the pure affective transfer type. We argue that changes in behaviors, in behavioral intentions and in attitudes towards product categories will happen if the production of elaborations remains low. Our hypotheses are therefore the following

Hypothesis 3 (3)

After viewing threat ads, exposure conditions of low elaboration (as compared to high elaboration) will increase

a) the score of attitude towards the product category advertised
b) intentions to eat healthy food
c) healthy behaviors

Last, this experiment should enable us to analyze the relationship between the different variables. Understanding the influences of variables is a common objective across all our experiments. Derbaix and Brée’s specific work on affective reactions elicited by commercials on attitude toward the advertisement and the brand have provided insights about influences between variables (Derbaix and Brée 1997). Based on their findings, we expect that affective reactions will influence the attitude towards the ad and the attitude towards the product category. We also expect that negative affective reactions will influence the intentions to consume, which will support the recent “affective route” of persuasion identified (Gallopel and Valette-Florence 2002; Lavoisier-Mérieux 2002; Milne et al. 2000; Lazarus and Folkman (1984) in Norman et al. 2005; Umeh 2004; Witte 1992, 1994). Further, attitude towards the ad should predict the attitude towards the product category advertised –fruits and vegetables (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002b; Pecheux et al. 2006; Phelps and Hoy 1996). Eventually, intentions to consume should be molded by the attitude towards the ad and attitude towards the brand (Pecheux and Derbaix 2002b; Phelps and Hoy 1996). Moreover, and consistent with Epstein and his colleagues (2001; 2008), we expect that the attitude towards fruits and vegetables will conversely influence the intentions to consume unhealthy food. Our hypotheses are therefore the following:
Hypothesis 3 (4)

a) The positive affective reactions elicited by threat ads will influence children’s attitude towards the ad.

b) The negative affective reactions elicited by threat ads will influence children’s attitude towards the ad.

c) The positive affective reactions elicited by threat ads will influence children’s attitude towards the product category advertised.

d) The negative affective reactions elicited by threat ads will influence children’s attitude towards the product category advertised.

e) The negative affective reactions elicited by threat ads will influence children’s intentions to consume healthy food.

f) The attitude towards threat ads will influence children’s attitude towards the product category advertised.

g) The attitude towards threat ads will influence children’s intentions to consume healthy foods.

h) The attitude towards the healthy product category advertised will influence children’s intentions to consume healthy foods.

Hypotheses:

Legend
Condition 1 (Cond1) = threat ad; recommendation/solution = consume more fruits and vegetables
Condition 2 (Cond2) = threat ad; recommendation = eat less fat and sugar
Condition 3 (Cond3) = traditional ad
HB = healthy consumptions; Non HB = non healthy consumptions
Af&v = attitude towards fruits and vegetables
ICH = intention to consume healthily; ICH non H = intentions to consume unhealthily
LE = low elaboration; HE = high elaboration
AREAD pos/ neg = positive/negative affective reactions elicited by the ad

Hypotheses

H3 (1).

a) Healthy behaviors (HB) Threat ad (cond1) > Healthy behaviors cond3

H3 (2).

a) Attitude towards fruit and veg’ (Af&v) Cond1 = Afruit and veg’ Cond2

b) Intentions to consume healthily (ICH) Cond1 = ICH Cond2

H3 (3).

a) Af&v under low elaboration (LE) cond1 > af&v under high elaboration (HE) cond1

b) ICH LE cond1 > ICH HE cond1

c) Healthy Behaviors (HB) LE cond1 > HB HE cond1

H3 (4).

AREAD positive

\[ \text{Aad} \rightarrow \text{Af&v} \rightarrow \text{ICH} \]

AREAD neg
3.4. Experiment

In order to test these hypotheses, experiment III was elaborated. The following sections will propose the design of this experiment, its executional aspects and results.

3.4.1. Method

Experimental design

The study is a 2 x 2 design. Two types of ad appeals (threat or typical) promoting both the consumption of fruits and vegetables and two levels of elaborations (high and low) were manipulated.

Then, an additional group completes the experimental design. Children in this group will also be exposed to a threatening ad but of negative orientation (prevention of fat and sugar intake). It does not however appear relevant to introduce it to the global design of our experiment since findings will only be compared to those of children exposed to the threat ad promoting the consumption of fruits and vegetables (positive orientation). Indeed, the comparison with the typical ad (which is positively oriented) does not appear appropriate. The discrepancies in the scenarios (appeals and orientation) create too many differentiating factors that would not allow us to attribute the effectiveness of one ad over the other accurately.

Participants

Two primary schools of the French speaking area of Mons (Belgium) have been involved in the data collection. One hundred and ninety children have fully answered both pre- and post- exposition questionnaires. One hundred girls and ninety boys were eventually split to be exposed to one of the three types of ads. Although we were able to obtain socio-economic data of children belonging to the second school (rural environment), detailed information were not available for the first one. Nevertheless, we are confident that no specific social typologies were to be considered in the school. According to teacher's information, children came from diverse medium social grounds.

In both schools, parents were informed of our intervention and of its objective. We specifically emphasized the importance of not mentioning it to the children before the experiment took place.
Material

Three audio-visual ads were developed for this experiment: a “typical ad”, promoting the consumption of fruits and vegetables; two “threat ads” identical as far as execution is concerned but one promoting the intake of fruits and vegetables (as in the typical ad); the other one preventing the consumption of fat and sugar.

The “typical ad” depicts the many physical activities that one may achieve to do when fruits and vegetables are favored in a diet. This “typical ad” has been totally rethought (as compared to experiment 2). Attention was indeed devoted to produce threat and typical ads’ executions closely akin to one another. Consequently, the new version enhances similarities with our social threat ads on executional aspects. Through this modification, we expect to remove the alternative explanation to our results that executional differences may account for. The “threat ad” emphasizes the social exclusion solved by a more appropriate diet (either the increased intake of fruits and vegetables or the decrease of fat and sugar consumptions). The option of social threat (in contrast with health threat) was motivated by two main aspects. As argued earlier, the literature demonstrated that risks of peer rejection were the most efficient threats among young adolescents. Second, although experiment 1 results’ were not statistically acceptable, our findings support this hypothesis. In all instances, they did not invalidate the literature’s findings. Consequently, it appears relevant to proceed with social threats. Nevertheless, slight changes were brought to the “threat” ad used in experiment 2 in order to increase the time proportion devoted to the “solution”, in compliance with the psychiatrists’ recommendation (cf. section 3.2.1). This modification however only concerns the sound (and most specifically the story told by the off-voice). The scenario does not change, perpetuating its threat appeal. We nonetheless realize this adaptation might alter the reported intensity of the negative affective reactions experienced\(^43\), which may be considered regrettable. However, the potential concrete contributions of this study were also considered. Consequently, referring the teleological approach of our work’s ethicality, we favored this adaptation. It was indeed granted support from psychological experts as far as minimized psychological consequences are concerned.

\(^{43}\)In this new version, the recommendation/solution is expressed earlier as compared to the previous ad. Consequently, the time lapse during which children may exclusively experience negative affective reactions due to the threat is reduced. Positive affective reactions elicited by the solution arise sooner. This shorter period of time may alter the intensity of negative affective reactions reported. Using verbal scales at the end of exposure, we do not exclude the eventuality that negative affective states experienced at one point in the ad may be attenuated by positive affective states that follow.
Last, and although experiment 2 did not demonstrate the expected superiority of TV ads on advertising persuasion indicators as compared to print ads, two arguments led us to pursue with this media. First, TV remains the most probable media for an advertising campaign addressing children. Working with audio-visual ads would consequently enhance our ecological validity. Second, the material partly already exists. Our “threat ad” will indeed be the one used in experiment II. Furthermore, we were able to lean once more on the Mons School of Advertising (IRAM)\textsuperscript{44} and its section director, Michel Petteau for changes and/or development of the required material.

Ads are available at the following address http://www.fucam.ac.be/index.php3?pere=25381 (appendix 3.2.). As for “real” DVD, a “menu” has been set up, with all its habitual characteristics (options, music, moving and colorful background). This prologue was always playing (vivid music, moving flowers …) when children were welcomed and the cover story was presented. This operation which lasted usually between 2 and 3 minutes corresponds to our mood neutralizer.

**Measurement instruments and advertising effectiveness indicators**

Prior to the treatment, attitudes towards foods/brand scales, based on the work of Pecheux and Derbaix and their *Attitude towards the Brand scale* are to be assessed. Five food products are considered: tomatoes, apples, potato chips, strawberries and Chokotoffs\textsuperscript{45}. Measuring those last two specific food products is motivated by the fact that they will represent our behavioral measurement. Our motivation to check attitude towards foods used as our behavioral measurement can be explained by the equivalence objective expected between experimental groups on those foods. This will allow us to state that differences between groups identified after exposure to the ads can not be attributed to differences in prior exposure attitudes.

In the same perspective, a “sensitivity level to healthy food” based on a multiple choice questionnaire\textsuperscript{46}, will then be evaluated. Last, children’s height and weight,

\textsuperscript{44} Institut Reine Astrid Mons, Belgium.

\textsuperscript{45} Our pre-test allowed us to estimate that “Chokotoffs”, Belgian chocolate toffees, were liked by most Belgian children.

\textsuperscript{46} This questionnaire is based on the questionnaire used in experiment II. However, the total number of questions has considerably been reduced. Experience from experiment II indeed revealed that the questionnaire was too long while the marginal gain from those extra questions was limited. The questionnaire is available in appendix 3.3.
which allowed us to calculate their Body Mass Index\textsuperscript{47} were measured. Categories of BMI according to W.H.O references\textsuperscript{48} and sensitivity to health food will eventually allow us to assign children to one of the three types of ads.

Five different types of measurements will be assessed post exposure. They consist in a manipulation check and evaluation of the affective reactions elicited by the various ads (\textit{AREAD}), based on Derbaix and Brée (1997), the \textit{Attitude towards the ad} (Derbaix et al. 1999), the \textit{Attitudes towards product, product categories and brands}, (such as apples, tomatoes, fruits and vegetables, chips, candies and our unhealthy behavioral measurement, the chocolate toffee “Chokotoffs”), behavioral intentions and behaviors. \textit{Intentions to behave} will be inquired through 4 questions, investigating respectively children’s requests for recess time’s snacks, meals at restaurant, snacks at school party and choices of options for vending machines. We intended to offer food alternative that were as close as possible to children’s real life choice situations. Two questions have been constructed on a Likert-type scale. The two others sound out children’s preferences, asking them to select 2 out of 4 propositions (no ranking between preferences was requested). \textit{Healthy behaviors} will be measured through the number of strawberries eaten in each ad group. The effectiveness of our ad, in other words, its ability to persuade to consume fruits, will be evaluated through the comparison of the number of full strawberries eaten across conditions. Specifically, any significant difference between ad groups in strawberries intakes will allow us to draw behavioral conclusions. \textit{Unhealthy behaviors} will be measured accordingly, through the consumption of Chokotoffs.

The \textit{level of elaboration} was manipulated through an introductory question added to half of our questionnaires distributed randomly in each of the three groups: “\textit{Tell me all that went through your mind while or after you were watching the program}” (“\textit{Raconte moi tout ce qui t’est passé par la tête alors que tu regardais ou après voir vu ce programme}”). This procedure has already been successfully operationalized in previous research on children (Brucks et al. 1988; Pechoux and Derbaix 2002b) and on young adolescents (Schoenbachler and Whittler 1996). Asking children to think about and to tell what they were thinking about their experiences or thoughts after watching the ad might have allowed children to retrieve and recall the propounded information presented in the ad.

\textsuperscript{47} During the pre-measurements phase, each child was asked to state its weight and height. If the child was not able to provide those pieces of information, he was weighted and measured in the classroom. The weighting process was as discrete as possible. Other physical information (eyes and hair color, for instance) and age were also requested. It was presented under a recreational format (an ID card).

\textsuperscript{48} Sources = World Health Organization, 2007.
went trough their mind after exposure should indeed be considered as a highly
cognitive situation (Brée 1993).

Differences in levels of effectiveness when comparing “high elaboration” vs. “low
elaboration” should allow inferences on the nature of the persuasive process in threat
appeals among preadolescents. For instance, if the quantity of strawberries eaten
under high elaboration is more important than under low elaboration, we will
conclude that persuasion under threat appeals requires more elaborations.
Consequently the process would most probably be cognitive. However, we expect the
process to be affective. The quantity of strawberries eaten should therefore be more
important under low elaboration.

Eventually, this extra question will also provide information about the nature of the
thoughts. Elaboration may indeed be either affective (“I think it is nice; I think it is
well done; …”) or cognitive and within this last category, arguments may be pro (“I
believe what is said is correct”) or against (“I do not agree with; I do not care, I am
not in danger”) our message.

Last, children’s perceived vulnerability to the threat was assessed through the
question “Do you think this could happen to you?”, on a four-point scale (NO NO,
no, yes, YES YES)

Assignment

R = random assignment was operated after matching on healthy food sensitivity and
children’s BMI measurements. Each child was therefore assigned to either the typical
ad, the threat ad positively oriented or the threat ad negatively oriented. Scores of
attitude towards strawberries and Chokottoffs were also checked for equality to be
achieved across groups. Results are available in section 3.4.3. Within those groups, the
assignment to the low or high elaboration condition was made randomly.

Advertising effectiveness indicators of the “typical ad” will be compared to the ones
of the positively oriented “threat ad”.

As proposed earlier, results of threat ad positively oriented will only be compared to
the ones of threat ad negatively oriented and this, with the sole purpose of testing the
potential effects of the orientation. We indeed considered that comparing a threat ad
negatively oriented to a typical ad positively oriented would not allow inferences,
considering the discrepancies in appeals and recommendations.
Procedure

A first questionnaire was administered 15 days (at the earliest) to 1 month (at the latest) before exposure to the treatment ads, during class periods. The researcher was introduced by the teacher which contributed to make children comfortable with the unknown adult. A fallacious (not referring to food issues) vague guise for the pre-treatment questionnaire was offered to the children.

The experimental treatment was operated according to the procedure explained hereunder. It is interesting to note that at the time of the second visit, many children greeted the researcher, which tent to support the idea that children felt at ease.

Children were welcomed in a room devoted to the experiment, by groups of 4. They were asked to sit in front of a screen and, while the music and animated menu was playing, the study guise and procedure were explained. After exposure, children were asked to get to the seat that had been “specially” prepared for each of them. Each seat was set in order to face the wall and avoid any possibility for the children to see each others while filling in the questionnaire. Seats were placed at individual tables on which the questionnaire was laid, next to a plate with an equal number of strawberries and Chokotoffs. All plates were equivalent, in portion and design for all children in all three ad groups. The number of fruit eaten will be calculated by withdrawing the amount of remaining to the standard amount offered. It will be done likewise for the chocolate toffee. This operationalization is based on both the work of Gorn and Goldberg’s studies (1982) and the unsuccessful results we achieved in experiment 2, probably due to inadequate measurements instruments (unhealthy food was the sole base for behavioral measurements). These specific fruit and toffee have been chosen because they fulfill various conditions. First, they are both liked by children. It seems indeed important for the validity of this experiment to propose food products that are attractive to children, although it is not necessary to have an equal level of attractiveness for both products. Our objective is indeed to measure the difference in consumption for each type of foods between the three ad groups, not to compare strawberries with Chokotoffs intakes. Second, literature has demonstrated that sizes and portions influence the quantities consumed (Fisher, Rolls, and Birch 2003; Sharpe et al. 2008). It was thus important to find pieces of food that were of about the same size and that would represent about the same volume on a plate. Finally, we had to consider all restraints that could emerge form the “on-the-spot” consumption (pieces to cut vs. pre-cut pieces; wrapping paper; mouth-size; …). Our food selection
had to be equal on each criterion. In this, getting rid of the strawberry’s hulls would roughly equate taking off the Chokotoff’s wrapping paper. Children were told once that the plate was there for them to help themselves with whatever they wanted since stock was available for the rest of the class. Experiment 2 indeed taught us that it was necessary for some children to be granted permission and to be reinsured that their consumption would not deprive others. They were also informed that they could leave the room as soon as their questionnaire was filled in. Children were however warned that they were not allowed to leave with pieces of food.

3.4.2. Results

Various analyses were conducted prior to the test of our hypotheses. First, mean analyses were performed in order to check the validity of our assignment based on healthy diet sensitivity and BMI, as well as equivalent attitude towards strawberries and Chokotoffs across the different groups exposed to the three ads. Results shown in table 3.2. and 3.3. confirm the equivalence of our groups.

<table>
<thead>
<tr>
<th></th>
<th>Threat ad/Positive orientation (Threat+) n=67</th>
<th>Typical ad n=59</th>
<th>Threat+ vs. Typical p-value</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>17,07</td>
<td>16,22</td>
<td>NS*</td>
<td>...</td>
</tr>
<tr>
<td>Sensitivity to healthy diet***</td>
<td>6,85</td>
<td>7,06</td>
<td>NS*</td>
<td>...</td>
</tr>
<tr>
<td>A strawberries**</td>
<td>22,66</td>
<td>21,2</td>
<td>NS*</td>
<td>...</td>
</tr>
<tr>
<td>A Chokotoffs**</td>
<td>16,29</td>
<td>16,7</td>
<td>NS*</td>
<td>...</td>
</tr>
</tbody>
</table>
Second, we performed a principal component analysis in order to confirm the structure of our AREAD scale. Some of our hypotheses indeed rest on the aggregation of affective reactions on either a positive or a negative valence. The results of this analysis confirmed the validity of our aggregation on the two different components that will be referred to as “AREAD pos” and “AREAD neg”.

**Manipulation Check/Affective reactions independent variables**

To confirm the ability of our ad to elicit negative affective reactions, a manipulation check must be performed as a preliminary condition. Our threat appeal ad positively oriented must elicit significantly more negative affective reactions than the typical ad. Means on the total negative affective reaction dimension or each specific affective reaction are to be considered. Details available in table 3.4. (a) confirm that our manipulation was effective. The threat ad positively oriented elicited significantly more negative affective reactions on average than the typical ad (Maread neg Threat+=1,37; Maread neg Typical ad = 1,08). The typical ad elicited significantly more positive affective reactions on average (Maread pos Threat+=2,67; Maread pos Typical ad =3,00). However, these differences in the nature and valence of affective reactions do not impact the levels of Attitude towards the ads, which are not significantly different across experimental groups. There are indeed no significant
differences in Aad between the threat ad positively oriented and in the typical ad (M Aad Threat+ = 18.92; M Aad Typical ad = 19.61). These results represent a considerable difference between experiment 3 and 2. We have indeed achieved to produce ads that were evaluated as equivalent on the Attitude towards the ad scale, although one type of ad elicits negative affective reactions. This is most probably attributable to the changes brought about in the “threat ads” that followed our psychiatrist’s recommendations (increasing the proportion of the ad devoted to the solution).

