

# Attention, emotions and cause-related marketing effectiveness

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## Abstract

**Purpose** – The purpose of this study is to explain how cognitive and emotional responses may influence decisions to purchase cause-related products.

**Design/methodology/approach** – An experimental design clarifies how autonomic reactions determine altruistic choices in a simulated shopping environment. Eye-tracking and electrodermal response measurements were set to predict choices of hedonic vs utilitarian cause-related vs unrelated products.

**Findings** – Emotional arousal, pleasure and attention to the cause-related bundle are associated with altruistic behaviour in hedonic choices. When facing utilitarian choices, customers focus on brand logo and donation amount while experiencing pleasure, but emotional arousal does not increase marketing effectiveness in this case.

**Research limitations/implications** – The experiment may be replicated in the real-world shopping environment, but spurious influences will be difficult to control. Distracting cues such as background music and scents used to increase positive emotions may affect intensity of emotive and cognitive processes.

**Practical implications** – The results highlight the prominence of automatic reactions in customers' choices. In the present instance, managers' effort should be directed to the raising of altruistic visual cues of the donation-based promotion and positive emotional responses through guilt reducing effects.

**Originality/value** – The study pioneers the use of eye-tracking coupled with skin conductance measurement in experimental designs aimed at clarifying the role of autonomic reactions such as emotional arousal, pleasure and attention in the effectiveness of emotionally charged marketing campaigns.

**Keywords** Cause-related marketing, Eye-tracking, Skin conductance

**Paper type** Research paper

## 1. Introduction

The extant literature has identified major drivers of consumers' altruistic purchasing decisions, namely familiarity with the cause (Lafferty *et al.*, 2004; Lafferty and Goldsmith, 2005), charity efficiency (Winterich and Barone, 2011), brand-cause fit (Pracejus and Olsen, 2004; Bigné *et al.*, 2012), self-construal and identity salience (Winterich and Barone, 2011), donation magnitude (Strahilevitz, 1999; Chang, 2008; Folse *et al.*, 2010), perceived motivations of the retailer towards the cause (Barone *et al.*, 2000, 2007) or the type of product on sale (Strahilevitz and Myers, 1998; Chang, 2008). However, such research relies on the use of surveys and rationalised intentions, unable to fully assess the role of cognitive and emotional reactions that may arise in a purchasing decision. Autonomic reactions may escape surveys and rationalised



intentions, yet they are known to influence the final purchasing choice (Poels and Dewitte, 2006; Vieira, 2013).

The complexity and abundance of stimuli during purchase decisions may influence consumers' cognitive and emotional state which, in turn, may trigger approach or avoidance responses (Mehrabian and Russel, 1974; Lam, 2001). Every product on the shelf competes for consumer's attention. More attention to a product increases its odds of entering the consideration set and, therefore, to be selected (Pieters and Warlop, 1999). Following attentional focus, consumers may feel different levels of pleasure, arousal or sense of domain when faced with the multiple cues in the shelf (Donovan and Rossiter, 1982). Given the complexity of such conflicting reactions, further research is required to uncover whether and how organismic responses mediate cause-related marketing effectiveness. This study contributes to fill such a gap.

The remaining part of this paper first reviews the most important drivers of cause-related marketing effectiveness. Next, the research framework and conceptual model are presented along with the formulated hypotheses. The subsequent section describes the experimental design. Finally, empirical findings are reported and the paper concludes by discussing implications of such findings along with the limitations of the study.

## 2. Cause-related marketing

The literature defines cause-related marketing as the design of corporate initiatives that enable charities to profit from a revenue-providing exchange that fits both the customer and company objectives (Varadarajan and Menon, 1988). Previous research suggests that altruistic behaviour is driven by moral emotions such as pride and guilt (Kim and Johnson, 2013). Strahilevitz and Myers (1998) studied cause-related marketing efficiency on a set of different categories of products, which they called frivolous (hedonic) and practical (utilitarian). They found that consumers prefer charity incentives, rather than promotions when buying frivolous versus practical products. Significant differences in cause-related marketing efficiency are to be expected between hedonic products such as chocolate truffles and utilitarian products such as laundry detergents. Consumers who buy hedonic products are predisposed to be generous because egoistic altruism acts as a "warm glow", which minimises the guilt from individualistic pleasure associated with indulgent products (Andreoni, 1992; Winterich and Barone, 2011; Yeung and Wyer, 2004). However, when buying utilitarian products, consumers have a well-defined task ahead, namely to fulfil some functional need.