These findings represent an asset, improving the validity of our comparison between experimental groups. Higher scores of Aad also presume of lower risks of zapping. However, this will not allow us to seek further the relationship between a lower level of Aad and a higher level of persuasion, as identified in experiment 2.

<table>
<thead>
<tr>
<th></th>
<th>Threat+</th>
<th>Typical ad</th>
<th>Threat+ vs Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>p</td>
<td>t</td>
<td></td>
</tr>
<tr>
<td><strong>AREAD neg</strong></td>
<td>1.37</td>
<td>1.08</td>
<td><strong>5</strong> <strong>3.77</strong></td>
</tr>
<tr>
<td><strong>Worried</strong></td>
<td>1.45</td>
<td>1.22</td>
<td><strong>5</strong> <strong>1.80</strong></td>
</tr>
<tr>
<td><strong>Sad</strong></td>
<td>1.78</td>
<td>1.10</td>
<td><strong>5</strong> <strong>2.07</strong></td>
</tr>
<tr>
<td><strong>Afraid</strong></td>
<td>1.13</td>
<td>1.02</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Uncomfortable</strong></td>
<td>1.45</td>
<td>1.22</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Bad</strong></td>
<td>1.39</td>
<td>1.14</td>
<td><strong>5</strong> <strong>2.39</strong></td>
</tr>
<tr>
<td><strong>Disgusted</strong></td>
<td>1.33</td>
<td>1.08</td>
<td><strong>5</strong> <strong>2.52</strong></td>
</tr>
<tr>
<td><strong>AREAD pos</strong></td>
<td>2.67</td>
<td>3.00</td>
<td><strong>5</strong> <strong>-2.41</strong></td>
</tr>
<tr>
<td><strong>Aad</strong></td>
<td>18.92</td>
<td>19.61</td>
<td>NS</td>
</tr>
</tbody>
</table>

Table 3.4 (a): Aad and Average affective reaction scores.* Significant at p<0.05; ** Significant at p<0.01; Scores of AREAD pos and neg: min=1; max. =4; Scores of Aad: min=6, max.=24.

Last, let us note that no significant differences have been identified between the threat ad positively oriented (Threat+) and threat ad negatively oriented (Threat-) on the various indicators (Aad, negative AREAD; positive AREAD, see table 3.4.(b)). The positive or negative orientation of our recommendations does not appear to impact the affective state elicited. This represents a first piece of information as far as this issue is concerned.
Behavioral changes
Overall results
An overall examination of children’s consumptions is proposed hereunder. It offers a global assessment of the effectiveness of the two different types of ad appeals. The interest of these global results, mixing both children in high and low levels of elaboration, rests on the ecological validity of our experiment. Although we assume that children do not spontaneously elaborate during exposure, it appears interesting to evaluate a level of effectiveness across the global child population. In other words, it appears relevant to estimate a global level effectiveness that includes both children in families not discussing advertising and those living in families where advertising is discussed. Overall evaluations of children’s consumptions of strawberries and chocolate toffees in threat and typical appeal (both positively oriented) experimental groups were then compared. Results, reported in table 3.5., show that children exposed to an ad depicting a threat consumed significantly more strawberries than children exposed to the typical ad (Mstrawberries threat+ ad= 1,33; Mstrawberries typical ad= 0,68). Children in the threat ad positively oriented also ate significantly less chocolate toffees than children in the typical ad (MChokotoffs threat+ad= 0,58; MChokotoffs typical ad= 0,92). This supports our general hypothesis of threat appeal effectiveness H(3) 1 (a).
Chapter 3: How do children infer how to behave from threat appeals? An experiment to understand the persuasion process at work.

Impact of elaboration

The investigation of the persuasion process leads to examining the consumptions according to the manipulated level of elaboration. We hypothesized that a high level of elaboration will interfere with the persuasion process. Therefore, our hypotheses will be supported if the children belonging to the “high elaboration” subgroups are less influenced by our threatening ads than the children in the “low elaboration” subgroups.

A main effect of type of ad was observed for children’s healthy consumptions (results are available in table 3.6.). In addition, there is a significant interaction involving level of elaboration and type of ad ($F(1,122)=3.76; p=0.05$). Those exposed to threat ads under low elaboration were significantly more prone to eat healthy food than children in the typical ad group ($M_{HC,LE/threat^+}=1.57; M_{HC,LE/typical}=0.53; F=8.20; p<0.01$). However, under high elaboration, this significant difference disappears ($M_{HC,HE/threat^+}=1.03; M_{HC,LE/typical}=0.83$).

**Table 3.5.: Healthy and unhealthy consumptions according to threat and traditional ad conditions; **significant at $p<0.01$; *significant at $p<0.05$**

<table>
<thead>
<tr>
<th>Consumption Type</th>
<th>Threat+</th>
<th>Typical</th>
<th>Threat+ vs. typical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy consumptions</td>
<td>1.33</td>
<td>0.68</td>
<td>$5^{**}$</td>
</tr>
<tr>
<td>(strawberries)</td>
<td></td>
<td></td>
<td>3.11</td>
</tr>
<tr>
<td>Unhealthy consumptions</td>
<td>0.58</td>
<td>0.92</td>
<td>$5^*$</td>
</tr>
<tr>
<td>(Chokotoffs)</td>
<td></td>
<td></td>
<td>-1.86</td>
</tr>
</tbody>
</table>

Consumptions according to level of elaboration and type of ads

![Consumptions graph](image-url)
In additional analysis, we also measured the toffees intake -our unhealthy behavioral measurement. Results are not significant at \( p<0.05 \). However, they also follow the expected directions with an increased difference under low elaboration (\( M_{\text{NonHC, LE/threat+}} = 0.57; M_{\text{NonHC, LE/typical}} = 0.93 \)), as compared to high (\( M_{\text{NonHC, HE/threat+}} = 0.6; M_{\text{NonHC, HE/typical}} = 0.9 \)).

In other words, the persuasion process through threats appears more efficient under low elaboration. This would mean that behavioral changes happen mainly through the peripheral route of persuasion, the affective transfer model.

As far as intentions to behave are concerned, results are not manifest either. Results, shown in table 3.6., are not significant, whatever the type of measurement used (scale or preferences). Intentions to consume have been aggregated according to the measurement tools used for monitoring (either Likert-type scale or selection/preferences). Results are reported in table 3.6. Hypothesis 3 (3) \( b \) and \( c \) are not supported by our data.

Finally, we also expected that attitude towards the fruits and vegetables product category would be significantly different under low elaboration and that this difference would be less salient under high elaboration \( H_3 (3) \) \( (a) \). However, our results, reported in table 3.6., do not support our hypothesis.

Our data do provide mixed evidence: behaviors appear to be significantly more modified under low elaboration than under high elaboration. However, it did not seem to impact other advertising effectiveness indicators. Nevertheless, findings demonstrate that persuasion is not increased under high elaboration. Therefore, we conclude that our data sustain the hypothesis of an affective persuasion route.
Children's consumptions after exposure to threat ads: Conclusions

Children exposed to “threat appeals” ads that recommend eating more fruits and vegetables changed significantly their behaviors, complying with the ad’s recommendation. In addition, threat ads promoting the consumption of fruits and vegetables appear to impact the intake of candies.

Further, when no elaboration is forced, children exposed to threat appeal ads appeared to consume significantly more strawberries than children exposed to threat appeal ads while being asked to elaborate.

Further, increasing the level of elaboration was never synonymous with improved persuasion (scores on attitudinal or other behavioral indicators remain identical). The hypothesis of increased persuasion and advertising effectiveness under low elaboration appears reasonably supported by our data.
Impact of positive vs. negative orientation

Hypothesis 3 (3) (a) expects no significant differences in attitudes towards fruits and vegetables between the positive orientation (eat more fruits and vegetables) and the negative orientation (eat less fat and sugar). Hypothesis 3 (3) (b) predicts no differences in intentions to behave between a threat ad positively oriented and a threat ad negatively oriented.

However, we realize that the lack of significant findings will only bring knowledge if a significant difference is identified between threat+ ad and typical ad and between threat- ad and typical ad. If our threat ad does not induce changes in attitude and/or intention to behave when compared to typical ad, it is meaningless to compare our two types of recommendations. Although we did not intend to compare the threat ad negatively oriented with the typical ad positively oriented (the attribution of those results to the type of threat might consequently be erroneous), it appears necessary here.

ANOVA were performed in order to validate our hypothesis. Results reveal no reliable differences. The overall effect and post hoc analyses are not significant. (M AF&V threat+=23,46; M AF&V threat-=23,66; M AF&V typical = 23,84, p>0,05); (M ICH scale threat+=15,01; M ICH scale threat-=15,82; M ICH scale typical= 14,8; p>0,05); (M ICH pref threat+=2,42; M ICH pref threat-=2,55; M ICH pref typical= 2,36; p>0,05).

Nevertheless, we may compare behaviors after exposure to the threat ads positively oriented and negatively oriented (consumptions of threat+ being significantly increased by threat appeals as compared to typical appeals). Results are reported in table 3.8. They do not identify significant differences

<table>
<thead>
<tr>
<th></th>
<th>Threat+ n=67</th>
<th>Threat- n=63</th>
<th>1 vs. 2</th>
<th>p-value</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumptions of strawberries</td>
<td>1,33</td>
<td>1,41</td>
<td>NS*</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>Consumptions of chocolate toffees</td>
<td>0,58</td>
<td>0,75</td>
<td>NS</td>
<td>...</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.8: Consumptions according to message orientation; significant at p<0,05
Hypothesis 2 (Impact of positive vs. negative orientation): Conclusions

As far as advertising persuasion is concerned, the recommendation to eat more fruits and vegetables (positive orientation) does not appear to be more effective than the recommendation to eat less fat and sugar (negative orientation) to improve children’s foods choices. Our findings do not allow us to conclude that one orientation is more effective on the formation of attitudes and intentions to consume or behavior. However, consumptions of fruits increased after exposure to threats, whatever the message’s orientation.

Negative orientation, preventing the consumption of fat and sugar, did not appear to induce psychological reactance.

Relationships among variables

Hypothesis (3) 4 proposes to analyze the relationships between the various variables and advertising effectiveness indicators within our threat ad positively oriented, understanding further the persuasion process in threat appeals. Hypotheses (3) 4 (a) and (b) predict a relationship between affective reactions elicited by the ad and the attitude towards the ad. Regression analyses were used in order to test our hypotheses. Results reported in table 3.12 indicate that although positive affective reactions indeed influence the attitude towards the ad (p<0,001; β=2,90) the negative affective reactions do not seem to impact Aad (p<0,05). Hypothesis 3 (4) (a) is supported by our data, H3 (4) (b) is not.

Hypothesis 3 (4) c and d suppose that affective reactions will significantly explain the attitude towards the product category advertised (fruits and vegetables). Results of regression analyses are however not reliable at p<0,05 for negative affective reactions. Our hypotheses 3 (4) (d) is not supported by our data. However, findings reported in table 3.13. show that our hypotheses 3 (4) (c) is supported by our data.

<table>
<thead>
<tr>
<th>Aad</th>
<th>p</th>
<th>β</th>
<th>SE</th>
<th>F</th>
<th>R²</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>AREAD pos</td>
<td>S**</td>
<td>2,90</td>
<td>0,39</td>
<td>53,98</td>
<td>0,45</td>
<td>0,67</td>
</tr>
<tr>
<td>AREAD neg</td>
<td>NS</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

Table 3.12: Regression coefficients AREAD pos and neg on Aad; *significant at p<0,01
Our data did not provide further support for our hypotheses 3 (4) (e). Results of simple (AREAD neg) and multiple regressions (AREAD neg and pos) were never statistically reliable (see table 3.14.).

Hypothesis 3 (4) (f) expects that, consistent with the literature, Attitude towards the ad will influence attitude towards the product category. Results, reported in table 3.15, show that **H 3 (4) (f) is supported by our data.**

Hypothesis 3 (4) (g) proposes that, Attitude towards the ad will influence intentions to consume healthy food. **H 3 (4) (g) is supported by our data when intentions to consume healthy food are reported as preferences** (see table 3.16.). This relationship is also confirmed when, more specifically, intentions to consume “fruits at recess” are considered. IC fruits represents one of the items used in order to evaluate global intentions to consume healthily (see table 3.17).
Our last hypotheses as far as the relationships between indicators are concerned predict that Attitude towards the product category advertised will influence intentions to consume healthily $H_3$ (4) (h). Our data, reported in table 3.18, support our hypothesis (h) when intentions to behave are measured on scales (as opposed to the measurement of preferences). These results are further confirmed on intentions to consume fruits at recess time (results are reported in table 3.19).

Additional analyses were performed in order to understand how behaviors may have been affected by our treatment. As it may be expected (although references in the literature are scare), intentions to consume healthy food (measured on scales) explain variance in consumption of strawberries (see table 3.21). Further, “Intentions to...”
consume healthy food” appears to be the only variable that influenced the strawberries consumption.

<table>
<thead>
<tr>
<th>Strawberries consumption</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IC healthy food (scale)</td>
<td>S*</td>
<td>0,113</td>
<td>0,05</td>
<td>5,85</td>
<td>0,08</td>
</tr>
</tbody>
</table>

Table 3.21.: Regression coefficients Intentions to consume healthy food on strawberries consumption; ‘significant at p<0,05

**Persuasion under “threat appeal”: towards a model?**

Expanding from those regressions findings, mediation analyses were performed in order to propose a “persuasion under threat appeal model”, in other words, to explain the process through which the dependant variable is influenced by an independent variable (Chumpitaz Caceres and Vanhamme 2003). Following authors’ recommendations, we also analyzed the type of mediation (full or partial). Table 3.22. reports our results.

It appears that when Aad is considered, the otherwise significant relationship between Aread pos and A f&v disappears, advocating for a fully mediated relationship.

<table>
<thead>
<tr>
<th>A fruits and vegetables</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aad</td>
<td>S**</td>
<td>0,59</td>
<td>0,13</td>
<td>19,664</td>
<td>0,23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A fruits and vegetables</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aread pos</td>
<td>S**</td>
<td>1,387</td>
<td>0,627</td>
<td>4,76</td>
<td>0,07</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A fruits and vegetables</th>
<th></th>
<th></th>
<th></th>
<th>(t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aread pos</td>
<td>NS</td>
<td>-0,601</td>
<td>0,779</td>
<td>-0,79</td>
</tr>
<tr>
<td>Aad</td>
<td>S**</td>
<td>0,689</td>
<td>0,179</td>
<td>3,8</td>
</tr>
</tbody>
</table>

Tables 3.22: Mediation analyses of Aad between dependent variable Aread pos and independent variable A fruit and vegetable, * significant at p<0,05; **significant at p<0,01
Analyses conducted on data collected among children belonging to the threat ad negatively oriented group report the same reliable relationships. The positive AREAD influence Aad and A fruits and vegetables; Aad influences A fruits and vegetables, A fruits and vegetables influences Intentions to consume healthy food which in turn influences consumption of strawberries.

**Hypothesis 4 (Relationships among variables, Threat ad positively oriented): Conclusions**

![Diagram showing relationships between variables](image)

**Additional analyses:**

1) **Perception of vulnerability**

Complementary analyses were also computed on the “vulnerability” variable. Assessing children’s perceived vulnerability to the threat depicted in the ad essentially aimed, at first, at estimating to what extent children could indentify themselves with the story. However, in adult populations, “vulnerability or topic relevance” has indeed been identified as a determinant variable in the effectiveness of threat appeals (Burnett and Oliver 1979; Norman et al. 2005; Rogers 1975, 1983; Tanner et al. 1991). It seemed therefore interesting to further seek the role of the vulnerability variable for this unstudied target (so far).

Studying this variable within our context may also help us understand further the persuasion process at work when children are exposed to threat appeals. Analysis of the level of perceived vulnerability under low and high elaboration in relationship with the effectiveness measured on behavioral indicators for instance should provide further insight on the issue.

Vulnerability was measured through a single question. We asked children to evaluate to what extent they felt that the situation depicted in the ad could happen to them. Results reported in table 3.24. propose that under high elaboration, children exposed
to threat appeals feel less vulnerable to the threat. The proportion of reported vulnerability indeed decreases significantly (Mvulnerability HE=2.28; Mvulnerability LE=2.80). In other words, this means that when asked to think about what they saw and heard, children tend to feel less vulnerable to the threat. To our view, this could be interpreted as a Maladaptive Coping Behavior. When asked to elaborate on the ad, children, forced to think, tend to deny the probability that they might be at risk in order to decrease the tension provoked by the threat. Consequently, under high elaboration, threat appeals are less effective. The persuasion process of threat appeal among children appears less cognitive than what has been demonstrated with adult populations. This sustains our previous conclusions.

<table>
<thead>
<tr>
<th></th>
<th>HE</th>
<th>LE</th>
<th>HE vs. LE</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vulnerability</td>
<td>2.28</td>
<td>2.80</td>
<td><strong>S</strong></td>
<td>0.20</td>
</tr>
</tbody>
</table>

Table 3.24.: Perceived vulnerability according to level of elaboration; **significant at p<0.01

3) Impact of age on results

Age does not appear to impact our threat ad effectiveness. ANOVA analyses revealed no principal or interaction effects of age across ad groups. Corrected models, effects of age group and age group*type of ad were never significant (p-value >0.05). Further, comparisons of intentions to consume and consumptions of the older participants in the threat and the typical ad groups did not provide any evidence which had not been identified in younger one, and conversely.

4) Content analysis of children’s elaboration: arguments; counterarguments; affective and “related to the execution” thoughts.

Our last piece of additional analyses concerns the nature or type of the thoughts produced by the children in each of the high cognitive groups. The table below (table 3.25.) summarizes this information. The next paragraph proposes quotes that are emblematic of each type.
Two main conclusions may be drawn. On the one hand, the proportion of “cognitive” thoughts is approximately equal in all groups, whatever the type of ad. On the other hand, our “threat ads” elicits a considerably higher proportion of thoughts that have to be classified under the affective or peripheral type. In conclusion, the type of ad does not affect the production of cognitive thoughts but it affects the production of affective thoughts.

Last and as shown in the following table (3.27), all cognitive thoughts were pro-arguments in favor of the message embedded in the threat ads. To the most, one boy argued that even though it was important to eat fruits and vegetables, candies were not that detrimental as long as it was eaten in reasonable quantities” (“c’est sur que c’est important de manger des fruits et des legumes mais pour le bonbons, ça depend de la quantité”)

The tables 3.27 and 3.28 propose respectively examples of “cognitive” and “affective /execution” types of thoughts.
### Quotes emblematic of the “cognitive type”

<table>
<thead>
<tr>
<th>Quote</th>
<th>Grade, Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘De moi aussi faire attention et de prévenir tous les autres...’</td>
<td>Inès, 5th grade, cond1</td>
</tr>
<tr>
<td>(I should also pay attention and warn others)</td>
<td></td>
</tr>
<tr>
<td>‘Je trouve que ca motivera peut-être les enfants à manger sainement...’</td>
<td>Mathilde, 5th grade, cond1</td>
</tr>
<tr>
<td>(I think that maybe, this will motivate other children to eat healthily)</td>
<td></td>
</tr>
<tr>
<td>Les fruits et légumes aident à grandir et réfléchir’</td>
<td>Jordan, 5th grade, cond1</td>
</tr>
<tr>
<td>(Fruits and vegetables, it helps to grow and think)</td>
<td></td>
</tr>
<tr>
<td>Après, c’était bien, parce qu’elle fait attention à elle...’</td>
<td>Margerie, 3rd grade, cond1</td>
</tr>
<tr>
<td>(After, it’s ok, because she pays attention to herself)</td>
<td></td>
</tr>
<tr>
<td>J’adore manger des fruits et je vais continuer à en manger...’</td>
<td>Manon, 3rd grade, cond2</td>
</tr>
<tr>
<td>(I love eating fruits and I will keep on eating them)</td>
<td></td>
</tr>
<tr>
<td>‘manger plus de fruits’ (to eat more fruits)</td>
<td>Maxim, 5th, cond3</td>
</tr>
<tr>
<td>‘Nous avons besoin de fruits et de légumes’</td>
<td>Cyril, 4th, cond3</td>
</tr>
<tr>
<td>(we need fruits and vegetables)</td>
<td></td>
</tr>
<tr>
<td>‘Ca m’a fait penser que je dois manger plus de fruits et de légumes pour pouvoir m’amuser’</td>
<td>Amandine, 4th, cond3</td>
</tr>
<tr>
<td>(It made me realize I need to eat more fruits and vegetables to be able to enjoy)</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.27: Examples of elaborations of the “cognitive type”.

### Quotes emblematic of the “affective or execution type”

<table>
<thead>
<tr>
<th>Quote</th>
<th>Grade, Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘La voix m’a déplu...’ (I did not like the voice)</td>
<td>(Amélie, 5th cond1)</td>
</tr>
<tr>
<td>‘Triste et marrant...’ (Sad and funny)</td>
<td>(Augustin, 5th, cond1)</td>
</tr>
<tr>
<td>‘On a dit des choses méchantes sur la petite fille’</td>
<td>(Quentin, 5th, cond1)</td>
</tr>
<tr>
<td>(They said naughty things to the girl)</td>
<td></td>
</tr>
<tr>
<td>Avant, moi aussi on m’appelait grosse vache...’</td>
<td>(Justine, 4th, cond1)</td>
</tr>
<tr>
<td>(I used to be called “fat cow”)</td>
<td></td>
</tr>
<tr>
<td>‘J’ai bien aimé quand on met les prénoms des enfants....j’ai été touchée par la publicité’</td>
<td>(Naomi, 3rd, cond2)</td>
</tr>
<tr>
<td>(I like it when you see names of children.. i’ve been touched by the ad)</td>
<td></td>
</tr>
<tr>
<td>Au début, c’était triste mais à la fin, ca n’a plus été triste’</td>
<td>(Jeanne, 3rd, cond2)</td>
</tr>
<tr>
<td>(It’s pretty sad to start with but then, it’s ok)</td>
<td></td>
</tr>
<tr>
<td>‘Ca doit pas être chouette de se faire traiter comme ca’</td>
<td>(Loïc, 6th, cond2)</td>
</tr>
<tr>
<td>(It’s not cool to be treated as such)</td>
<td></td>
</tr>
<tr>
<td>‘J’ai trouvé ca drôle et cool’</td>
<td>(Joachim, 5th, cond3)</td>
</tr>
<tr>
<td>(I though it was funny and cool)</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.28: Examples of “affective or execution” elaborations.
3.4. Discussion, limits and conclusion

This third experiment allows us to build on knowledge acquired from previous experiments and expend our understanding of threat appeals among preadolescents.

First, this chapter has allowed us to increase the scope of effectiveness of our threat appeal advertising stimulus up to the behavioral level. Threatening ads appear to persuade to eat more fruits than typical ads seem able to do. They also persuade to eat less chocolate toffees, which is consistent with the literature (Epstein et al. 2001; Epstein et al. 2008). Promoting fruits and vegetables indeed appears to impact the consumption of candies through a halo-effect, fruits being a healthy substitute to unhealthy candies. This may however be an artifact of our experimental design. Because the time was limited, if children decided to eat more fruits, as recommended in the ad, they consequently eat less chocolate toffee. We do not know to what extent this would happen in a natural setting, in everyday life situations. Nevertheless, Epstein’s studies allow us to be optimistic on the matter.

Further, familiarity increasing liking and salience in choice options (Goldberg et al. 1978), we may conclude that children’s increase consumptions of fruits and vegetables will snowball, improving their global diet.

Findings are nevertheless not fully satisfying. Treatments of our experiment have not been able to generate significant changes in children’s positive attitudes towards fruits and vegetables. No significant differences have been shown in intentions to consume healthy food either. These findings may appear rather surprising, considering what the literature has taught us in persuasion processes within child populations. Although Roedder-John and her co-authors (1983) indicated that children may behave in an inconsistent way to their attitudes in response to television advertising, this phenomenon seemed limited to children younger than our preadolescents. However, our ad eliciting mixed feelings could be responsible for this apparent inconsistency. Gorn and Goldberg proposed that verbal responses and behaviors change at different thresholds (Gorn and Goldberg 1977). Although authors considered that it is usually much easier to change attitudes than behaviors, the specific affective state elicited, mixing positive and negative reactions may provoke a totally original process. This mechanism would also be supported by research on affective heuristics. According to Bazerman and Moore (2009; 2003) and Kahneman (2003), affective heuristics use affective and emotional cues to make judgments and choices. This seems to represent a pertinent explanation of children’s behaviors in our threat conditions. It has indeed been
demonstrated that heuristics may replace deep reasoning when cognitive abilities are restrained or limited (Finucane et al. 2000). Children represent a most probable population for the use of affective heuristics when making a decision such as which snack to choose, after threat exposure. They are indeed defined by limited cognitive abilities (Roedder 1981; Roedder John 1999) and by an affective hypertrophy (Brée 1990). In many threat instances, it is easy to imagine how behaviors may be guided by a purely affective mechanism. Case and colleagues indeed propose that emotions are the mechanism that insures that higher species respond instantly to features in the environment (Case et al. 1988 p9). Any other action requiring just a little more cognition may not be affected to the same extent.

Although children’s attitude may be predominantly built on its affective dimension, as argued by Pecheux and Derbaix (2002b), our verbal measurement of attitude towards the product category and intentions to behave may introduce a slightly more cognitive degree than what we observed in behaviors (Derbaix and Brée 1997). This would represent an extension of Pecheux and Derbaix’ use of heuristics when explaining children’s evaluations (2002b).

This explanation also rests on the assumption that the persuasive process in threat appeals within child populations is of an affective nature, coherently with what has been demonstrated a number of times in research with children in advertising contexts (Derbaix 1982; Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux 2001; Pecheux and Derbaix 2002b; Pecheux et al. 2006). Our findings sustain this hypothesis. We have indeed demonstrated that within groups of children forced to elaborate on the ad stimulus, effectiveness –expressed through their consumption of strawberries - did not achieve the same level as effectiveness for children in a natural (and low elaboration) condition. High elaboration was never (in other words, on other indicators) synonymous with enhanced effectiveness of threat appeals. Further, our experiment also enabled us to identify the maladaptive coping behaviors that forced elaboration may induce. When asked to express one’s thoughts after exposure to our threatening ad stimulus, children reported less vulnerability to the threat. To talk about one’s thoughts indeed appears as a “curing method”, as proposed by Brucks and colleagues (Brucks et al. 1988).

However, generally speaking, elaboration means counterarguments. In our context, the analysis of children’s elaboration did not identify counter-argumentation. However, it may have led children to deny the fact they may indeed be exposed to the risk in order to relieve themselves from the threat. It appears reasonable to interpret this as a form of Maladaptive Coping Behavior. It argues further for the affective route of persuasion.
In sum, forced elaboration decreases threat appeals’ effectiveness among child populations. This sustains our hypothesis of a pure affective transfer model of persuasion. Previous findings within children in advertising research find here further support, as well as recent research on the central role of the emotional variable in threat appeals (Gallopel-Morvan 2006; Gallopel and Valette-Florence 2002; Lavoisier-Mérieux 2002; Milne et al. 2000; Norman et al. 2005; Tanner et al. 1991; Umeh 2004).

It may appear unfortunate that asking children to discuss their understanding of threat appeals decreases its effectiveness. This would suggest that parents who have a proactive behavior, debating about TV programs and obesity issues with their children would inappropriately decrease our ads effectiveness. However, we may consider that parents who discuss the issue do not expose their children to the same risks of obesity due to overexposure to marketing stimuli than parents who tend to leave their offspring to be babysitted by the TV set. The probability of weight problem occurrence indeed increases when parents ignore the problem (Andreasen 2006). Then, it has been argued that families with low communication are the most exposed to media influence (Guichard and Pecheux 2007; Moschis 1985; Moschis and Moore 1978; Van Evra 1995). Our preventive ad’s influence would therefore be most important where it is needed. Then, let us not be too pessimistic. Our findings indicate that effectiveness is more important in low elaboration. This does not induce that high elaboration is counterproductive: levels of fruits consumption remained higher in the threat ad groups as compared to the typical ad ones. At a global level, overall results also indicate that effectiveness of threat appeals remains superior to the one of typical ads.

Our experiment also allowed us to draw a first model of threat appeals mechanisms within children and the promotion of fruits and vegetables consumptions. Positive affective reactions appear to influence significantly the attitude towards the ad and the attitude towards the product category advertized. However, this last relationship is totally mediated by the attitude towards the ad. These findings are contrasting those encountered in experiment 2. No Aad-Ab relationship was indeed identified then. The negative affective reactions context elicited was proposed to explain these results. Furthermore, let us remind that in experiment 2, the average score of our threat ad on the attitude towards the ad scale did not exceed 13,44 (min. 6, max. 24). The average level of negative affective reactions however reached the score of 1,53 (min 1, max. 4). The score of Aad in experiment 3 reaches 18,92 and was not significantly different to the one of our
typical ad. Negative affective reactions scored lower on average (1.37) than in experiment 2. These two last scores (which somehow do not appear to reflect the negative emotions to the same extent than those of experiment 2) would consequently explain the more consistent results this experiment appears to show with previous research in advertising persuasion among child populations (where the focus is on positive affective reactions elicitation). Let us indeed remind that no significant relationship between AREADneg and the dependent variables has been identified. These findings appear to offer a new perspective on advertising persuasion processes among 8-to 12-year-olds. It would indeed sustain previous research where the Attitude towards the ad predicts the attitude towards to brand in a context of low negative affective reactions and when ads are appreciated by the target. Nevertheless, they also support the assumption according to which the Aad variable loses his predictive potential in a negative affective one.

Last, attitude towards the product category advertized predicts intentions to consume a balanced diet, which is consistent with literature (Pecheux and Derbaix 2002b; Phelps and Hoy 1996). It would in turn predict consumption of strawberries.

Nevertheless, this model presents some weaknesses.

First, we have not been able to identify a significant link between the negative affective reactions and other dependent variables (as it was expected and which would have been consistent with the literature on threat appeals). As mentioned above, the low levels of negative affective reactions elicited (1.37 on average; min. 1; max. 4) may be accounted responsible for the lack of significant relationships among variables.

Second, as our reader may have pointed out, the relationships between variables are not always “conceptually” equal. For the sake of preventing social desirability, we decided not to systematically refer to “strawberries” in attitude towards the healthy product scale for instance. We indeed feared that the link to our behavioral measurement would be too manifest and would influence children’s answers. Similarly, our ad recommends “fruits and vegetables” consumption, not strawberries. Although we expect children to be able to infer the link between our product category and the fruit placed on plates, to some extent, this may have also influenced the significance of our relationships. Last but not least, we asked children to report their wishes as far as snacks for recess or meals were concerned. To propose an isolate vegetable or a meal of vegetables does not make much sense to
preadolescents. However, referring to typical meals in intentions to consume does not allow
direct inferences from the ad’s recommendation.

Second, many variables have been identified as moderators or mediators of threat appeals
effectiveness in the literature (Burnett and Oliver 1979; Gallopel-Morvan 2006; Norman et
al. 2005). Although the basic advertising model was expended by integrating the study of
“vulnerability”, many variables remain unstudied. Self-esteem for instance has not been
investigated further. This is undoubtedly a limit to our work. However, working with
children does not always offer the same latitudes as adult population would. The number of
questions that the researcher may ask or scales that he may submit at a specific point in time
represents one of those restrictions, limiting considerably the knowledge that may be
acquired in the course of one experiment.

This, associated with social desirability prevention also explains the lack of information
collected on prior attitude towards fruits and vegetables. Although the predictive power of
this variable on attitude towards the ad and attitude towards the brand has been identified in
children advertising research (Derbaix and Brée 1997; Moore and Lutz 2000; Phelps and
Hoy 1996), it was not evaluated in this experiment.

Then, it appears necessary to stress further the measurement instrument issue this
experiment raises. We have indeed already emphasized earlier the lack of perfect adequacy
between our model’s variables. Measuring attitude towards the product instead of the
Attitude toward the act may consist in another explanation to the results achieved. Fishbein
and Ajzen (1980; 1975) first introduced the idea according to which it is the attitude
towards a behavior (and not the attitude towards an object) that offers the best prediction
of the intentions and future behaviors. Methodological errors have indeed been pinpointed
by many as the main explanation to poor prediction of behaviors by attitude, the matter
being much more an operationalisation issue than a construct one (Berger and Mitchell
1989). Considering our specific issue, this appears a plausible explanation. One may love
chocolate without allowing himself to eat it immoderately. Therefore attitude toward the
product may be really positive although the attitude towards the act could be significantly
lower.

Last, the forced exposure context in which this experiment has been conducted may be
questioned as far as the validity of our results is concerned. However, we argue otherwise.
It has indeed been demonstrated that novelty in warning situations increased attention to
the warning which in turn may enhance effectiveness (Krugman et al. 1994). Consequently,
it may be supposed that a natural setting would decrease comparability between our ads. In natural settings, although the typical ad would be a new one, we may expect the contrast nature of threat ads to attract more attention than typical ads. Therefore, we believe that conducting a research where all children are set in an equal level of attention (induced by the forced exposure) reinforces the value of its results.

Nevertheless, let us stress the fact that those results were achieved after one single exposure. Although it may be argued that this single exposure represents more than one normal exposure due to the forced context it pictures (Derbaix 1982; Rossiter and Thornton 2004), achieving results without repetition is very encouraging. Research in advertising within child populations indeed emphasizes and comments the positive impact of repetitive exposures under specific conditions (Brée 1993; Derbaix 1982; Goldberg et al. 1978; Gorn and Goldberg 1977, 1980; Guichard and Pecheux 2007; Moore and Lutz 2000; Peracchio 1992; Phelps and Hoy 1996; Van Evra 1995). Therefore, the lack of repetitions in our experiment could explain the weak results. Furthermore, considering the importance of personal relevance to threat appeals effectiveness (Burnett and Oliver 1979; Gallopel-Morvan 2006; Norman et al. 2005; Rogers 1975, 1983; Schoenbachler and Whittler 1996; Tanner et al. 1991) and the positive impact of frequent repetitions on personal relevance (Van Evra 1995), it appears necessary to integrate the effects of repetition in our study. However, we have little knowledge on the impact of repetition on threat appeal effectiveness. On the one hand, repeated exposure may have a detrimental impact on the negative affective reactions experienced. One may indeed predict that the level of reported negative affective reactions will drop as one knows what will happen. Therefore, questions relative to its ability to affect intentions and behaviors may raise. Further, repetition may become counterproductive because children may get bored or affected by the repeated exposure to danger. On the other hand, repetition may soften anxiety.

Let us remind that our objective, as far as this research is concerned, is twofold: beyond the theoretical contribution, we hope this research will lead to concrete advances in the field. Consequently implications of repetition cannot be overlooked, whether it concerns its effectiveness or the ethical consequences it may have.

Therefore, testing the effectiveness of repeated exposures to threat appeals will represent the core of our fourth experiment, presented in chapter 4.
Chapter 4: Are We Taking Risks When Repeating Threats? Experiment on the “Wearin” and “Wearout” effects.

Summary
This chapter seeks to understand the impact on children of repeated exposure to threat appeals. In this last experiment, the evolution of advertising effectiveness indicators when our specific stimulus is repeated is investigated. Findings revealed that older children were significantly influenced by repetition. Attitudes and consumptions increased positively. Furthermore, repeated viewings decreased the felt level of negative affective reactions, without decreasing effectiveness. This argues in favor of repeating threat appeals when preadolescents are targeted. Repeated viewing indeed appears to relieve any negative affective states that could emerge after the first exposure.
4.1. Motivation

The previous chapters of this monograph have demonstrated the effectiveness of “threat appeals” ads that intend to persuade children to adapt their intentions to behave (experiment 2) and behaviors (experiment 3) according to the recommendations embedded in our ads. Our treatments have indeed successfully shifted upward the intentions to consume healthy food evaluated through the respondents’ statements. Their consumptions, measured by pieces of fruit eaten during the experiments, have also been positively influenced. This effectiveness was evaluated in comparison with intentions to behave and behaviors of children exposed to typical advertising\textsuperscript{49}. These findings enabled us to conclude that “threat appeals” offer a superior effectiveness: children exposed to ads embedding threats and eliciting negative affective reactions consumed significantly more strawberries than children exposed to commercials eliciting positive affective reactions.

Nonetheless, our field works have not enabled us to identify differences in attitudes towards product categories between children according to the various advertising stimulus, either for healthy food such as fruits and vegetables or for unhealthy food such as candies. Further, the relationship between the Attitude towards the ad (Aad) and the Attitude towards the brand or product category (Ab or Acp) appears questionable. Although it was identified in experiment 3, our findings in experiment 2 suggest a non significant Aad-Apc relationship. And yet, this correlation between the Aad and Aab has been shown repeatedly in the literature on advertising impact within the children’s population (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002b; Pecheux et al. 2006; Phelps and Hoy 1996). Although it has been suggested that the strength of this relationship may vary according to different elements (for instance, the degree of prior “knowledge” of the brand advertised (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002b; Phelps and Hoy 1996), number of exposures (Phelps and Hoy 1996), negative affective reactions…), it would be highly valuable to offer an explanation generalized to all threat appeals.