In the case of donation-based products, the attitude towards the brand is particularly positive when such a brand is familiar to the consumer (Lafferty and Goldsmith, 2005). Thus, alliances between a brand and charity may improve brand image (Vanhamme *et al.*, 2012). The motivation of a company to support a cause is another key determinant of cause-related marketing effectiveness (Barone *et al.*, 2000): when a company supports a cause, consumers may remain sceptical or may question whether the cause is helping the brand or the other way around. Unfamiliarity with cause-related marketing claims may also add to consumers' scepticism (Singh *et al.*, 2009). The image of the brand regarding its efficiency in helping charities is of utmost importance to reduce consumer scepticism, and it depends on charities efficiency in using donors' money to positively impact society. Perceived lack of efficiency in the part of charities may lead consumers

to be sceptical towards the alliance between the sponsor and the cause and less prone to buy cause-related products (Winterich and Barone, 2011).

Brand/cause fit is another factor capable of amplifying positive responses towards cause-related products (Pracejus and Olsen, 2004). A cause that matches consumers' identity should be partnered with a congruent brand to become a high-fit cause-related bundle. For example, Kellogg's gives a child a breakfast campaign. If consumers perceive that the brand's core business is not tied to the supported cause, for example, a tobacco company supporting a cause for fighting cancer, the probability that consumers choose such cause-related product is significantly lower (Pracejus and Olsen, 2004). However, such an effect was found to be less significant when the company is not motivated to support the cause or when consumers are familiar with the cause (Zdravkovic *et al.*, 2010).

Other factors that may influence the choice of brand-cause alliances relate to the campaign design, rather than to features of the companies involved. Cause-related marketing campaigns with a fixed donation per product, for example, where €1 of the product is donated, are more effective than where the donation is a percentage of the product's price (Chang, 2008). Where contribution increases with price, the likelihood of consumers selecting cause-related products decreases (Chang, 2008; Subrahmanyam, 2004).

### 3. Theoretical framework

The theoretical framework underlying this study is Mehrabian and Russel's (1974) Stimulus–Organism–Response (S–O–R) theory. Using S–O–R, several authors have empirically tested and confirmed significant aspects of emotional reactions on consumer choice, as evidenced by the meta-analysis conducted by Vieira (2013). Namely, it was found that, shopping behaviour is mediated by internal cognition perceptions such as those captured by visual attention during information search (Lam, 2001). The salience of particular stimuli, for example, a donation to a cause, may influence the approach behaviour and the subsequent information search process. Empirical evidence also suggests that visual attention induces a positive response towards brand choice. The ability to track visual attention shows that brand choice can be predicted by information search patterns (Pieters and Warlop, 1999).

Due to the success of social marketing campaigns in recent years, supermarket shelves are bursting with cause-related products competing for attention. Under such a complex environment, emotions and cognition are expected to guide responses towards approach or avoidance behaviours (Lam, 2001). As a consequence, emotional mechanisms and attentional processing of information become key elements in judgement. Changes in familiarity with products exposed in the shelf, or some surprising events in the shopping environment, may lead to organismic responses (Donovan and Rossiter, 1982; Mehrabian and Russel, 1974). Organismic responses, in turn, act through consumers' emotional states along three dimensions, arousal, pleasure and dominance (Donovan and Rossiter, 1982; Lam, 2001), and through cognitive perceptions such as attention and information search (Lam, 2001).

The above-mentioned research used surveys and rationalised intentions but, as mentioned, autonomic reactions may escape such assessment methods, yet they are known to influence the final purchasing choice (Poels and Dewitte, 2006; Vieira, 2013). Emotional arousal is a complex response of the human body triggered by some parts of

the brain as a response to actual or recalled stimuli (Damasio, 1994; Bechara and Damasio, 2005). Such a response is sometimes evident to an external observer, but, often, it is unconscious (Berridge and Winkielman, 2003) and imperceptible, and it is better measured using skin conductance, heartbeat, pupil dilation and similar methodologies.