Similarly, we could question the extent to which the specific context of triggering -on purpose- negative affective reactions may cause an extraordinary affective context which may lead to reconsider the moderating role of variables such as the Aad and the Apc in explaining the intentions to consume. Pecheux and Derbaix (2002) and Phelps and Hoy (1996) indeed

\textsuperscript{49} We invite our readers to consult our section 1.2.2. for more detailed references relative to how “typical ads” should be understood within the frame of this monograph.
identifed a direct influence of Attitude towards the ad on intentions to behave, although the partial mediating role of Ab remained. A different affective context (negative or mixed) may totally bypass the attitude towards the brand as mediator. This view would offer similarities with the “Independent Influences Hypothesis” of Howards (in MacKenzie et al. 1986), or with affective heuristics where behaviors are carried out based on automatic functioning initiated by affect that might, in this case, not be mediated by the attitude towards the brand/product category.

A second highly plausible explanation rests on the measurement instruments themselves. As stated earlier, the tool used in order to measure attitude towards product categories may not be totally adapted to our objective. This instrument was indeed originally designed to measure attitude towards brands (Pecheux and Derbaix 1999). Although the operationalization remains the same with product categories\(^{50}\), the global product category may represent a too unspecified and large notion as compared to a specific brand. We of course expect that “fruits and vegetables” indeed represents known concepts, even for the youngest ones. It seems however relevant to state that parallels between one brand advertised and one brand evaluation through a scale seem more automatic and easily feasible than the ones between “fruits and vegetables” recommended in our ad and the attitude towards the considered product category scales. Although “fruits and vegetable” are often named in the same healthy food group in health promotions, it may not have been appropriate to combine them systematically when monitoring attitudes. It might indeed be a non negligible mistake to ask children to evaluate both fruits and vegetables on the same scale. Further, we do not know to what extent 8-12 years olds do automatically link “vegetables” to specific products such as “tomatoes, carrots…” referred to as such in our intentions to consume measurement.

Discussing further the measurement issue, it has also been proposed (cf. chapter 3, section 3.5 : discussion-) that the attitude toward the act of consuming the product category might more adequately picture the intentions to behave and the behaviors than attitude towards the product category itself. This was first proposed by Fishbein and Ajzen, who further demonstrated this within the specific context of social behaviors (Ajzen and Fishbein 1977; Ajzen and Fishbein 1980; Fishbein and Ajzen 1975). Then, as far as our issue is concerned, we will agree that one may immoderately love candies without allowing himself to eat them beyond healthy limits. The attitude toward the product category may be really positive although the attitude towards the act

\(^{50}\) In the Attitude towards the brand scale, the brand advertised is mentioned in each item of the scale and in this way, reminds the child of the brand present in the ad. The “fruit and vegetables” product category are identically used in the ad’s recommendation and mentioned in our scale.
could be significantly lower, depicting more adequately the intentions to consume. However we are confronted with a lack of adequate measuring tools. On the one hand, and to the best of our knowledge, validated scales measuring the attitude towards the act appropriate to our context and target do not exist. On the other hand, introducing a verb to an “Attitude towards the brand” scale that has already been adapted to a product category appears questionable as far as the validity of our results is concerned. Although we do not ignore the problem, we will probably not be able to offer a perfect solution to it.

Last, we have proposed that the lack of repeated exposures may also play a role in the unstable results achieved. It has indeed been proposed that at least two exposures are needed to create a realistic setting necessary to study advertising impacts (Aaker and Myers (1987) in Phelps and Hoy 1996). Further, in their critical review on the effects of advertising repetition, Pechmann and Stewart argue that favorable brand attitudes peak after multiple exposures (Pechmann and Stewart 1990).

Considering our target, it has been argued that repetition increases the salience of advertised products which would in turn enable more prominent associations between products within the same category (Goldberg et al. 1978). Repeating our recommendation to increase the consumption of “fruits and vegetables” might allow a more easily and readily transfer of the recommendation to the specific type of fruits and vegetables used in our measurements of intentions to behave and our behavioral measurements. Last but not least, referring to the “mere exposure effect” of preference formation (Harrison (1977) in Goldberg et al. 1978; Zajonc 1968), frequent exposures may create an enhanced feeling of familiarity with the product which in turn breeds liking. Familiarity also appears to influence the salience of the product in choice situations, which is favorable to the product advertized (Goldberg et al. 1978). Summing up, these studies on children and advertising advocate for a multiple exposures setting.

The specific appeal used in our research also argues in favor of increasing the number of exposures. According to VanEvra (1995) referring to children, personal relevance of an ad can be increased by repetition. As far as “threat appeals” and adult targets are concerned, topic relevance has been identified as an essential variable of the working processes (Rogers 1975, 1983; Tanner et al. 1991). Also referred to as “vulnerability” or “usage” (Burnett and Oliver 1979), its impact on effectiveness has been demonstrated in many contexts (Burnett and Oliver 1979; Gallope-Morvan 2006; Milne et al. 2000; Schoenbachler and Whittler 1996). Although mixed results have been revealed in narrative reviews (Norman et al. 2005), they appear highly context related. We
of course have little insights into ours. Exposing children a repeated number of times to a “threat appeal” could accordingly increase the topic relevance perceived, which would eventually enhance the effectiveness of the appeal. Furthermore, although research on repetition within the frame of “threat appeals” are not numerous (Gallope-Morvan 2006; Hastings et al. 2004), a study has demonstrated its positive impact. In the context of speed driving prevention for young adults, Rossiter and Thornton (2004) have shown that increasing exposure leads to increased effectiveness of the ad. It is however important to note that repetition, in their study, reduced accordingly the level of fear experienced, although this did not reduce the level of effectiveness, to the contrary.

Within the context of children, we are however confronted with a lack of information on the impact of repetition on advertising negative affective reactions elicitation. It is not manifest whether exposing preadolescents more than once to the same stimulus will decrease the degree of felt negative affective reactions (as it was the case for young adults) or increase it. Meta-analyses identified that variance in intentions to behave was explained by those negative affective reactions (Milne et al. 2000; Norman et al. 2005). However, experiment 3 did not reveal this significant link. Consequently, the impact is difficult to predict. An upward shift of felt negative affective reactions could increase the ad’s effectiveness while a decrease could negatively influence it. Nevertheless, according to the Rossiter and Thornton’s study (2004), the level reduction of affective reactions is not synonymous to “less effective”. Therefore, due to the specificities of our target and topic, the assumption that repetition perpetuates effectiveness has to be put to the test. Rossiter and Thornton indeed stressed that their results needed to be replicated in order to rule out extraneous influences due to the particular ads selected. They also emphasized that their results could be due to the “easy undoable behaviors” (in other words, habits that appear easy to change) that fighting fast speeding, the object of their study, represents. This might not be the case with healthy and unhealthy food consumptions. As exposed in our literature review, changes from unhealthy food to healthy food may be considered arduous, due to the many barriers and the strong competition the healthy behavior faces. We therefore expect that departure from addictive unhealthy habits will be less comfortable for individuals than adapting one’s driving speed.

Last but not least, confirming our hypothesis will eventually offer stronger external validity. This research cannot pretend to propose practical and managerial contributions without studying the
impact of repetition. Any aired campaign has indeed to anticipate the multiple exposures of its audience to the commercials.

Yet, it has been proposed that too numerous repetitions of dangers could irritate, leading to ignorance of the message and maladaptive coping behaviors (Gallopel-Morvan 2006). This wear-out effect is actually a commonly shared idea within the general context of advertising, also for children (Brée 1993; Derbaix 1982; Guichard and Pecheux 2007). Lastly, a possible detrimental form of habit cannot be overlooked. Comparing advertising overexposure to warnings on cigarettes packs, it can be argued that a too high level of repetition could induce pernicious effects such as lack of attention (Hastings et al. 2004; Krugman et al. 1994).

In conclusion, it appears that ignoring the potential counterproductive effects of repetition on our target would be detrimental to the credibility of our work. We therefore propose to study its impact through the mean of a fourth experiment. This impact will be analyzed according to various hypotheses. Hypotheses 1 to 3 address advertising effectiveness indicators (children’s attitude towards product categories, intentions to consume and consumptions) comparing the results after one and three exposures. Hypotheses 4 to 10 propose to analyze further the persuasion process, studying relationships between variables and the influence of repetition on those relationships.

4.2. Hypotheses

Research provides various evidence of the positive impact of repeated exposure on persuasion among children. This influence has been identified on different elements, contributors of the advertisement’s effectiveness. Within the child population, repetition indeed appears to increase memory of (Gorn and Goldberg 1980), salience of (Goldberg et al. 1978), familiarity to and consequently liking of (Goldberg et al. 1978) the advertised products among children. In contrast, literature also proposes that limited exposure may induce weak influence of Aad on dependent variables (Phelps and Hoy 1996). This is consistent with adult research where wear-in effects are generally observed from a low to a moderate level of exposure, enhancing the ad’s persuasive impact (Malaviya 2007; Pechmann and Stewart 1990). This wear-in effect has also been identified in child populations (Derbaix 1982).

Further, it has been argued that repeated exposure enhances personal relevance of the information (whether of a factual or affective nature) of the ad, which in turn increases its
effectiveness (Van Evra 1995). Interestingly, the moderating role of personal relevance of or vulnerability to specific threats has been identified in numerous studies on threat appeals effectiveness (Burnett and Oliver 1979; Gallopel-Morvan 2006; Rogers 1975, 1983; Schoenbachler and Whittler 1996; Tanner et al. 1991). Hence we hypothesize that repetition will increase our threat appeals’ effectiveness, measured through the typical indicators in advertising research. Specifically, we propose the following hypotheses:

Hypothesis 4 (1)

(a) The attitude towards the healthy product categories (fruits and vegetables) will increase after exposure and (b) will score significantly higher after repeated exposures as compared to a single exposure.

Similarly, we expect that intentions to consume healthy foods and consumptions of healthy food will increase along with the number of repetitions. As advocated in experiment 3, it appears relevant to measure behaviors directly, as it would be the most appropriate indicator of future behaviors (Chandon et al. 2005). Since obesity prevention programs often lack in achieving behavioral changes (Bullen and Benton 2004), demonstrating those in a context that increases ecological validity of our findings will support the relevancy of threat appeals as compared to other types of approaches. We therefore predict the following:

(c) Children’s intentions to consume healthy foods will score significantly higher after repeated exposure as compared to a single exposure.
(d) Children’s healthy behaviors will significantly increase after repeated exposure as compared to a single exposure.

However, as suggested by Derbaix and Brée (1997), repeated exposure may induce a variation in affective reactions. Authors suggest that habituation due to this repetition is essentially positive for children (Brée 1993; Derbaix and Brée 1997). In our specific situation, we may suppose that this positive impact would be translated in a decrease of felt negative affective reactions. It can indeed been argued that the repeated viewing will create some form of habit that will eventually soften those affective reactions. This is coherent with Rossiter and Thornton’s results (2004). We therefore hypothesize that the repetition will decrease the affective reactions reported.
Hypothesis 4 (2)

(a) The negative affective reactions elicited by the ad will significantly decrease after repeated exposure as compared to a single exposure.

Relationship between variables will also be affected by this decrease. Referring to adults, a significant average correlation between the negative AREAD and Intentions to Consume has also been reported (see Milne et al. 2000 for their meta-analysis). Although we were not able to report this significant relationship in our previous experiments, we argued that the low level of negative affective reactions elicited and reported by children may be responsible for the findings. Consequently, we hypothesize that any existing correlation between the two variables will decrease accordingly with the increase of viewings.

(b) The proportion of variance explained by the negative affective reactions elicited by the ad in the intentions to consume healthily will decrease significantly as the number of exposures increases.

The present experiment will also intend to shed some light on the relationship (or the absence of relationship) between attitude towards the ad and other dependent variables. The findings of our previous experiments did not always offer support to the results achieved by various studies on advertising effectiveness among child populations, most specifically referring to the impacts of Aad on Ab (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002b; Pecheux et al. 2006; Phelps and Hoy 1996). A significant relationship was indeed identified in experiment 3 but not in experiment 2. We proposed then that these discrepancies may be due to the specific negative affective contexts induced by threatening ads and the lower scores of attitude of these test ads, as compared to typical ads. The threatening ad of experiment 3 was indeed modified -as compared to experiment 2-, according to psychiatrists’ recommendations and this led to a significant increase in the ad’s evaluation by the target. This fourth experiment will make use of the identical ad. Our first analysis will consequently address the pre-mentioned relationship, under single and repeated exposure.

Hypothesis 4 (3)

(a) Attitude towards the ad will explain the attitude towards the product categories advertised (fruits and vegetables).
Then, as argued above, it is now widely accepted that ad repetition has a nonmonotonically relationship with message persuasion and this persuasion is measured through product evaluation, in other words, through the attitude towards the product (Malaviya 2007; Pechmann and Stewart 1990). This is further sustained by the research on children (Brucks et al. 1988; Derbaix 1982; Goldberg et al. 1978; Van Evra 1995). In contrast, Phelps and Hoy advocate in their 1996 study that in the absence of repetition, Aad’s influence may at times lack strength to influence the dependent variables. It can consequently be understood that repetition will reinforce the Aad’s influence. We therefore expect that three exposures may be responsible for such changes:

(a) The influence of the attitude towards the ad on the attitude towards the product categories advertised will increase, according to the number of repetitions.

In the case of known brands, research shows that a significant link exists between prior attitude towards the brand and the post exposure attitude (Derbaix and Brée 1997; Phelps and Hoy 1996). Although those constructs refer to brands, the distinction made between known and unknown brands is usually constructed on the previous experience(s) with the brand (Derbaix and Brée 1997) and alternative sources of information on the brand (Pecheux and Derbaix 2002b). This can be intuitively translated to product categories. Undoubtedly, children have already had some consumption experience(s) with fruits and vegetables and prior attitudes do exist. Therefore, considering this familiarity with the fruits and vegetables categories, we predict that a significant link will exist between prior and post exposure Ap.

Hypothesis 4 (4)

a) Prior exposure attitude towards the fruits and vegetables categories will influence the post exposure attitude towards the fruits and vegetables category.

Further, as demonstrated by Derbaix and Brée (1997) for familiar brands, Prior Ab may outperform AREAD in explaining post exposure attitude towards the brand. However, we expect that along with repeated exposures, prior attitude’s influences on post exposure attitude will decrease in favor of the ad’s influence, due to the elicitation of affective reactions of both valences. Brought to our product category context, we hypothesize that:

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51 Prior brand attitude is defined as “the individual’s response to the brand before exposure tot the advertising stimulus”. (Phelps and Hoy, 1996, p.90)
b) The influence of prior attitude towards the fruits product category will outperform the affective reactions elicited by the ad in explaining the attitude towards the fruits product category after 1 exposure.

c) The influence of prior attitude towards the fruits product category will not outperform the affective reactions elicited by the ad in explaining the attitude towards the fruits product category after 3 exposures.

Our next hypothesis concerns the relevancy of an “Attitude towards the act” measurement when trying to predict Intentions to consume in health promotion. More specifically, it is intended to determine whether referring to the attitude towards the act of eating is more adequate in predicting intentions to behave than referring to the attitude towards the product or product category, as argued by Fishbein and Ajzen (Ajzen and Fishbein 1977; Ajzen and Fishbein 1980; Fishbein and Ajzen 1975). This could also contribute to the explanation of experiment 2 and 3 findings on the correlation between the Ab/Apc and Intentions to behave, which are inconsistent, although supporting the literature in experiment 2 (Pecheux and Derbaix 2002b; Phelps and Hoy 1996).

We realize however that our operationalization may induce a large bias in favor of the attitude towards the act. Our “Attitude towards the act” items will indeed refer to a specific fruit - mandarins- relative to the product category -fruits- and, further, the fruit named is the one available as our behavioral measure. Nevertheless, our motivation to act accordingly rests on the opportunity it represents of estimating children’s liking of mandarins, our behavioral measurement (as it will be explained later in the “experiments – measurement and indicators” section). However, lack of significant results would argue in favor of the validity of our attitude towards the product category scales.

Hypothesis 4 (5)
The attitude towards the act of consuming the product outperforms the attitude towards the product category in predicting intentions to consume the product

Our last analysis referring to attitudes towards the product category will concern comparisons between the two dimensions of the attitude scale as far as their predictive power of intentions to behave is concerned. Pecheux and Derbaix (2002b) have indeed demonstrated that the hedonic dimension was more important in predicting the behavioral variables. The importance of the affect as determinant of our persuasion being dominant in our experiments, and being supported by recent research on threat appeals (Gallopel and Valette-Florence 2002; Lavoisier-Mérieux
2002; Milne et al. 2000; Umeh 2004), we expect our study to confirm those results. However, considering the specific context of our ad and experiment (negative affective reactions and repetition), we believe these findings need confirmation in order to further analyze the persuasion process at work. We therefore hypothesize the following

Hypothesis 4 (6)
The hedonic dimension of attitude toward the product category will be more efficient in predicting the intentions to consume than the utilitarian one, whatever the number of repetitions.

Last but not least, Hypothesis 4 (10) will try to demonstrate the importance of vulnerability or topic relevance on the effectiveness of threat appeals among child populations. As stated earlier, this variable has been identified as an essential condition for threat appeal to be persuasive with adults (Rogers 1975, 1983; Tanner et al. 1991; Witte 1992, 1994) and is considered a moderator whatever the targets studied (Burnett and Oliver 1979; Gallopet-Morvan 2006; Schoenbachler and Whittler 1996; Witte 1992, 1994). Further, its impact on intentions to behave and behaviors has been emphasized in meta-analyses (Milne et al. 2000; see also Floyd et al. 2000 in Norman et al. 2005). However, it has been reported that the influence of vulnerability depends on the health-context, providing little insight to the promotion of fruits and vegetables.

Then, as proposed by Van Evra (1995), repetition increases relevance of the topic for children. Accordingly, we expect the influence of vulnerability on intentions to consume healthy food and on consumption to increase.

Hypothesis 4 (7)
(a) The level of reported vulnerability after one exposure will be significantly lower than the level of reported vulnerability after three exposures.
(b) Vulnerability predicts intentions to consume and consumption of healthy food.
(c) The influence of vulnerability in predicting intentions to consume and consumption of healthy food will increase with the number of exposures.