Emotional responses, also called somatic states, can be induced by two different brain structures: the amygdala, which is a trigger for somatic states arising from primary inducers such as responses to immediate stimuli (basic affective reactions), and the ventromedial (VM) prefrontal cortex, which triggers somatic states arising from memories of an event or experience, also known as secondary inducers (subjective experience) (Bechara and Damasio, 2005). As for the trait pleasure–displeasure mentioned in the S–O–R theory, it refers to valence of the somatic states induced by the brain system (positive or negative). Although arousal may come from both the cortical and subcortical areas of the brain, positive somatic states are believed to arise mostly from the subcortical network structures such as the nucleus accumbens shell, the ventral pallidum and the brainstem parabrachial nucleus. Together, these three areas of the brain are responsible for positive affective reactions of pleasure (Berridge, 2003). Positive and negative somatic states often conflict with each other during decision-making. Different magnitudes of such unbalanced states may create an overall positive or negative response that triggers a type of “go” or “stop” signal to help in decision-making (Reimann and Bechara, 2010). Dominance–submissiveness, also mentioned as a third organismic response in the S–O–R, reveals the perception of being in control or being controlled (Mehrabian and Russel, 1974).

Finally, attention is a crucial element in decision-making, given the limited processing resources of the brain. Competition within the visual cortex areas of the brain can be biased by selective attention to a given object (Kastner and Ungerleider, 2001). For example, attention helps the brain system to trigger immediate responses when a dangerous situation (e.g. a snake) enters the visual field. Lam’s (2001) adaptation of Mehrabian and Russel’s theory includes attention and information search as mediators of approach and avoidance behaviours. Lam’s work is based on studies showing that retail categorisation is strongly influenced by environmental visual cues (Ward *et al.*, 1992). Particularly, in high-congruent conditions (high-fit), environmental cues may affect both emotions and cognitions. Findings using eye movements as measurements of attention show that chosen brands receive significantly more attention than non-chosen brands (Pieters and Warlop, 1999), which suggest that attention may heighten approach behaviours to increase information search of product details.

When consumers are bombarded with a plethora of conflicting stimuli from multiple sources, hedonic products elicit a higher degree of positive emotions than utilitarian products (Shiv and Fedorikhin, 1999) and positive emotions lead to positive responses towards cause-related products (Kim and Johnson, 2013). As mentioned, when facing hedonic choices, consumers may also feel guilty, given the difficulty in justifying the purchase decision (Winterich and Barone, 2011). Shame and guilt are unpleasant and negative arousing responses that may, in turn, act as motivators of altruistic behaviour as a type of compensation mechanism (Allen *et al.*, 1992; Rosenhan *et al.*, 1981).

It was also found that, in the confusing environment of the shop, visual attention leads information search towards the more relevant stimuli so as to successfully complete the purchase task (Ungerleider, 2000). Given the brain’s known limitations to

deal with complex decisions, heuristic shortcuts filter out unwanted stimuli through competition between visual objects (Buehlmann and Deco, 2008; Desimone and Duncan, 1995). The somatic marker theory first suggested by Damasio (1994, 1996), later challenged under different conditions by Tomb *et al.* (2002), explains how physiological states may induce such heuristic shortcuts. VM and amygdala impaired, together with normal participants, were studied while playing with two decks of cards. In one of the decks, rewards always outweighed punishments (the good deck), while punishments were four times higher than rewards in the other bad deck. The results showed that normal participants have higher skin conductance responses before selecting good decks. Such findings suggest that larger skin conductance responses (SCRs) may be due to immediate rewards and punishment trade-offs and not to long-term consequences as previously suggested by Damasio. The importance of this experiment to the present study stems from the fact that it replicates the type of decisions occurring during the purchase of cause-related products. When viewed in the light of the S–O–R theory and in the light of neuroscience theories of Damasio and Tomb *et al.*, the above research clearly suggests that the combined use of eye-tracking and electrodermal response to measure consumer reactions may lead to a better perception of the role of pleasure, arousal and attention in the prediction of altruistic behaviour.

### 3.1 Hypotheses development

Following Mehrabian and Russel's (1974) theory, it is suggested here that social cues of cause-related marketing may induce a bias in the competition model. Among the aforementioned characteristics of the purchase environment affecting cause-related marketing effectiveness, product category is one of the most important. Given that consumers are prone to buy cause-related products of the hedonic type, visual attention should guide consumers towards altruistic choices. Moreover, the likelihood of consumers ending up purchasing a given product is higher for products that retain consumers' attention for longer periods and more often (Chandon *et al.*, 2009; Pieters and Warlop, 1999). As a consequence, the altruistic bias should increase the opportunity for these products to enter the consideration set and thus increase the likelihood that the target product (the one with an associated cause) be selected. In hedonic purchases, consumers are not so much concerned about the functional attributes of the products, but, rather, with its overall sensory and imagery-invoking aspects (Dhar and Wertenbroch, 2000; MacInnis and Price, 1987). Thus, overall visual attention towards cause-related products should positively influence the choice of cause-related products. Therefore:

*H1a.* Visual attention is positively related to the choice of hedonic cause-related products.

By contrast, in utilitarian conditions, consumers are searching for a product that fulfils a functional need. Therefore, they are not so likely to choose the product with an associated cause (Strahilevitz and Myers, 1998). However, it is likely that consumers who do choose a cause-related product are driven by a more cognitive versus emotional motivation. It is postulated here that consumers who choose cause-related products in utilitarian conditions focus on rational stimuli, such as the brand logo, and not on overall attention to packaging design. If the cause-related brand fulfils a functional need,

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consumers are likely to select the cause-related product and not the alternatives in the shelf. Hence:

*H1b.* Visual attention to the brand logo is positively related to the choice of utilitarian cause-related products.

Babin *et al.* (1994) found that pleasure correlates with hedonic motivation. On the other hand, hedonic products may induce guilt and dilute purchase intention as mentioned. On a shelf with a cause-related product, the altruistic utility (positive somatic state) gained by coupling one brand with a cause, minimises the guilt (negative somatic state) of buying the product. Therefore, one should expect pleasure to arise from such conflicts due to higher magnitudes of positive versus negative somatic states. The consumers who exhibit higher levels of pleasure during the shopping experience also exhibit higher likelihood of engaging in hedonic purchases. Pleasure also correlates with utilitarian motivation (Babin *et al.*, 1994). Although utilitarian choices are mostly driven by rationalised intentions, when faced with a choice among equally rationally attractive products, pleasure may bias the customer towards purchasing the cause-related product. On a shelf with cause-related products, pleasure is likely to arise, given individual motives such as pride and self-satisfaction. Vieira (2013) compares the role of pleasure on hedonic versus utilitarian motivation and finds no significant difference between hedonic and utilitarian motivation, although the former is higher. This suggests that consumers should be equally likely to buy the product with an associated cause, in both hedonic and utilitarian conditions. Hence:

*H2a.* Pleasure is positively related to the choice of cause-related hedonic products.

*H2b.* Pleasure is positively related to the choice of cause-related utilitarian products.

Based on the S–O–R theory, Babin *et al.* (1994) have shown that arousal is positively correlated with hedonic motivation. The same effect is significantly lower in utilitarian conditions (Vieira, 2013). Paulhus and Lim (1994) show that emotional arousal generates a polarisation of evaluative judgements, which reduces cognitive complexity and facilitates the finding of heuristic shortcuts towards a choice. Tomb *et al.*'s (2002) experiment outlined above helps clarify how heuristic shortcuts may drive autonomic responses and decision-making towards purchasing hedonic cause-related products. Indeed, hedonic cause-related products are high-reward (high-satisfaction), low-punishment (guilt-free) purchases, which may trigger the amygdala and the prefrontal cortex to increase emotional arousal, thus, helping to unbalance conflicting decisions towards buying. In the case of utilitarian decisions, given that no guilt is present and that arousal has a higher association with hedonic than with utilitarian motivation, it is not expected that arousal be determinant in predicting the choice of cause related bundles. Therefore:

*H3a.* Emotional arousal positively influences the choice of hedonic cause-related products.

*H3b.* Emotional arousal is not significant in explaining the choice of utilitarian cause-related products.

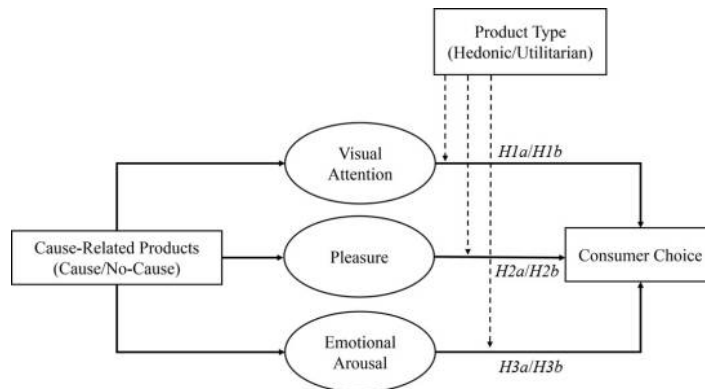
Figure 1 graphically represents the conceptual model stemming from the theoretical framework used in this paper and its relation to the formulated hypotheses.