4.3. Experiment

In order to test our hypotheses, experiment IV was elaborated. This section will present its design, procedure and results
4.3.1. Method

Experimental design

In order to test the impact of repetition on persuasion, it appears that the most appropriate design is a within-subject one. Within-subject designs mean that the same subjects will be exposed to the different treatments. In other words, it involves taking repeated measurements from the same subjects. This fits our objective. A within-subject design will implicitly suppress all individual differences that could be responsible for variation in our results. Consequently, no random assignment after blocking on sensitive variables for control is required.

The number of exposures has been set to 3. Referring to the work of Derbaix (1982) and Rossiter and Thornton (2004), respectively on children and threat appeals, three forced exposures can be assimilated to a medium level of exposure in a natural setting (about 6 exposures). Although this number may sound arbitrary, information from the field allow us to consider this as a highly plausible scenario. Further, it is recommended not to go beyond this limit. Pechmann and Stewart argue that when attention is required and measurement occur immediately after exposure, peak in reactions are achieved at approximately three exposures (Pechmann and Stewart 1990). More than 6 “nonforced” viewings (which would equate our 3 forced ones) may cause a loss of attention that would eventually induce a loss of influence (Rossiter and Thornton 2004). These findings, coherent with Derbaix’s work (1982), sustain the proposed design of three exposures.

Participants

Participants were forty-seven children of the 3rd, 4th, 5 and 6th grades attending a French-speaking school in Belgium. Of these, 49% were girls (51% boys) and 61% were 8-10 years-olds (39% of 11-12). Although the school belongs to a rural environment, it attracts children from many different places which insures diversity of social and economical grounds for the children interviewed. Parents were informed of the study and consulted for agreement as were the city’s public authorities.

Ads and treatment

Based on previous experiments, it appear appropriate to use the “social threat” ad of experiment 3 in this attempt to evaluate the impact of repeated exposures (the ad is
available at the following address http://www.fucam.ac.be/index.php3?pere=25381, appendix 4.1.). More specifically, the ad threatens of socially undesirable consequences and recommends increasing fruits and vegetables intake. The lack of manifest impact of alternative threatening scenarios explains our choices. For instance, social threats appeared most efficient in experiment 2. Then, findings related to positive vs. negative orientation observed in experiment 3 did not advocate for one option or the other. However, Epstein and his colleagues’ findings motivated our decision in favor of the fruits and vegetables recommendation (as compared to the decrease of fat and sugar intake) (Epstein et al. 2001; Epstein et al. 2008). As stated in section 1.3.1., it has indeed been shown that an increase of fruits and vegetables consumption produces a halo effect on health and weight. An increased consumption of healthy foods appears to impact conversely the consumption of fat and sugar intake while the reverse is not observed. Keeping the managerial contributions of this research in mind, it seems relevant to concentrate our research on the “fruits and vegetables” recommendation.

Measurement and advertising effectiveness indicators

Four Attitude towards a food product category scales (fruits, vegetables, candies and biscuits), based on Pecheux and Derbaix (1999) have been submitted to children in a pre-exposure session. Those measurements have been completed by a 2-items scale designed for the measurement of attitude towards the act. As proposed in the “motivation section” of this chapter (§4), combining our original attitude towards the product category scale with a 2-items scale that will check on the attitude towards the act appears necessary. Although not equivalent to the 7-items scale, these two items will allow us to approach the two dimensions of the attitude towards the brand identified: the hedonic and the utilitarian (Pecheux and Derbaix 1999). Both dimensions indeed appear essential to measure the attitude towards healthy food. This indicator has been used on 4 different products (mandarins and soft candies, the food products used in our behavioral measure; chocolate toffees and pineapple). Eventually, the items referring to the behavioral measurements (mandarins and soft candies) will enable us to identify children who do not like those specific food products and “clean up” our measurements. Indeed, even though we are confident that our ads will be efficient, we cannot expect from children to totally change their liking of one specific food. Children who declare to dislike mandarins or candies
cannot be expected to eat them after our treatment. Considering our within-subject design, ignoring this could induce a bias. This information will allow us to withdraw those subjects from our behavioral measurements comparison. All those measurements were embedded in a larger “quiz”, also containing the “sensitivity level towards healthy food” multiple choice questionnaire52 and other filling questions and scales (tv programs, “Wii” and “DS”, “sms53”…). The questionnaires are available in appendix 4.2.

Post exposure measurements consisted in the Attitude towards the ad scale (Derbaix et al. 1999); the AREAD scale, based on Derbaix and Brée (1997); Attitude towards product categories, inspired by the Ab scale (Pecheux and Derbaix 1999) assessing children’s attitude towards the same food products as in the pre exposure questionnaire (fruits, vegetables, candies and biscuits); measurements of attitude towards the act identical to the ones in the pre exposure questionnaire; and intentions to behave measured on Likert scales. Questionnaires are available in appendix 4.3.

Behaviors were measured in a pattern identical to that of experiment III. However, seasons, product availability and money constraints did not enable us to work with strawberries anymore (experiments were conducted in February 2009). Nevertheless, it appears that mandarins are liked by a majority of children. In order to equate this fruit in terms of sizes, proportions, volumes and manipulations, small bags of candies available under that specific form on the market were used as the unhealthy alternative. As stressed in our experiment III, it was indeed important to fulfill specific conditions of size and volume for our behavioral measurements to be valid (Fisher et al. 2003; Sharpe et al. 2008).

Last, children’s perceived vulnerability to the threat was assessed. They were indeed asked whether they felt that the scenario depicted in the ad could happen to them, as operationalized in experiment 3. Filling questionnaires were administrated after the second exposure. Although it seemed interesting to be able to track changes in attitudes, intentions to behave and

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52 This questionnaire is based on experiment III. Yet, this measure being less essential to our experiment (no random assignment after blocking on that variable), it was one more reduced. For this fourth experiment, its objective was mainly distraction from our healthy promotion objective.
53 SMS (Small Messages Service) are written messages sent from one mobile phone to another, also known as « texto » in France.
behaviors between exposure 1 and 2 and between 2 and 3, we feared that presenting three times identical questions and situations to the same population could also induce a wearout in the population. Then, as argued earlier, three exposures – compared to two – appeared most adequate, considering advertising effectiveness in general (Pechmann and Stewart 1990), advertising to children (Derbaix 1982) and threat appeals (Rossiter and Thornton 2004). Measuring attitudes, intentions to behave and behaviors after one and three exposures represents therefore our compromise.

Procedure
Pre-exposure measurements were collected mid-January, during normal class time. The questionnaire was administered at the whole class, after a brief introduction to the guise of the study. Exposures and the relative data collections were made in February. As advised and operationalized in previous studies by Brucks et al. (1988) and Rossiter and Thornton (2004), the repeated exposures should be held a few days apart. Rossiter and Thornton have further proposed that the second and third exposures should happen at a time when the effects of the initial one start to decline. Research further proposes that concrete operational children exhibit product attitude stability with a one-week interval between measurements (Phelps and Hoy 1996), even when the ad has been forgotten (Silverman, Jaccard, and Burke 1988). Considering our purpose, distancing repetition to this maximum period will reinforce any positive results encountered. Special attention was devoted to respect identical conditions of exposure for each child involved in the experiment (day, time of the day, companion during exposure…). Children were interviewed in pairs, avoiding to a great extent any risks of imitation. At the same time, they remained comfortable in the presence of a friend. All these precautions combined with the inner nature of within-subject designs probably explain the high degree of mortality we faced. Eventually 47 children (out of the 74 pupils of 3rd, 4th, 5 and 6th grade) were exposed three times to our messages and completed all 4 questionnaires (pre exposure included). The sequence of events (exposure, questionnaire, behavioral measurement) is similar to that of our experiment 3.

4.3.2. Results
Variance analysis and regressions were used in order to test our hypotheses.
Independent variable

Looking into the AREAD, our first analysis’ objective is twofold. First, \( H4\ (2)(a) \) predicts that the levels of negative affective reactions elicited by the ad will significantly decrease after repeated exposure, as compared to a single exposure. For the sake of simplicity, a mean value of negative affective reactions was computed. It aggregates values on (feeling) “sad”, “disgusted”, “angry”, “worried”, “irritated”, “bad”, “uncomfortable”, “annoyed” and “scared” items. Table 4.1. reports the results for this hypothesis.

<table>
<thead>
<tr>
<th>Exposure 1</th>
<th>Exposure 3</th>
<th>p-value</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>AREADneg</td>
<td>15.98</td>
<td>9.17</td>
<td>5 **</td>
</tr>
</tbody>
</table>

Table 4.1.: Comparison of elicited negative affective reactions after 1 and 3 exposures; **significant at \( p<0.01 \)

The value of negative affective reactions elicited and reported by children is significantly lower after 3 exposures (M=9.17) than after one (M=15,98; \( t(46)=16.89; p<0.05, r=0.92 \). \( H4\ (2)(a) \) is supported by our data. Repetition decreases the negative affective reactions felt by children, to the lowest level. After 3 repetitions, it indeed appears to be reduced to its minimum (our adapted scale counts 9 negative affective reactions).

Second, \( H4\ (2) \) (b) predicted that this decrease in negative affective reactions elicitation will impact the correlation between variables. In order to test this hypothesis, we compared the significant link identified between AREADneg and IC healthy food after one and three expositions. Table 4.2. reports our findings.

<table>
<thead>
<tr>
<th>AREADneg</th>
<th>p</th>
<th>( \beta )</th>
<th>SE</th>
<th>F</th>
<th>R²</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC healthy food, Exp 1</td>
<td>S **</td>
<td>0.50</td>
<td>0.14</td>
<td>12.61</td>
<td>0.22</td>
<td>0.47</td>
</tr>
<tr>
<td>IC healthy food, Exp 3</td>
<td>NS</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

Table 4.2.: Intentions to consume healthy food-AREAD neg: Regression analysis after 1 and 3 exposures; * significant at \( p<0.05 \)

\( H4\ (2)(b) \) is supported by the data. Repetition decreased the correlation between the variables. Although negative affective reactions explained 22% of the variance of
the intentions to consume healthy food, this significant link is not identified anymore after three expositions.

**Dependent variables**

**Hypothesis 4 (1) (a)** suggested that exposure will influence positively the score of attitude towards the fruits and the vegetables categories and (b) that repetition will emphasize this influence. ANOVA on repeated measures delivered the results summed in table 4.3.

<table>
<thead>
<tr>
<th></th>
<th>Pre exposure</th>
<th>Exposure 1</th>
<th>Exposure 3</th>
<th>Contrast Pre vs. expo1</th>
<th>Contrast Expo 1 vs. expo3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A fruit</td>
<td>19.96</td>
<td>22</td>
<td>22.44</td>
<td><strong>S</strong></td>
<td><strong>S</strong></td>
</tr>
<tr>
<td>p-value</td>
<td></td>
<td><strong>S</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>11.33</td>
<td>14.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A vegetables</td>
<td>17.85</td>
<td>20.7</td>
<td>21.37</td>
<td><strong>S</strong></td>
<td><strong>S</strong></td>
</tr>
<tr>
<td>p-value</td>
<td></td>
<td><strong>S</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>13.66</td>
<td>11.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aact consuming mandarins</td>
<td>6.61</td>
<td>6.98</td>
<td>6.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td></td>
<td><strong>S</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>40.69</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3.: Comparison of Apc and Aact after 1 and 3 exposures; *significant at p<0.05; **significant at p<0.01

Although exposure to our ad significantly increased the positive attitude of children towards the fruits and vegetables category (Fruit= M exposure1=22.00; M pre-exposure=19.96; M exposure3=22.44) (Vegetables= M exposure1=17.85; M pre-exposure=20.7; M exposure3=21.37) repeating the exposure did not bring the systematic expected changes. The comparisons between attitude after the first exposure and the third were not significant. However, contrasts analysis revealed reliable differences between one and three expositions on our measure of attitude.
towards the act - or towards mandarins\textsuperscript{54}. Therefore, although **H4 (1) (a) is accepted for the product category advertised**, **H4 (1) (b)**, the core of our current experiment - studying the impact of repetition, **is not supported by our ad.** Further, the Attitude towards the act does not improve the measurement of our ad’s effectiveness, to the contrary. Nevertheless, attitudes towards fruits and vegetables categories do also increase, but not in a significant proportion.

Analyzing further the impact of repetition, **hypothesis 4 (1)(c)** foresaw that the intentions to consume healthy food would increase along with the number of repetitions. Table 4.4. reports our results. **H4 (1)(c) is not supported by our data.** Repeated exposure did not increase the intentions to consume healthy food \( (\text{MIChealthy,expo1}=14,45; \text{MIChealthy,expo3}=14,43; t(0,088)=; p>0,05) \). An additional analysis of intentions to consume unhealthy food further indicates that repeated exposure does not impact this dependent variable either \( (\text{MICnonhealthy,expo1}=14,36; \text{MICnonhealthy,expo3}=14,64; t(-0,692)=; p>0,05) \). However, it is important to note that the findings indicate no significant differences. This means that although repetition did not increase the intentions, it did not have a detrimental impact either, the results being statistically equal.

<table>
<thead>
<tr>
<th></th>
<th>Exposure 1</th>
<th>Exposure 3</th>
<th>Expo1 vs. expo3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>p-value</td>
<td>t</td>
<td></td>
</tr>
<tr>
<td>IC healthy food</td>
<td>14,45</td>
<td>14,43</td>
<td>NS</td>
</tr>
<tr>
<td>IC unhealthy food</td>
<td>14,36</td>
<td>14,64</td>
<td>NS</td>
</tr>
</tbody>
</table>

Table 4.4: Comparison of Intentions to consume after 1 and 3 exposures; significant at \( p<0,05 \)

**H4 (1)(d) predicted** that consumption of healthy food would increase accordingly with the number of exposures.

Results shown in table 4.5. indicate that no significant differences were identified. Consumptions, expressed in quantities of mandarins eaten, are statistically equal after one and three exposures. An additional analysis performed on unhealthy food consumptions (small packs of candies) offer the same findings \( (\text{MChealthy,} \)...

\textsuperscript{54} Please note that all attitudes towards the product category are evaluated on a 7 items – 4 levels scales (based on the Attitude towards the brand (Pecheux and Derbaix, 1999), the attitudes towards the act was estimated on 2 items – 4 levels scale.
Chapter 4: Are We Taking Risks When Repeating Threats? Experiment on the “Wearin” and “Wearout” effects

Hypothesis 4 (1) (d) is not supported by our data. Nevertheless, these results are encouraging. It confirms the idea that repetition is not detrimental. Additional exposures do neither decrease the healthy consumptions nor increase the unhealthy consumptions. To the contrary: albeit our results are not significant -and the numbers small-, the difference between the mandarins and candies consumptions is reduced (children then ate nearly as many mandarins as packs of candies). After one exposure, it could be said that children ate nearly twice as many candies -62% of a pack- as mandarins -38% of a mandarin- (let us remind that volumes are considered equal). After three exposures, this extra proportion of candies eaten (a 1/4th of one food unity) dropped to 9% of a food unity.

### Hypothesis 4 (3) (a)
Predicted that the Attitude towards the ad will explain the attitude towards the product categories advertised (fruits and vegetables) and (b) that this influence would increase according to the number of repetitions. Results do not support our hypotheses as relationships were never significant. Aad was never explanatory of the A fruits or A vegetables product categories.

### Hypothesis 4 (4)
Expected that a prior attitude towards fruits and towards vegetables would influence the post exposure attitude towards the product categories. As shown in tables 4.6., prior attitude towards fruits explained almost 45% of the variance in the attitude evaluated after one exposure. As far as vegetables are concerned, 30% of the variance in the attitude towards the vegetables after one

<table>
<thead>
<tr>
<th></th>
<th>Exposure 1</th>
<th>Exposure 3</th>
<th>p-value</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>C healthy food</td>
<td>0.38</td>
<td>0.36</td>
<td>NS</td>
<td>...</td>
</tr>
<tr>
<td>C unhealthy food</td>
<td>0.62</td>
<td>0.45</td>
<td>NS</td>
<td>...</td>
</tr>
</tbody>
</table>

Table 4.5: Comparison of consumptions means after 1 and 3 exposures; significant at p<0.05
exposure are explained by the prior attitude (see table 4.7). **Hypothesis 4 (4) (a) is supported by our data.**

<table>
<thead>
<tr>
<th>Prior A Fruit</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A Fruit expo1</td>
<td>$**$</td>
<td>0.62</td>
<td>0.11</td>
<td>35.41</td>
<td>0.44</td>
<td>0.66</td>
</tr>
</tbody>
</table>

Table 4.6.: Influence of prior product category attitudes on post exposure attitudes, **significant at p<0.01**

Our hypothesis predicted further that this influence will be superior in explaining the variance in attitude towards the product to the one offered by the affective reactions elicited by the ad. Results of the various regressions, reported in table 4.7. indicate that Prior Attitude is the best predictive variable of post exposure attitude. **Our hypothesis 4(4) b is supported by our data**

<table>
<thead>
<tr>
<th>Prior A Fruit</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A Fruits expo1</td>
<td>$**$</td>
<td>0.62</td>
<td>0.11</td>
<td>35.41</td>
<td>0.44</td>
<td>0.66</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AREAD pos</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A Fruits expo1</td>
<td>$*$</td>
<td>0.41</td>
<td>0.19</td>
<td>5.04</td>
<td>0.10</td>
<td>0.32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AREAD neg</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A Fruit expo1</td>
<td>NS</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

Table 4.7.: Comparisons of predictive power of Prior Afruit; AREADneg and AREAd pos on AF post expo1, **significant at p<0.01**

We further expected the prior attitude influence to decrease after repeated exposure, this influence being outperformed by the one of affective reactions elicited by the ad. (Hypothesis 4(4) (c)). **Our data do not support this hypothesis.** Results indicate that no other significant relationship than Prior attitude and Post exposure attitude remain after three exposures (see table 4.8.). The affective reactions never outperform
the attitude towards the product categories in predicting the attitude towards the product categories.

**Hypothesis 4 (5)** offered to examine to what extent the attitude towards the act of consuming a fruit measured on a 2 items scale would outperform the attitude towards the product category scale in predicting intentions to consume healthily or, more specifically, intentions to consume fruits. Tables 4.9 and 4.10. show that our data do not support our hypothesis H 4 (5). Regression is never more significant, neither is the variance explained more important.