#### 4. Method

Visual attention and emotional arousal are two organismic responses not exclusively governed by our cognitive rationale; they may appear as automatic reactions to the environmental stimuli (Schupp *et al.*, 2007). Although self-reports are commonly used in cause-related marketing research, hypotheses formulated in this study call for a mixture of observational and self-report methods that can track gaze behaviour and emotional arousal before they are rationalised. To this end, the study used two autonomic physiologic measures: eye-tracking and electrodermal activity.

Consumers process information coming from the surrounding environment using spatial patterns (Lohse, 1997). A seminal work conducted by Russo (1978) set the pace for recent empirical findings uncovering a relationship between eye movement and cognitive processes (Day, 2010; Gofman *et al.*, 2009; Pieters and Warlop, 1999). An observation method can be used to measure how many times (fixations) and for how long (fixation duration) consumers elaborate information in a particular environment using the non-invasive technique of eye-tracking. Recent research in consumer behaviour has successfully used eye-tracking to uncover how people use information gathering to improve search performance (Van der Lans *et al.*, 2008), to measure how ad effectiveness can be influenced by subtle changes in ad originality and ad familiarity (Pieters *et al.*, 2002) and to show how visual salience bias in a cluttered shopping environment can have an impact on choice decisions (Milosavljevic *et al.*, 2011). When fixating visual cues, a small part of the retina called the fovea is capturing information and is processing it to increase familiarity with an object (Rayner, 1998).

An observational measure of emotion was also used to confirm the hypotheses of the paper. When individuals are faced with a stressful or emotional condition, their skin becomes more conductive as a result of changes in the sympathetic nervous system (Wang and Minor, 2008). Electrodermal activity (EDA) is a well-established measure of emotional arousal (Kroeber-Riel, 1979) used both in the guilt-detection polygraph monitoring (Elaad, 2009) and in marketing research (Bolls *et al.*, 2001; Groeppel-Klein and Baun, 2001; Wang and Minor, 2008). In the current experiment, two electrodes were placed in the finger phalanges, where a constant voltage was applied. The skin conductance between the two electrodes was, thus, registered during the decision-making process leading to EDA measures.



**Figure 1.**  
The attention-emotion conceptual model

Although skin conductance response is reliable in accessing emotional arousal, it lacks the power to discriminate whether consumers are excited because they experience positive or negative reactions. Therefore, the self-assessment manikin (SAM) (Lang, 1985) was used to let consumers register pleasure during the decision-making process. SAM is based on a picture oriented scale, which enables arousal and pleasure level towards each product in the shelf to be reported. SAM is a reliable measure of emotional traits used in psychology research (Cook *et al.*, 1988) and in other fields such as advertising (Morris, 1995; Morris and Boone, 1998). Although the SAM scale (originally proposed by Lang, 1985) is a three-dimensional measurement (arousal, pleasure and dominance), the dominance – submissiveness vector has proved to have a low correlation with approach – avoidance behaviour (Donovan and Rossiter, 1982; Mehrabian, 1995; Russell and Pratt, 1980; Vieira, 2013). Therefore, this study used a two-dimensional approach, concentrating on the arousal and pleasure dimensions of SAM.

## 5. Experimental design

When using autonomic physiologic measurements, studies are often carried out under strictly controlled laboratory conditions, rather than in the shop (Lohse, 1997; Pieters *et al.*, 1999; Van der Lans *et al.*, 2008; Milosavljevic *et al.*, 2011; Reimann *et al.*, 2011). This is because extraneous stimuli such as those present in a shopping environment may influence the internal validity of results. The present study was similarly performed under laboratory conditions so that external distractions are minimised; the order of products or charities in each condition was randomised and all the remaining drivers of cause-related marketing effectiveness (impossible to fully control in a shopping environment) were effectively controlled for.

Using a shelf simulation, consumers were asked to select from a set of hedonic and utilitarian brands, as if they were in a real-world shopping condition. Hedonic products were represented by chocolate truffles, while laundry detergent represented utilitarian products. Such categories are similar to those included in Strahilevitz and Myers (1998) research on donations to charities as purchase incentives.

### 5.1 Participants

Individuals were invited to participate in the experiment voluntarily by subscribing to a list via the Internet. In all, 48 individuals (42 per cent men and 58 per cent women) participated in the study; 82 per cent were aged between 26 and 45 years, 82 per cent were either employed or retired and 67 per cent had an annual income above 30,000 euros. All individuals had normal or corrected-to-normal vision and none were paid to participate in the 30-minute experiment.

Due to poor posture while performing the experiment, five individuals had incomplete scan-path data, and were discarded from the analysis. Of the total, two individuals selected products in less than 2.5 seconds; therefore, they were also discarded as this suggests a mechanical response influenced by colour or brightness of packaging, rather than by conscious preference (Milosavljevic *et al.*, 2011). The final dataset included 41 participants with valid and reliable data.

### 5.2 Pre-test

To account for a possible influence of brand-cause fit, two different fit conditions were used as factors in the experimental design: high-fit brand/cause relationship and low-fit



brand/cause relationship. A pre-test was conducted to determine which pairs brand-charity are high- or low-fit in each category (hedonic/utilitarian). A group of 102 students were asked to undertake the task of rating ten social charities that were both familiar to and favourite among them (liking rate above  $M = 4.5/7$ ). According to Pracejus and Olsen's (2004) 7-point Likert scale, each product was paired with one of the ten well-known charities. The results of the pre-test suggested a significant difference in brand-cause fit among products in the hedonic condition ( $\chi^2(9) = 56.66, p \text{ value} < 0.01$ ). Mann-Whitney-Wilcoxon post-hoc tests also suggest that the cause with the lowest perceived fit in the hedonic condition is "Greenpeace" (Fit = 1/7), while "Red Nose Operation" is perceived as the more congruent within the products in the shelf (Fit = 5/7) ( $W = 2822.5, p \text{ value} < 0.01$ ). For the utilitarian condition, no significant differences were found among the ten charities examined ( $\chi^2(9) = 14.74, p \text{ value} > 0.05$ ). For the final experiment, Red Nose Operation was used as the high-fit cause, while Greenpeace was used as the low-fit cause. Although no significant differences in brand-cause fit were found among the charities examined in the utilitarian condition, the same charities were kept during the display of utilitarian products for the sake of preserving the experimental design. Therefore, autonomic responses to cause-related products are not expected to be significantly different between the two charities selected for the utilitarian condition.

### 5.3 Design and procedure

Each participant was exposed to four different displays, and each display showed a matrix of  $2 \times 2$  different products. The two of the four displays showed hedonic products only, while the other two showed utilitarian products only. In all the four displays, one and only one of the exposed products were signalled as being associated with a cause. Each cause was randomly associated with a different product so as to control for perceived altruistic motivations of particular brands. For the two hedonic as well as for the two utilitarian displays, the cause-related product was high-fit in one case and low-fit in the other. The products were assigned randomly to the  $2 \times 2$  matrix on display so as to control for placement biases. The sequence of displays was also randomised. To ensure that results were not influenced by individual preferences towards a specific brand and also to reap the benefits of blocking, participants were randomly assigned to one of the two pre-defined groups of brands ("G1" and "G2", see Table I). Such a random assignment ensures that not all participants are exposed to the same set of brands.

The products had homogeneous price range and donations were set to a fixed value (€1 of the price to the sponsored charity) to control for donation magnitude and framing effects (Chang, 2008; Folse *et al.*, 2010; Strahilevitz, 1999).

All participants were informed about the technological apparatus to which they were to be exposed throughout the experiment. An isotonic NaCl gel solution was used in the electrodermal electrodes to ensure a good measurement (Boucsein, 1992). Following the informed consent of participants, two electrodes were placed in the middle phalanges of the index finger and the middle finger of the non-dominant hand. Skin conductance response was captured at a 2,000 Hz rate. A low-pass filter of 5 Hz was used to remove artefacts that may result from mechanical interferences of natural body movements, which would otherwise interfere with skin conductance level results (Schmidt and Walach, 2000).

Light conditions were held constant and room temperature was controlled and set to about 22-24 degrees, as it can influence skin conductance response (Boucsein, 1992). The participants sat approximately 60 cm from the simulated shelf displayed on a computer screen, and they were instructed to control the movements of the non-dominant hand to minimise the effects of noise in the signal. Non-intrusive eye-tracking equipment was used to monitor the binocular response using infrared corneal reflection at 60 Hz rate. When the experiment began, a trigger enabled the accurate synchronisation between the skin conductance and eye-tracking responses. Before the experiment, visual attention of each participant was calibrated to identify potential visual incapacities that could compromise data collection.