**Table 4.8:** Comparison of predictive power of Prior AF; AREAD neg and AREAd pos on AF post expo1, ** significant at p<0,01

<table>
<thead>
<tr>
<th>Prior A Fruit</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A Fruit expo3</td>
<td>S**</td>
<td>0,53</td>
<td>0,13</td>
<td>18,04</td>
<td>0,27</td>
<td>0,54</td>
</tr>
<tr>
<td>AREAD pos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Fruit expo3</td>
<td>NS</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>AREAD neg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Fruit expo3</td>
<td>NS</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

**Table 4.9:** Comparison of indicators as explanatory variable of variance in intentions to consume; * significant at p<0,05; ** significant at p<0,01

<table>
<thead>
<tr>
<th>A Fruit (1 exposure)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IC healthily</td>
<td>S*</td>
<td>0,28</td>
<td>0,13</td>
<td>4,59</td>
<td>0,09</td>
<td>0,3</td>
</tr>
<tr>
<td>IC fruit</td>
<td>S**</td>
<td>0,17</td>
<td>0,03</td>
<td>16,88</td>
<td>0,27</td>
<td>0,52</td>
</tr>
<tr>
<td>A act mandarin (1 exposure)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC healthily</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC fruit</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 4.10:** Comparison of indicators as explanatory variable of variance in intentions to consume; * significant at p<0,05; ** significant at p<0,01

<table>
<thead>
<tr>
<th>A Fruit (3 exposures)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IC healthily</td>
<td>S*</td>
<td>0,40</td>
<td>0,10</td>
<td>16,35</td>
<td>0,27</td>
<td>0,52</td>
</tr>
<tr>
<td>IC fruit</td>
<td>S**</td>
<td>0,12</td>
<td>0,03</td>
<td>17,55</td>
<td>0,28</td>
<td>0,53</td>
</tr>
<tr>
<td>A act mandarin (3 exposure)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC healthily</td>
<td>S*</td>
<td>0,66</td>
<td>0,31</td>
<td>4,46</td>
<td>0,09</td>
<td>0,3</td>
</tr>
<tr>
<td>IC fruit</td>
<td>S**</td>
<td>0,19</td>
<td>0,09</td>
<td>4,59</td>
<td>0,09</td>
<td>0,31</td>
</tr>
</tbody>
</table>

**Table 4.11:** Comparison of indicators as explanatory variable of variance in intentions to consume; * significant at p<0,05; ** significant at p<0,01

163
**Hypothesis 4 (6)** suggested that the affective dimension of the attitude towards the product category would outperform the beliefs about the product category in predicting intentions to behave. Results of our regression analysis reported in table 4.11 confirm our hypothesis. The utilitarian dimension never appears to significantly influence the Intentions to consume healthily, whether one or three exposures were considered. The affective dimension remains the best predictor of intentions to consume. This sustains the theory of an affective transfer identified as the model of persuasion among child populations, as compared to a dual mediation for instance.

<table>
<thead>
<tr>
<th>Hedonic dimension of attitude towards the fruit category</th>
<th>p</th>
<th>β</th>
<th>SE</th>
<th>F</th>
<th>R²</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC healthily (expo1)</td>
<td>S**</td>
<td>0,64</td>
<td>0,18</td>
<td>12,22</td>
<td>0,21</td>
<td>0,46</td>
</tr>
<tr>
<td>IC healthily (expo3)</td>
<td>S**</td>
<td>0,74</td>
<td>0,14</td>
<td>29,28</td>
<td>0,39</td>
<td>0,63</td>
</tr>
</tbody>
</table>

Table 4.11: Comparison of indicators as explanatory variable of variance in intentions to consume; *significant at p<0,05; **significant at p<0,01

**Hypothesis 4 (7) (a)** predicted that vulnerability will increase according to the number of exposures. Results reported in table 4.12 do not support our hypothesis. The level of vulnerability is not significantly different (Mvulnerability,expo1= 2,66; SE=1,45; Mvulnerability, expo3 = 2,57, SE=1,52; p>0,05)

<table>
<thead>
<tr>
<th>Exposure 1</th>
<th>Exposure 3</th>
<th>Exp01 vs. expo3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vulnerability</td>
<td>2,66</td>
<td>2,57</td>
</tr>
</tbody>
</table>

Table 4.12: Comparison of reported vulnerability after 1 and 3 exposures ; *significant at p< 0,05; **significant at p<0,01

We also hypothesized that vulnerability will explain the intentions to behave and the behaviors (**hypothesis 4 (7) (b)**) and further (**hypothesis 4 (7) (c)**), we expect that the variance explained by vulnerability will increase along with repetition. Tables 4.13 shows the results obtained after one exposure. Vulnerability does not seem to impact on intentions to consume. It however explains 13% of the variance identified in the consumption of mandarins, although repetition does not appear to increase this influence. In fact, there are no significant relationships between vulnerability and
behavioral variables (intentions and behaviors) after three exposures. **Hypothesis 4 (10) (b) is supported by our data when healthy consumptions are considered. Hypothesis 4 (10) (c) is not supported by our data.**

<table>
<thead>
<tr>
<th>Vulnerability (1 exposure)</th>
<th>p</th>
<th>β</th>
<th>SE</th>
<th>F</th>
<th>R²</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC healthily (expo1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC unhealthily</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy consumptions</td>
<td>S**</td>
<td>0,20</td>
<td>0,08</td>
<td>6,58</td>
<td>0,13</td>
<td>0,36</td>
</tr>
<tr>
<td>Unhealthy consumptions</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.13: Comparison of vulnerability as explanatory variable of variance in intentions to consume and consumption after one repetition; **significant at p<0,01

**Additional analyses**

Our findings called for further analyses in order to better grasp the persuasion mechanism at work under threat appeals and repeated threat appeals. First, it appears interesting to learn which variables affect the consumptions and how.

Results of regression analyses (reported in table 4.14) indicate that the attitude towards the fruits category remains the best explanatory variable of the fruits consumption.

<table>
<thead>
<tr>
<th>Prior attitude towards fruits</th>
<th>p</th>
<th>β</th>
<th>SE</th>
<th>F</th>
<th>R²</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Consumptions (post expo1)</td>
<td>S**</td>
<td>0,04</td>
<td>0,02</td>
<td>6,42</td>
<td>0,13</td>
<td>0,35</td>
</tr>
<tr>
<td>Attitude towards fruits post expo1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy Consumptions (post expo1)</td>
<td>S**</td>
<td>0,06</td>
<td>0,02</td>
<td>11,94</td>
<td>0,21</td>
<td>0,46</td>
</tr>
</tbody>
</table>

Table 4.14:(a) Correlations between attitude towards fruit and consumptions of mandarins; significant at p<0,05
It also appears interesting to stress the significant relationship identified between the negative affective reactions and the healthy consumptions after three exposures, when the level of negative affective reactions is the lowest.

A second type of additional analyses appears relevant. We propose to analyze the impact of our ads and its repeated viewings according to the age of the target. Intuitively, although preadolescents are considered as a single category, differences among children in 3rd and 4th grade and in 5th and 6th grade are plausible. Analyses of variance of attitudes towards product categories were therefore performed on older and younger children. Although our sample is rather small to expect statistically significant results on all variables if divided according to the age variable, any result achieved would strengthen our conclusions. The results for older children are reported in table 4.17. They indicate a significant increase between exposure 1 and 3 for attitudes towards the product categories advertised (Mfruits, expo1 = 22.84; Mfruits, expo3 = 23.63); (Mvegetables, expo1 = 21.31; Mvegetables, expo 3 = 22.83).
However, this split did not bring significant results for the younger population.

<table>
<thead>
<tr>
<th></th>
<th>Exposure 1 (n=19)</th>
<th>Exposure 3 (n=19)</th>
<th>Expo1 vs. expo3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>p-value</td>
</tr>
<tr>
<td>A fruits</td>
<td>22,84</td>
<td>23,63</td>
<td>S*</td>
</tr>
<tr>
<td>A vegetables</td>
<td>21,31</td>
<td>22,83</td>
<td>S*</td>
</tr>
<tr>
<td>A candies</td>
<td>15,24</td>
<td>15,60</td>
<td>NS</td>
</tr>
<tr>
<td>A biscuits</td>
<td>17,89</td>
<td>18,39</td>
<td>NS</td>
</tr>
<tr>
<td>A act consuming mandarins</td>
<td>6,61</td>
<td>6,39</td>
<td>NS</td>
</tr>
<tr>
<td>A act consuming candies</td>
<td>4,03</td>
<td>3,89</td>
<td>NS</td>
</tr>
</tbody>
</table>

Table 4.17: Comparison of ApC and Aact after 1 and 3 exposures on older children (5th and 6th grade); *significant at p<0,05

Considering the noticeably different results observed among our sample according to their school grade, we proceeded further with extra analyses. Comparing 5th and 6th grades intentions to consume healthy and unhealthy food means, after the first and the third exposure, we achieved the following results (see table 4.18). Findings for the 3rd and 4th grade pupils did not present significant differences.

<table>
<thead>
<tr>
<th></th>
<th>Exposure 1 (n=19)</th>
<th>Exposure 3 (n=19)</th>
<th>Expo1 vs. expo3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>p-value</td>
</tr>
<tr>
<td>C healthy food</td>
<td>0,42</td>
<td>0,53</td>
<td>ns</td>
</tr>
<tr>
<td>C unhealthy food</td>
<td>0,63</td>
<td>0,11</td>
<td>S**</td>
</tr>
</tbody>
</table>

Table 4.18: Comparison of consumptions means after 1 and 3 exposures - 5th and 6th grades; *significant at p<0,05; **significant at p<0,01

Consistent with the results achieved in our analyses on attitude towards the fruits and towards vegetables, older children seem to be impacted positively by the repetition of the threat appeal commercial. Their consumptions of candies dropped significantly (Mcandies conso expo 1= 0,63; Mcandies conso expo 3=0,11) and their consumption of mandarins increased (although not significantly).
Children, healthy eating and “threat appeals”

4.4. Discussion, limits and conclusion

Taken at a global level, the empirical results of this fourth experiment could induce a rather straightforward conclusion: repetition does not improve the effectiveness of our ad. Indeed, the analysis of classical constructs of advertising effectiveness does not sustain the hypothesis of enhanced persuasion through repetition. Neither the attitude towards the product categories advertised nor the intentions to consume healthy food and the consumptions increased after 3 exposures to the same stimulus. However, an in-depth analysis allows us to argue otherwise and to advocate in favor of repeated exposures when children are exposed to “threat appeal” campaigns. Our argument rests on five points.

First, when older participants are considered, repetition appears to have a significant impact on either attitude towards product categories and consumptions. The attitude towards fruits and the vegetables increased significantly between exposure one and three. Further, the consumption of candies decreased significantly.

Second, our analyses indicate that repetition does not worsen our results on other variables and for the total population. These results are important to the extent that they increase our external validity. No wear-out effect seems to be observed among our population after 3 forced exposures, which can be assimilated to 6 under natural conditions (Rossiter and Thornton 2004). Considering six exposures as a relatively representative level of good exposure, it allows us to be comfortable with the fact that in natural viewing conditions, no wear-out effects are to be feared. It also seems that maladaptive coping behaviors due to repeated exposure of our target to threats present a low probability of occurrence, shedding some light on propositions referring to this eventuality in adult contexts (Gallopel-Morvan 2006).

Third, a significant link has been identified between attitude towards product categories and both intentions to consume and consumptions (the latter unidentified up to this point in our research). Repetition indeed appears to increase the predictive power of our variables. The part of variance explained in both intentions to consume and consumption by Apc systematically increased after three exposures to our ad, as compared to one exposure. One could explain the significant relationship identified after one exposure by the transposition of our “fruits and vegetables” scale into two scales (one measuring attitude towards fruits, the other one monitoring the attitude towards vegetables). Nevertheless, the upward shift after repetitions is manifest. This would
support previous findings arguing that repetition of an ad stimulus increased the salience of the product advertised which in turn allowed more prominent associations between products within the same category (Goldberg et al. 1978).

Fourth, although repetition could still be seen as unnecessary as far as the younger subjects of our target are concerned (and brought down to monetary aspects, it could be considered a waste of money), we believe otherwise. We have shown that increasing the number of exposures decreases the level of negative affective reactions reported by children. This level has dropped to a minimum level (overall evaluation) and is well beneath the levels of positive affective reactions elicited, leaving the child with an overall positive feeling. This analysis also stands for the most negatively felt emotion: sadness. The proportion of felt sadness after 3 exposures significantly dropped. We should emphasize that those negative affective reactions are not felt more intensely within the overweight groups of children, as compared to healthy weight group. Last, let us note that the level of reported personal relevance of the issue (“could this happen to you?”) has not decreased after three exposures to our stimulus. Therefore, we can conclude that repetition has an overall positive impact. It works efficiently at decreasing any form of lack of comfort that might be created by a single exposure although it does not decrease the effectiveness of our ads. Consequently, and this represents our fifth point, the ethical issue intrinsically linked to this research could also find in repetition further pro arguments. If indeed repeated viewings decrease the level of negative affective reactions elicited without loosing its effectiveness, this contributes to the shift the balance of consequences of acts in the expected directly, according to teleological theories. Further, answers provided by overweight children compared to healthy children did not show significant differences neither on vulnerability nor in negative affective reactions elicited. These elements undoubtedly contribute to the positive evaluation of our works’ ethicality.

Referring to the persuasion process at work with threat appeals, this experiment allows us to propose the following learning.

First, our findings do not offer support for the relationship repeatedly identified between the attitude towards the ad and the attitude towards the product category (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002b; Pecheux et al. 2006; Phelps and Hoy 1996; Vanhamme and Chiu 2008). This is unexpected for two main reasons. First, it was foreseen that repetition would enhance the strength of the Aad-Ab relationship (Phelps and Hoy 1996). Second, we proposed in our previous discussion that the strength of the relationship may depend on the extent to which the ad is liked. In experiment 2, the Aad-Ab relationship was not
significant and both arguments were encountered (single exposure, Aad experiment 2=13,79; Aad experiment 3=18,92). Consequently, we expected experiment 4 to provide further support for the relationship, the ads being identical to the one in experiment 3 and being repeated. Our findings do not support this hypothesis.

It appears that another essential variable to our research should be taken into consideration: the level of negative affective reactions elicited. The level of negative affective reactions in experiment 4 indeed revealed a higher score than in experiment 3 (Mean AREAD neg experiment 4: 1,78; Mean AREAD neg experiment 3=1,37), although Aad scores are not significantly different (Aad experiment 3= 18,92; Aad experiment 4= 19,29). Let us stress that it is the highest score of AREAD neg across all experiments. The observed relationship between the two variables in experiment 3 could then be explained by two co-occurring elements. First, the score of Aad is rather good and the level of negative affective reactions, although superior to the one of typical ads, remains low. This would be consistent with the literature.

This experiment also reveals that the negative affective reactions elicited by the ad do not seem to impact children’s attitude towards the ad to the extent we may have expected. Although children may experience “high” levels of negative affective reactions, they may still appreciate the ad. Relevancy could explain this phenomenon. It is common observation that children like watching scary cartoons. Furthermore, previous research on children indeed tend to show that relevancy represents an essential variable to advertising persuasion (Pynt Andersen 2007; Van Evra 1995). The first version of the audio-visual threat ad, used in experiment 2 may not have achieved to interest children in the same proportion. This would also explain the non significant results achieved in behavioral changes.

This experiment however confirmed both the practical validity of the attitude towards the brand/product category scale in predicting intentions to consume emphasized by Pecheux and Derbaix (2002b) and the predominance of the hedonic dimension of the scale over the utilitarian one. Further, our findings support the affective process hypothesis in threat appeals. In our experiment, the affective dimension of the attitude towards the product category predicted significantly the intentions to consume healthy food. The utilitarian dimension of the scale was never efficient at explaining the variance in the behavioral measurement, whatever the number of repetitions.

Let us also note that exposure to our stimulus did not seem to impact the attitude towards other product categories than the ones advertized (fruits and vegetables). Referring to children’s affective persuasion model, the absence of elaboration that characterizes them might not allow
them to transfer the ad’s recommendation to consume healthy food to the attitude towards unhealthy product categories. This might represent a too stretch out cognitive exercise that children are not able to make, even the oldest ones. However, affect may play a significant role in automatically motivating behaviors, without the need of cognitive processes (Epstein, 1994 in Finucane et al. 2000). The affect elicited by our stimulus may consequently lead to changes in unhealthy behaviors. This would consequently occur although the attitude variables are not affected. It has indeed been proposed that “using an overall, readily available affective impression can be far easier than weighting the pros and cons or retrieving from memory many relevant examples, especially when the required judgment or decision is complex or mental resources are limited” (Finucane et al. 2000 p3). We believe that “many relevant examples” can be understood here as “other food product categories than the one advertized”. Further, Epstein argues that “if the feelings are unpleasant, they motivate actions … to avoid the feelings” (Epstein, 1994 in Finucane et al. 2000 p2). Finucane and colleagues suggested that reliance on affect depends on the context. “Threat appeals promoting healthy food habits among child population” most certainly represents one of those.

Findings relative to the “vulnerability” variable have not provided all pieces of evidence expected. We have not been able to identify a direct influence of vulnerability on intentions to consume in child populations. Furthermore, although healthy consumptions seem moderated by vulnerability, an increased number of exposures neither did improve the correlation between variables nor the level of reported vulnerability. In fact, reported vulnerability after one exposure (2,66 out of 4) is correlated with the consumption of mandarins. After three exposures, this level decreases (2,57) and the relationship is not identified anymore. In our previous experiment, levels of reported vulnerability under low elaboration appeared somehow similar (2,8 out of 4; high elaboration: 2,28). These results would bear two consequences. First, effectiveness of threat ads would indeed depend on the level of perceived vulnerability. Second, children would feel more vulnerable under low elaboration. Although the first conclusion is consistent with PMT where vulnerability to the threat has been identified as a moderating variable of intentions and behaviors (Norman et al. 2005; Rogers 1975, 1983; Tanner et al. 1991), it would not depend on an appraisal of the threat, which is a cognitive mechanism. This discrepancy may be due to a different nature of vulnerability in preadolescents’ population. The extent to which they feel vulnerable to a threat might not be the result of an information process. Children do fear monsters although they are told that there is no genuine probability of occurrence. Consequently, they would act according to the affective state they are in, not according to some evaluative cognitive mechanism. Furthermore, elaboration may lead to maladaptive coping behaviors. They
may indeed attempt at reducing the negative affective state elicited through threat denial, inducing children to consciously minimize the level of vulnerability.