After a five-minute baseline measurement, in which participants listened to a calm and relaxing music theme, the eye-tracking equipment was recalibrated using a nine-point calibration procedure. A blank screen was inserted between each display, with a random three-five inter-stimulus interval, to make sure that all physiologic measures were free from latent information and returned to its baseline level (Boucsein, 1992). To guide subjects' attention to the centre of the shelf, a slide with a small cross in the middle of the screen preceded each display. This also ensured that all participants started the information search from the same place. After each display, subjects were asked to individually rate the four products in the shelf using the SAM scale. Arousal was rated using a nine-point pictorial scale that ranged from (9) *stimulated, excited, tense* to (1) *relaxed, calm, indifferent*. Pleasure was measured using a scale ranging from (9) *pleased, positive, satisfied* to (1) *displeased, negative, unsatisfied*.

At the end of each experiment, the participant's emotional arousal baseline was subtracted from all observations to obtain a comparable measure for all participants (Lykken and Venables, 1971). A final questionnaire was used to control for extraneous variables and socio-demographic characteristics of participants (age, gender, number of children, income stability, education level and annual income of the household) were also recorded. Income stability is a covariate comprising four ordered classes (unemployed, irregular income, employed and stable income).

Figure 2 shows the Timeline of the experimental events.

## 6. Results

The results refer to a total of 164 cases corresponding to the four displays seen by each one of the 41 participants. The cases comprise participants' attributes, reactions and choices plus display attributes.

Product category	G1	G2	
Hedonic	Ferrero Rocher	Baci	<b>Table I.</b> Products displayed and the corresponding groups assigned to them
	Guylian	Milka	
	Lindor	Merci	
	Baileys	Nestlé	
Utilitarian	Ariel	Omo	
	Persil	Skip	
	Tide	Woolite	
	Xau	Xtra	

6.1 Preliminary control checks

The first check, based on the responses obtained from the post-experiment questionnaire, confirms hedonic and utilitarian correct identification in the part of participants. Each product was rated on a four-point semantic differential scale (*hedonic, utilitarian, both, none*). Each type of product was accompanied with a short definition derived from previous literature (Strahilevitz and Myers, 1998). The results revealed no significant differences in identification among products presented in the hedonic display ( $\chi^2(7) = 2.70, p \text{ value} = 0.91$ ). Indeed, participants were quite unanimous in identifying certain products as hedonic. A similar result for products in the utilitarian display ( $\chi^2(7) = 8.29, p \text{ value} = 0.31$ ) indicates that product type is correctly perceived by participants.

Although prices were homogeneous, there may arise differences in the perceived quality of products, namely between hedonic and utilitarian cases. This would jeopardise the validity of models. Thus, a 100 point-scale adapted from the study by Boulding *et al.* (1993) was used to control for the perceived quality of brands in the shelf. The participants who were exposed to G1 brands as well as participants exposed to G2 showed no significant difference in the perceived quality of hedonic versus utilitarian product (G1:  $\chi^2(1) = 1.28, p \text{ value} = 0.26$ ; G2:  $\chi^2(1) = 2.72, p \text{ value} = 0.10$ ).

Familiarity with the product was controlled using a 7-point Likert-scale, in which participants were asked to classify each product in a scale that ranged from 1 (*the product is very new to me*) to 7 (*the product is very familiar to me*) (Chang, 2008). A top-down factor, such as familiarity with brands in the shelf can strongly disrupt attention (Pieters and Wedel, 2004; Rayner *et al.*, 2001; Rosbergen *et al.*, 1997), and should be homogeneously represented in the experiment. According to Kruskal–Wallis rank sum test, participants who were exposed to G1 brands as well as participants exposed to G2 brands showed non-significant differences between hedonic and utilitarian products (G1:  $\chi^2(1) = 0.16, p \text{ value} = 0.69$ ; G2:  $\chi^2(1) = 2.58, p \text{ value} = 0.11$ ).

Familiarity with the cause is another influential aspect to consider in the experimental design as it can influence attitudes towards the brand (Lafferty and Goldsmith, 2005). A 7-point Likert-scale ranging from (1) *the cause is very new to me* to (7) *the cause is very familiar to me* was used to check whether there were no significant differences in cause familiarity between the two selected charities. As the pre-test suggested, participants were familiar with both charities in either blocking group (G1:  $\chi^2(1) = 0.22, p \text{ value} = 0.64$ ; G2:  $\chi^2(1) = 0.61, p \text{ value} = 0.43$ ).