The affective route of persuasion is also sustained by the findings relative to the negative and positive affective reactions elicited by our ads. The significant influence of affective reactions of both valences on intentions to consume healthy food has been demonstrated. Experiment 3 did not produce these significant results for the negative ones. However, experiment 3 achieved lower levels of negative affective reactions (mean of all negative affective reactions: 1.37 (experiment 3) vs. 1.78 (experiment 4) out of 4). Furthermore, the impact of negative affective reactions has been expended to the consumption of mandarins, although three exposures were needed and the level of negative affective reactions then dropped. The reminiscence - as compared to the current experience- of the felt negative affective states may be sufficient to produce the behavioral changes. Both affective variables appear to play an important role in the persuasion process with threat appeals, which sustains the recent views of persuasion through threat appeals.

In sum, these various elements comfort the idea that children’s decision to consume might be driven by the mental short-cuts affective heuristic. Affective heuristics appear to be quite appropriate to our situation, target and context.

Then, it also appears reasonable to consider Social Learning (Bandura 1976) as a probable explanation to the implementation of the new behaviors. As proposed earlier, children would learn to adopt the adequate behavior by observing others –and more specifically, the consequences of others’ actions. Children, by mere imitation, and in order to avoid undesirable consequences would adopt the recommended behavior which, due to our experimental setting, would lead to decrease unhealthy consumptions.

Last, our results also confirm previous findings reporting that the fruits and vegetables’ promotion produces a halo effect on unhealthy foods consumption. Epstein indeed demonstrated repeatedly that actions in favor of the increase of fruits and vegetables intake indirectly and conversely impacted the consumption of fatty and sugary products while the reverse was not observed (Epstein et al. 2001; Epstein et al. 2008). As far as our results are concerned, repetition appeared to decrease the proportion of unhealthy food consumed. Although these results are not statistically valid on the younger population, older children’s consumptions of candies is conversely related to the number of exposures to threat ads.
Nevertheless, this fourth and last experiment—within the frame of this monograph—still presents many limits. Some are inherent to the exposure conditions of this experiment, settings that were not perfectly comparable with in-home viewing conditions. Others are induced by the original nature of our work: four experiments have not allowed us to answer all the questions raised by this topic.

Referring to the setting of our experiment, we of course have to consider the impact it may have had on the affective reactions experienced by the children. As stated by Derbaix and Brée (1997), producing “hot” psychological processes that cause emotions totally representative of those experienced in every day and normal life conditions is a difficult task. Further, the probability of discrepancies between results obtained after at-home viewing and our “forced exposure” conditions remain. However, the extent to which these discrepancies influence our conclusions is unknown. On the one hand, one could argue that forced exposure enhances the affective reactions elicited due to the higher level of attention devoted to our ads. On the other hand, children’s affective states prior to exposure have to be considered as very positive. We have indeed consistently noticed how enthusiastic children were about participating in our experiments. This indeed characterized children who demonstrate an equally high level of involvement whatever the task or object of interest (Brée 1990). Although a few minutes were devoted to (re)creation of a neutral mood for all children prior exposure, their affective state has not been measured at that time, our questionnaire being already rather long and repetitive. Therefore, a preexisting very positive state of mind may have impacted the level of negative affective reactions felt, diminishing accordingly the level of reported negative emotions and the impact on our results.

Other limits have to be mentioned. First and obviously, this fourth experiment has not enabled us to address the impact of all the numerous moderators identified in the literature on threat appeals and adults. For instance, considering the decrease in negative affective reactions reported and the estimated positive influence it has on the ethical issue linked to our research, one may regret that the impact of repetition on variables such as self-esteem was not checked. As argued in Chapter 1 of this research, evaluation of long term effects is crucial to assess ethicality. Further, considering the specific interest of this last experiment, this study has not allowed us to state whether a “wear-out” point exists. In other words, we do not know whether a decrease in effectiveness did not occur because we did not bring children to a sufficient level of repetition or because it just does not exist with this type of appeal and ad stimulus. We may have considered inappropriately 3 forced exposures to be equivalent to 6 viewings in natural setting, as proposed
by Rossiter and Thornton in adult contexts (Rossiter and Thornton 2004). It has been quoted earlier that children appear to be very much involved in all tasks they engage. Although our ad was not embedded in a program, forced exposure might not be so different to an “in-home” viewing after all, and as proposed by Derbaix and Brée (1997). This would also explain the fact that our experiment on repetition did not bring the results expected on personal relevance based on the literature (Van Evra 1995) and enhanced liking as a consequence of increased familiarity (Goldberg et al. 1978).

Furthermore, considering the potential maladaptive coping behaviors wear-out effect may produce, and although we supposed 3 forced exposures already substantial, this issue should not be overlooked.

Last but not least although repetition in our design meant time laps between the first and the last measurements, we still have little insights into the long term effects of threat appeals on our target. This has already been emphasized as a lacking element of research on threat appeals within adult populations (Hastings et al. 2004). Referring to the still “in psychological construction” status of our young target, long term pernicious effects should not be overlooked. It remains essential as far as ethics are concerned. However, we may estimate that this research provides very encouraging elements that may contribute to the positive evaluation of this issue.

As a concluding word, the findings achieved, advocating for the use of threat appeals among child populations as well as the limits of our work discussed above prompt to undertake further research. We propose to develop this in the discussion part of this dissertation.
Discussion & Conclusion
Discussion

Nowadays, most western societies face a major health crisis. Childhood obesity has reached epidemic proportion and the trend does not show signs of weakening. Although prevention programs are put into action, their effectiveness to curb the phenomenon remains insufficient (Goldberg and Gunasti 2006). Information to parents and children, training of professionals involved in children’s education, investments in school meals and sport infrastructures may not be the most aggressive tools to fight the current causes of this epidemic. Nowadays it is widely admitted that the trigger of this exponential increase is twofold: a poor diet and too little physical activities and this, unfortunately, is supported by one of children’s favorite hobbies: watching TV. We can indeed state that watching TV and most specifically, watching ads broadcasted on TV influences children’s food preferences (Hastings et al. 2003; Nestle 2006). Meanwhile, some countries developed policies in order to protect this population against this detrimental effect. However, an evident lack of sufficient, contextualized and up-to-date research restrains the support that the scientific world could provide. Waiting for those policies to arise, efficient actions that use weaknesses as forces may be undertaken.

This dissertation indeed proposed to adapt the capacity of TV advertising to change children’s food preferences to a promotion for healthy food. Building on from seminal research on children’s persuasion and adults’ health prevention theories, we postulated and demonstrated to some extent that “threat appeals” could significantly improve children’s perception of a healthy diet’s relevancy.

However, children differ from adults targets in various ways. Their reactions to advertising and the consequent persuasion do not rely on elaborations (Derbaix 1982; Derbaix and Brée 1997; Pecheux and Derbaix 2002a, b; Pecheux et al. 2006; Vanhamme and Chiu 2008). Albeit recent threat appeal research emphasizes the central role of affective variables in persuasion, dominant models sustain that effectiveness mainly depends on the appraisal of the threat and the coping behavior, which are both cognitive processes. Last, ethical issues appear all the more sensible in children’s contexts. Consequently, this dissertation proposes theoretical contributions, expanding knowledge on children’s advertising persuasion to negative and mixed affective reactions elicitation and on threat appeals to this specific target. Then, it also proposes concrete implications that are directly transposable into advertising campaigns. This was achieved through the four experiments of this dissertation, motivated by a structured understanding of children’s reactions to threat appeals and

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55 Unfortunately, commercials clearly presented as such in pods are not anymore the only means of promotion through the TV media. Product placement in films, for instance, is more and more common and this also profits to products. Actors – in other words, children’s hero or idols- endorse the consumption of this specific product.
their concrete ability to favorably change their food choices. These contributions and implications will be summed up and discussed hereunder.

**Theoretical contributions**

1. **Impact on advertising effectiveness indicators**

Our four experiments enabled us to state that threat appeals are more effective than typical ads when the purpose is changing favorably children’s healthy intakes. Children exposed to social threats consumed reliably more strawberries and less chocolate toffees than children exposed to ads using typical themes of advertising. Considering that ads and children assigned to the various experimental conditions only differed in the story told/heard (special attention was devoted to develop comparable executions), we may infer that these behavioral changes are due to social threat ads -and the consequent affective reactions elicited.

Furthermore, it appears that those negative affective reactions explain a significant proportion of variance in intentions to consume healthy foods (experiment 4). This relationship was not identified in experiment 3. However, levels of reported negative affective reactions were significantly lower in experiment 3 as compared to experiment 4 (Maread neg3=1.36; Mareadneg4=1.79; p<0.00; t=0.65). This would lead to two conclusions. First, effectiveness of threat appeals would increase according to the level of negative affective reactions elicited. Second, the perceived level of negative affective reactions would be individual-dependent. Children in experiment 3 and 4 were indeed exposed to the exactly same ad. The discrepancies between levels of reported affective reactions may be assumed as the consequence of different personalities. This would be consistent with Burnett and Oliver (1979) and Schoenbacher and Whittler (1996) who respectively proposed that personality traits and more specifically “sensation seeking” were moderators of threat appeals effectiveness. It is however noteworthy that child populations are usually considered less amenable to affective intensity discrepancies than adults. Although differences between individuals may be observed, children are generally characterized by an overall higher level of sensitivity. In other words, individual differences would concern the scale’s positive extreme, albeit all children would be affected by threat appeals. Generally speaking, those findings also support a current trend of research on threat appeals who argue that negative affective reactions are not a by-product in the persuasion process (Gallope-Morvan 2006; Gallope and Valette-Florence 2002; Lavoisier-Mérieux 2002; Milne et al. 2000; Norman et al. 2005; Umeh 2004).
Nevertheless, our findings also present discrepancies with the literature. For instance, attitude towards the product category have never been affected by exposure to social threat ads in a different way than under typical ads exposure. Similarly, intentions to consume were never reliably increased, although they followed the expected direction. Referring to previous research, this is somehow unexpected. It has indeed been demonstrated that changes in attitude towards the product category will in turn impact intentions to consume that will eventually affect consumptions. In our context, changes in consumption happened without these preliminary modifications.

Affective heuristics appear a plausible explanation of this phenomenon. Bazerman and Moore (2009, 2003) and Kahneman (2003) state that affective heuristics use affective and emotional cues to make choice. Epstein (1994) in Finucane et al. (2000) argues that affect may play a significant role in automatically motivating behaviors and that a specifically unpleasant state motivates actions that will eventually relieve from this affective state. Furthermore, Finucane and her colleagues demonstrated that heuristics may replace deep reasoning when cognitive abilities are restrained, an undisputable characteristics of children. Then, Gorn and Goldberg (1977) propose that verbal responses and behaviors change at different thresholds. Our specific emotional context and target may induce adaptations in an unexpected sequence, affecting first behaviors and later attitudes. This assumption would be sustained by results obtained on the oldest children of our target, after three exposures. Positive changes in attitude towards fruits and vegetables were indeed identified under such conditions. Changes of attitude would appear later than behavioral changes within individual presenting less cognitive restraints.

It also seems relevant to refer to Bandura’s Social Theory to explain the changes encountered in behaviours (Bandura 1970, 1976, 1977). According to Bandura, people indeed learn through observing others and more specifically through observing the outcomes of those behaviours. Individuals would indeed learn to replicate behaviours if the outcome is desirable. In contrast, undesirable consequences would be avoided by adopting opposite behaviors. In the context of food experiences, Social Theory (or Observational Learning) has also been proposed as the learning process at work and this, most specifically on children (Ayadi 2005). Further, changes in selection of food in choices situations, have also been explained by the social influences procedures, preschoolers opting for non preferred food by mere imitation of the group’s choices (Birch 1991). The situations depicted in our ads, and more specifically, the positive outcomes resulting from compliance with recommendations described (as compared to the negative ones presented in the threatening section) could serve as observational items. Furthermore, similar peers acting as models in our ads probably enhanced the learning (Pajares 2005). Children were consequently led to imitate the actions that
resulted in a positive outcome, which would explain their behavioral choices post experiment. This explanation would be sustained by previous research in the topic. It has indeed been concluded that only interventions developed around theoretical models such as Social Learning Theory were able to bring about behavioral changes, the knowledge children gain from typical information approaches not being sufficient (Bullen and Benton 2004).

Another alternative explanation to the absence of attitude changes may be found in our experiments measurement instruments. Following literature’s recommendations, we opted at first for the use of a validated scale of the attitude towards brands (Pecheux and Derbaix 1999) to monitor attitudes towards the product category. We were however soon prompted to investigate the extent to which this scale was appropriate to our specific context. Fishbein and Ajzen first introduced the idea that attitude towards the act might be a better predictor of intentions to behave than attitude towards a brand, and this specifically in “social” situations (Ajzen and Fishbein 1977; Ajzen and Fishbein 1980; Fishbein and Ajzen 1975). Agreeing that one may indeed have a very positive attitude towards chocolate without having such an unconditional attitude towards the act of consuming chocolate, we tried to amend our evaluations with items that included the act of consuming. However, this did not allow us to infer reliable conclusions. Attitude towards the act never predicted more significantly intentions to consume than our initial attitude towards the product category scale. We yet realize that this issue would require further research. We indeed used only 2 items to measure this attitude and referred to mandarins. The attitude towards the brand scale counts 6 items and refereed to fruits and vegetables. Our ad promoted “fruits and vegetables”. The extent to which these discrepancies are responsible for our results is not yet clear and would deserve further inquiry.

Then, this research was also expected to shed some light on the impact of the positive vs. negative orientation of our message, topic particularly relevant to social marketing studies. Our results did not provide evidence that sustains the hypothesis of an existing more relevant frame. This is consistent with our expectations. We indeed argued that children’s reactions to ads constructed around the promotion of fruits and vegetables’ consumption (positive-oriented) would not be significantly different than those of preadolescents exposed to messages preventing the intake of fat and sugar (negative-oriented), considering the low level of elaboration that characterizes these individuals in such exposure situations. Positive-oriented commercials did not enhance children’s consumption of fruits in a significantly greater proportion than those exposed to the negative-oriented ad. Nevertheless, children in the first situation ate fewer candies than children in the second, although the difference is not significant. Referring to Epstein and his colleagues (Epstein et al. 2001; Epstein
et al. 2008), as far as the first situation is concerned (positive-oriented), we may explain these findings through a halo-effect of campaigns that emphasizes the importance of healthy food. Increasing the intake of fruits would naturally impact the consumption of candies, the first being a substitute to the second. However, results may be an artifact of our experimental setting. Children may have increased their consumption of fruits because they wanted to avoid the candies on the plate and conversely. Let us indeed remind that fruits was the only alternative available in our experimental setting. We do not know whether this would be observed in a natural setting where many other food options are available.

Findings on attitude towards the ad and its relationship to ad effectiveness obtained in experiment II also participate in the original contributions of this dissertation. We have indeed shown that the most appreciated ad was not necessarily the most efficient in convincing to consume fruits and vegetables in experiment 2. Scores on the attitude towards the ad scale of our threat ad were significantly lower than the one of our typical ad. However, our children exposed to the threat ads reported the highest intentions to consume healthy food. Although this is consistent with threat appeals literature exploring adults, it may appear contradictory to children’s persuasion process. Let us however emphasize that negative affective reactions have been here elicited, which represents an original aspect comparing to previous research. We have nevertheless acquired evidence that this does not imply that under those negative affective states the persuasion process becomes cognitive, as it will be exposed in the section below.

2. Persuasion mechanisms and processes

Our third experiment represents a first step towards an understanding of the persuasion process under threats appeals. This was achieved through the use of an introductory question requesting children to “tell all that went through their minds during or after viewing the program”. This procedure, already successfully operationalized with children (Brucks et al. 1988; Pecheux and Derbaix 2002b) and young adolescents (Schoenbachler and Whittler 1996), enabled us to manipulate the level of elaboration. This questioning would automatically induce a higher level elaboration than what children would normally do. We expected that low elaboration would enhance the effectiveness of our message, consistent with the advertising persuasion process demonstrated when children are considered (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002a, b; Pecheux et al. 2006; Vanhamme and Chiu 2008).
Findings show that when children are forced to elaborate on the ad, they consume significantly less fruits. This would tend to support the affective route of persuasion. Effectiveness does not improve when children are asked to think about what they saw, which would argue in favor of a persuasion based on arguments and beliefs, a central route of persuasion (Petty et al. 1983).

Although this sustains the literature, it could be argued that beliefs, if they exist, do not generally affect children’s persuasion and that consequently effectiveness should not be lower in case of high elaboration. However, we argue that our “threat” context is responsible for this original situation. The “vulnerability” variable, for instance, offers support to this inference. Measure of “vulnerability” enabled us to infer the extent to which this issue was relevant to our target, in other words, how much children feared that social exclusion could happen to them. We observed that children who elaborate the most reported significantly less vulnerability to the issue. We interpret this as a maladaptive coping behavior. In order to be relieved from the uncomfortable feelings elicited by the ad, children who are asked to think about this ad tend to deny the risk they are exposed to. It indeed seems that this introductionary question created processes that would not have existed otherwise.

The content analysis of children’s thoughts revealed no counterarguments to the exception of one boy who explicitly mentioned that although the story was right, one candy couldn’t “harm” him. This is typical of an avoiding behavior “after thoughts”. This does not appear to occur with children who are not requested to elaborate and who consequently consumed more fruits, the coping behavior recommended. Consequently, assessment of children’s vulnerability perception should not be considered a cognitive construct, such as the one proposed in adult literature (Rogers 1975, 1983). We believe that to the most, it would be representative of a “hot cognition”, such as proposed by Lazarus and Folkman (1984) in Norman et al. (2005). Authors indeed consider that in health-contexts, it is commonly observed that what could be assumed to be the result of a deep reasoning under other circumstances becomes emotional.

Our experiments also enable us to propose a first model of persuasion under threats appeals. As mentioned above, positive affective reactions are correlated with the attitude towards the ad and the attitude towards the fruits and vegetables (experiment 3 and 4).

As far as the attitude towards the ad is concerned, our findings require further thoughts. Our experiments did not reveal a stable relationship between the attitude towards the ad and the attitude towards the product category. Experiment 2 did not provide support for the relationship. It appears that the low Attitude towards the ad scores (13,79; min 6; max .24) as compared to Aad in experiment 3 (18,92) and Aad in experiment 4 (19,29) and the levels of negative affective reactions elicited (AREAD neg =1,53; min 1, max.4) may explain these findings. Levels of negative affective
reactions in experiment 4 would sustain this explanation (AREAD neg=1,79). Although scores on Aad have significantly improved (Aad=19,29), the appreciable negative affective reactions would cause this “not mediated by Aad” original process of persuasion. The level of AREAD in experiment 4 represents the highest level across all our experiments. It probably explains the AREADneg-Apc significant relationship identified (while it was not in experiment 3). Through this fourth experiment, we also showed a significant relationship between AREAD neg and Intentions to Consume healthy food, consistent with threat appeal research (Milne et al. 2000) and sustaining the importance of the affective variable in persuasion. This would indeed sustain the affective persuasion processes hypothesis, although the Aad-Ab relationship is not significant.

Results of experiment 3 further sustain this assumption. The scores of Aad (18,92) and of AREAD neg (1,37) offer more comparable results to typical ads where the Aad-Apc relationship is consistently shown (Derbaix and Brée 1997; Moore and Lutz 2000; Pecheux and Derbaix 2002b; Pecheux et al. 2006; Phelps and Hoy 1996; Vanhamme and Chiu 2008). Although interesting, these findings require further investigation. Limited to two experiments, it indeed appear hasty to conclude that threat appeals -and negative affective contexts- are tantamount of an original model of persuasion among children, in which the Aad-Ab relationship has no place.

Last, let us note that the “disgusted” affective variables was often one of the most sensible across all our experiments. In previous research, this specific emotion had been shown as a potentially powerful trigger for social advertising in child populations (Vanhamme and Chiu 2008). Our findings offer support to these conclusions.

Other variables offer support to the literature (Pecheux and Derbaix 2002b; Phelps and Hoy 1996). Attitude towards the product category (Apc) for instance influenced the intentions to consume and the consumptions. Then, although experiment 4 did not support the relationship between Aad and Apc, it completed this model by introducing Prior Attitude towards the product category and vulnerability. As expected, prior attitude significantly predicted post exposure attitude and this, to a greater extent than affective reactions elicited by the ad, which is consistent with Derbaix and Brée (1997). This influence is also noticeable on consumptions and remains whatever the number of exposures. Last, vulnerability also appeared correlated with healthy consumptions. This direct influence (not impacting intentions to consume) would also contribute to asserting that affective heuristics and observational learning explanations of positive changes restricted to behaviors. Perception of situation similarities indeed represents a key concept for the imitation to occur, which would justify the behavioral -without attitudinal- changes.
Experiment 4 also taught us that repeated viewings did not impact negatively threat ads effectiveness, to the contrary. It could indeed be expected that repetitive viewings of dangers and threats would cause rejection or denial (Gallopel-Morvan 2006). However, and although it did not improve results on advertising effectiveness indicators, the reported level of negative affective reactions decreased without decreasing the fruits intake. This is consistent with one of the scarce studies to have analyzed this phenomenon on an older target (young adults) and the context was a safe-driving issue (Rossiter and Thornton 2004). Nevertheless, this is not anecdotal. It allows us to argue that if any uncomfortable feelings arise from a single exposure, this state practically disappears after three exposures. The benefit of this advertising campaigns remains, although its potentially negative aspects recede. Eventually, this may contribute to the teleological evaluation of threat appeals for children’s ethicality, as it will be discussed in the following section.

3. Ethical concerns relative to the use of threat appeals on preadolescents

In our first chapter in section 1.5., different theories and approaches were proposed in order to evaluate the ethicality of actions. As briefly suggested above, our ads’ effectiveness provides support to an ethical teleological reasoning. This moral perspective indeed considers the consequences of acts to be the guideline of morality. First, our threatening ads appear to effectively persuade children of consuming more fruits and fewer candies. Second, the levels of negative affective reactions elicited never reached extreme levels and repeated exposures significantly decreased those reported levels although effectiveness (evaluated through children’s consumptions) remained. This is consistent with experts (psychiatrists) consulted on the topic who approved our technique when the above-mentioned condition were respected. Third, our findings did not highlight differences between obese children and non obese ones in their reactions to our threat ads. Obese children’s ad evaluation stands comparison to that of other children and their reported affective reactions were also equal, to the exception of “disgusted” which they evaluated slightly better. Fourth, a teleological perspective also considers alternatives’ effectiveness for current actions’ evaluations. Referring to criticisms according to which prevention programs lack abilities to change behaviors (Bullen and Benton 2004), we are confident this supports our action’s ethicality. These various elements, which reflect the positive (short term) consequences of our acts, sustain to a considerable extent the ethicality of threat appeals in our context, according to the Teleological Moral Reasoning Theory. Nevertheless, it appears important to emphasize the fact that we lack knowledge on the psychological consequences of these ads in the longer run. These, of course, also intervene in the evaluation according to teleological view. We cannot provide insights on this issue.
The Deontological Moral Reasoning Theory, which focuses on the intrinsic morality of the acts, would however probably consider the levels of negative affective reactions elicited in order to evaluate the ethicality of our ads. Our mean remained low (generally, under 2 on a scale varying between 1 and 4), probably supporting the ethicality of threat ads use. Although our scientific objective (determining the persuasion potential of negative affective reactions) forced us to produce ads that would probably be considered rather harsh by many adults, children’s evaluations do not appear to support this perception. Even though some social desirability may explain the phenomenon, we believe more reasonable to state that being a child is a harsh experience that teaches them to cope with cruel situations. Nevertheless, we stressed earlier that inter-individual differences exist. We cannot deny the possibility that some isolated children would be particularly shocked by threat ads. If that should be the case, deontology would consider our ads unethical. Furthermore, research in marketing ethics also emphasizes the relevancy of evaluating the target’s perception of ethicality of a specific advertising campaign. This should probably be a wise next step in this research. Rothschild (2000) further proposes that for social marketing campaigns, tax payer’s perspectives should be integrated. He indeed argues that “trading off effectiveness for a noble manner of execution, the manager may currently be behaving in an unethical manner towards the funders of the programs” (Rothschild 2000 p29). Guiding our analysis, it also seems interesting to mention that instances responsible for the respect of ethicality in advertising practices in Belgium (the JEP) are prone to adopt what could be assimilated to a teleological moral reasoning. Professor Patrick De Pelsmacker, a member of the instance consulted on the topic, confirms that current discussions on the issue tend to allow more controversial ads when benefits for the society or for individuals may result from these campaigns then what would be tolerated for a profit-oriented company or product.

Many views appear necessary to assess actions’ ethicality. Consequently, it appears that the ethical question will most probably not find an indisputable answer here. Furthermore, long term consequences of threatening ads on children have not been fully evaluated yet. We argue that before any broadcasting may be considered, the short and long term psychological consequences should be investigated.

Keeping these in mind, we propose to summarize in the next section the concrete contributions of this research
Practical implications

First, let us stress that it appears possible to develop “likeable” threat ads. Although they may not win acclaim to the same extent some branded commercials do, our threat ads reached satisfactory scores on the Attitude towards the ad scales, which is encouraging considering the non professional technical means used. This concretely means that in “real-life” situations the risk of zapping may be considerably limited if professional techniques support the ads' development.

Referring to the type of media issue, our preliminary experiment used print media to test our hypotheses. Our second experiment relied on audio-visual means to improve our advertising stimuli and consequently strengthen our findings. This improvement however was not manifest. Nevertheless, we decided to work further with audio-visual ads, which undoubtedly present numerous advantages. First, TV is the most adequate media for children. TV is part of their everyday life, and this cannot be assumed for other types of media. Consequently, the audience will be larger. Third, it has been argued that broadcasting healthy food commercials would in all instances contribute to rebalance the distorted vision children have of a normal diet (Goldberg and Gunasti 2006). The profusion of junk food commercials indeed impacts the notion that children may have of the right proportion of this type of products in a healthy diet. Increasing the promotion for healthy food should contribute to a restored perspective. Last, advertising agencies’ art director and copy will most certainly appreciate the extra potential audio-visual ads offer when trying to elicit negative affective reactions within the ethical limit.

Finally, the last managerial contribution of this work concerns the influence of “prior” attitude towards the fruits and vegetables (attitude reported by children prior to our experiment) appear to have on their consumptions. Even though exposure to our threat ads appeared to significantly impact children’s healthy consumptions, the part of variance in healthy consumptions explained by prior attitudes remains important. It implies that all possible energy should be devoted to the construction of positive attitude towards healthy food from children’s early years on.

Limits

This research however presents numerous limits. Whatever our struggle to improve our experiment settings and designs at each phase, we did not succeed in avoiding all possible bias when working with children.
Referring to our methodology, three main limits have to be pointed out. First, children were never interviewed alone. This was mainly imposed by schools, but it nevertheless served our objective to some extent. Our issue being somewhat “touchy”, a friend’s presence both avoided extreme shyness and boasting. However, as argued by Derbaix and Brée (1997), it consequently becomes harder to disentangle the sources of affective reactions. We cannot state without doubts that all reported affective reactions are elicited by the ad, and not by the mere presence of the fellow child (and his own reactions).

Second, biases due to our specific settings are possible. Our ads were not embedded in programs and this may have influenced our results or may have impacted the scope of our findings. We argued earlier, however, that considering our original context (elicitation of negative affective reactions), this setting could increase the comparability of level of attention granted to both the typical and the threatening ad for which we expected greater attention. We consequently argue that it increases the internal validity of our results. Nevertheless, we cannot rule out the possibility that it decreases its external one.

Third, considering the importance of the affective variables in our research, we cannot ignore the possible drawbacks of verbal measures. It has indeed been argued -and can be intuitively be appreciated- that verbal affective reactions represent the inevitable result of both affective and cognitive processes (Cohen, 1991 in Derbaix and Brée, 1997). Although Derbaix and Brée demonstrated on children that non verbal measures (such as facial coding) did not improve the explanatory capability of their model, our specific negative affective context may lead to different conclusions.

This measurement instrument issue also concerns the attitude towards the ad and towards the product category. As stressed earlier, questions to the adequacy of the scales used in our specific context remain. Then, we also emphasized at some point in our research that relationships between variables may be difficult to identify. For instance, healthy intentions to consume were monitored through a collection of food choice situations which better grasp the multi-faceted character of eating. Our healthy behaviors were measured through strawberries (experiment 3) and mandarins (experiment 4). Our ads recommended increasing consumption of fruits and vegetables. To this point in our research, we do not know which impact these discrepancies may have had on our findings.

Another important limit concerns the durability of our ad’s influence. Behavioral measurements were indeed taken immediately after exposure. Although results achieved after three exposures when negative affective states have decreased support the remanence principle of the phenomenon, this
should be confirmed. Considering the “affective heuristics” explanation of behavioral changes proposed, we have to consider that our results may not be reliable in the medium or long term, or, in other words, when the affective state has vanished. We have indeed so far little insight on children’s memory of the ad and its impact on behaviors. In contrast, the Social Learning Theory would provide support for the LT effects assumption. Nevertheless, it would still need to be tested.

Corollary of this, and as stressed earlier, our experiments did not enable us to gain information on the long terms effects of threat appeals on preadolescents. Although experiment 4 was stretched on a three weeks period, this represents definitely a too shorter time lapse to evaluate potential detrimental effects, on self-esteem, for instance.

Then, many studies on threats appeals have emphasized how contextual the effectiveness was (Donovan and Henley 2003; Gallopel-Morvan 2006; Norman et al. 2005). This research may not be an exception. For instance, we do not know to what extent our results are generalizable to other health-issue.

Further research is consequently required.

**Further research**

The limits mentioned above induce many original studies. We have classified them according to the specific topic they are related to.

1) **Nature of threats**

Our preliminary and second experiments did not allow us to adequately evaluate the potential of physical or health threats as compared to social threats. Although literature on slightly older children argue that social threats are the most efficient ones (Pechmann et al. 2003; Schoenbachler and Whittler 1996), this issue remains open in our context and with our target. First, data collected in experiment 3 did not enable us to evaluate the persuasion potential of threat on the physical capacities of children. Then, it could be argued that our “physical threat” pictured in experiment 1 also conveyed a social dimension. Although the obese child depicted was exercising, it is possible that the background would lead to assimilate the scene to school’s everyday life, which in turn reflects social interactions. Clearer situations would be required to test this assumption of considerable interest. Findings would represent a non negligible contribution to the ethical question.
raised by this research. According to teleological reasoning and authors involved in social marketing, social threats superior effectiveness would justify its use (Andreasen 2006; Donovan and Henley 2003; Hunt and Vitell 1993a).

2) Measurement instruments issue
Experiments that limit measurements to attitude and behaviors should be conducted. After two experiments and nearly four hundred children interviewed, we are able to state that our ads elicit negative affective reactions. Our measurements can consequently be restricted to attitudinal and behavioral measures. This will offer the non negligible advantage of limiting biases due to the measurements of affective variables through the use of verbal instruments to the minimum. Nevertheless, recent research has provided interesting means to search further those affective variables. For instance, the NUKI Emotion Measurement Instrument appears very promising (Vanhamme and Chiu 2008). It would allow monitoring children’s non-verbal self-reported emotions without going through the restrictive instrument that face coding represents.

Then, attitude towards healthy food could also be measured with the help of the techniques such as the one offered in the Implicit Association Test56. This test indeed proposes to measure attitudes that are not explicit. In other words, attitudes that are not necessarily conscious may be measured. They do not need to be cognitively assessed to be expressed, which avoid social desirability to a large extent. Simpler tests, using children’s response latency (Aaker et al. 1980) could also be considered and would probably be more adequate to the specific target. Investigations on the topic appear valuable.

3) Moderating/mediating variables
Although this research shed some light on the role of various mediating or moderating variables, some essential ones - or identified as such in previous research within the adult populations - remain unstudied. Two constructs appear particularly relevant to analyze: self-efficacy and self esteem. Self-efficacy’s influence on successful social behavioral changes has been demonstrated in many instances (Bandura 1977). Furthermore, its impact has been also shown in the specific contexts of threat appeals (Hastings et al. 2004) and in health related issues (Block and Keller 1997). Self-efficacy raises viewers’ expectations that they are capable of acting (Bandura, 2977). In other words, this corresponds to empowering the target to apply the recommended behavior, an essential determinant to effectiveness (Pajares 2005). Nevertheless, we do not know the extent to which it is probable that

56 Implicit Association Test, https://implicit.harvard.edu/implicit/demo/, retrieved from the internet on the 30th of April, 2009
children will get involved in an appraisal process during their advertising exposure. Furthermore, although self-efficacy perceptions have been usually considered quite rigid (Bandura 1977), we may expect children to be less bounded by perception on their abilities on such topics. Consequently, self-efficacy variable appears particularly relevant to study within child populations in an advertising context.

Studying self-esteem may also represent an essential contribution to this research. Many personality traits have indeed been identified as moderators of threat appeals effectiveness (Burnett and Oliver 1979; Gallopel-Morvan 2006; Hastings et al. 2004; Schoenbachler and Whittler 1996). Our research, combining social threats and children as target, calls for extreme vigilance for detrimental consequences on self-esteem. Unfortunately, albeit recent research on the impact advertising may have on young girls and women’s image exist (Martin and Kennedy 1993; Smeesters and Mandel 2006), information relative to the issue as far as preadolescents girls are concerned do not provide a clear frame for our own research. Further inquiries that will eventually contribute to the ethics of our work are required.

4) Ethics.

As stated earlier, it is not possible, at this stage in our research, to propose an undisputable answer to the ethical question. Nevertheless, further research could be undertaken. First, we propose to investigate the target’ or relevant adults’ perceptions of threat appeals use on preadolescents. Tax payer’s view could also be requested. According to literature, this would also allow us to evaluate the impact of perceived ethicality on effectiveness. Second, it appears interesting to test Hunt and Vitell’s model (Hunt and Vitell 1993a, b, 2006), following Mayo and Marks’ example (Mayo and Marks 1990) in order to evaluate managers and other involved official’s perceptions. If positive, those two studies would offer strong evidence of threat appeal’s ethicality.

Concluding word

The worrying increase in overweight children proportion and the burden it represents on their health cannot leave impervious. It has consequently been proven rather difficult to impose distance from the encouraging results achieved. Behavioral changes in children’s diet indeed appear scarce, whatever the knowledge improvement brought by previous prevention programs (Bullen and Benton 2004; Stice et al. 2006). It however appears necessary to add perspective into the analysis of the
threat appeals mean relevancy. To conclude our study, we propose some last thoughts to be considered.

One could for instance question the relevancy or importance of specifically targeting children. Leaving the debate to adulthood, when the individuals are better armed to face the multiple aspects of obesity may indeed sound wise.

Joy Blakeslee, RD and expert for the United Nations Food and Agriculture Organization, provides a first hint to answer. He indeed proposes that good eating habits formed in childhood promote lifelong health. This supports the assumption that healthy eating behaviors constructed as a child remain in adulthood, our ground argument to this research. Then, it should also be reminded that up to 70% of obese children will still present this characteristic in adulthood. Research demonstrating that prevention remains the only non-surgical cure to the obesity epidemic (Ebbeling et al. 2002; Wofford 2008) provides further support to actions addressing the early stages of life.

Then, it could be argued that targeting parents is more sensible, adults being responsible of their child’s education and health. Researchers focusing into social issues however conclude that increasing the target’s motivation is one of the key elements that determine success over failure (Andreasen 2006; Goldberg and Gunasti 2006; Ölander and Thogersen 1995; Rothschild 1999). It is further known that children prefer food they have chosen themselves (Schwartz and Puhl 2003). Finding means that persuade children of the need of a balanced die, and not merely force them to act out of obedience increases chances of positive results. This is what threat appeals seem to be able to do.

It could also be suggested to use other means than threat ads, mainly for ethical reasons. Advertising however appears a reasonable choice in various respects. First, it would contribute to restore children’s distorted perception that healthy food is not fashionable, not “cool” (Goldberg and Gunasti 2006). Second, it has been proven an effective tool in improving other educational techniques’ success rate (Pechmann 1997). Third, threat ads have been demonstrated effective in changing behaviors, a too scarce achievement for many obesity prevention programs. Last, let us not forget that threat appeals may be operationalized in many different ways. Shocking executions may not necessarily be required in order to achieve effectiveness. Our scientific objective called for non

mild appeals. It could however be interesting to investigate different executional means (including scenarios) and their impact on the levels of negative affective reactions elicited and effectiveness. We are further confident that professional techniques would enable the development of more subtle ways than ours.

Nevertheless, we realized that as far as ethicality is concerned, we were not able to provide an undisputable answer. Although it may be argued that such topics will probably never be acclaimed unanimously, we believe that more research could and should be conducted in order to evaluate their degree of acceptance by the various actors in the issue (professionals in children education, parents..). The potential detrimental long term consequences on the target represent another question to be addressed.

We consequently hope that this dissertation has raised interest and that the years to come will see answers to our questions. We indeed strongly believe in our topic. We however realize that alternative views may temper our enthusiasm.

Hopefully, other researchers will be inspired by the topic and may provide further insights to the issue, as we will try to do.
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