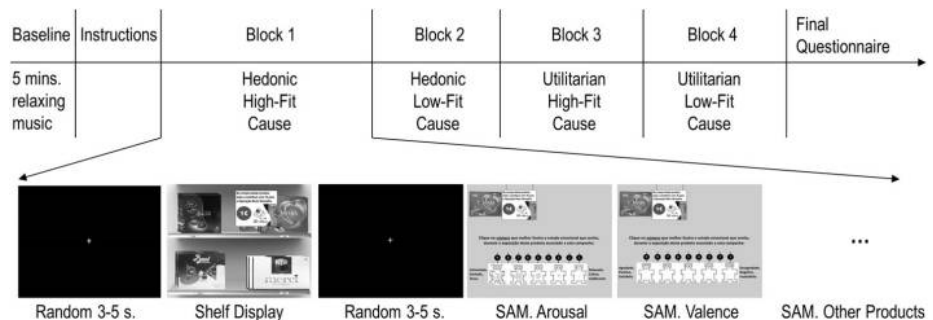


Figure 2. Timeline of the experimental events

Motivation of the brand to the cause must also be consistent among the brand-cause pair represented in the shelf (Barone *et al.*, 2007). Therefore, a 9-point Likert scale was used, in which participants rated motivation to be (1) *unfavourable* or (9) *favourable* towards the cause. No significant differences were found in perceived support of the brands to the charities (G1:  $\chi^2(3) = 3.05$ ,  $p$  value = 0.38; G2:  $\chi^2(3) = 3.08$ ,  $p$  value = 0.38)

A Likert scale between (1) *very inefficient* to (7) *very efficient* (Winterich and Barone, 2011) was also used to control for charity's perceived efficiency. The results showed no significant differences in charity's perceived efficiency between the two non-profit institutions (G1:  $\chi^2(1) = 3.30$ ,  $p$  value = 0.07; G2:  $\chi^2(1) = 2.12$ ,  $p$  value = 0.15).

The way consumers identify themselves with charity is also one of the influential aspects of cause-related marketing effectiveness (Winterich and Barone, 2011). Therefore, the organisational identification six-item scale from the study by Cornwell and Coote (2005), which was adapted from the studies by Bhattacharya *et al.* (1995) and Mael and Ashforth (1992), was used to measure how closely consumers identified themselves with the two selected charities. A Cronbach alpha of  $\alpha = 0.85$  for the items that measured identification of the participants with Greenpeace, and of  $\alpha = 0.82$  for those who rated Red Nose Operation revealed a reliable measure that showed no significant differences in identification degree between the two charities ( $M_{\text{Red Nose}} = 2.20$ ,  $M_{\text{Greenpeace}} = 2.34$ ;  $\chi^2(1) = 0.65$ ,  $p$  value = 0.42).

### 6.2 Using emotional arousal and attention to predict cause-related product choice

Because this research focuses not on brands as such but on whether consumers select cause-related brands or not, a dichotomous variable was derived, having a value of 1 when a participant opted for the cause-related brand and 0 when the participant picked one of the three alternatives. Statistical modelling tools were then used to predict this dichotomous variable from the set of attributes associated with the corresponding participant-display.

The study used two separate models, one to predict such dichotomous variable from displays with hedonic products and the other to predict the same dichotomous variable from displays with utilitarian products. Given the fundamental differences between hedonic and utilitarian products (Dhar and Wertenbroch, 2000; Okada, 2005), the use of a single model could fail to accurately identify variables that influence purchase decisions.

Because every display in the experiment required one choice and because there were two displays per product type (high- and low-fit), each model included two dependent observations of the dichotomous variable defined above. These two observations were treated as repeated measures so as to control for the within individuals' effects while tracking differences between high- and low-fit. Thus, the tool used to model hedonic and utilitarian displays separately was a repeated-measure binary logistic regression using generalised estimating equations (GEE) (Liang and Zeger, 1986). GEE is a robust method to handle random effects and has been used in many research fields such as in clinical trials (Szymanski *et al.*, 2013) or in marketing (Bauer *et al.*, 2013).

Independent variables, the same for both models, were either covariates or factors. From eye-tracking measurements associated with each display, four attention covariates were constructed measuring:

- (1) percentage attention duration towards the product in the shelf that has an associated cause (PERC\_DUR\_TARGET);

- (2) percentage attention duration towards product brand logo only (PERC\_DUR\_BRAND);
- (3) total attention duration towards the donation amount (SUM\_DUR\_DONATION); and
- (4) total attention duration towards the social cause logo (SUM\_DUR\_CAUSE).

Average skin conductance response level (SCL\_MEAN) and average time to reach the emotional response peak (SCR\_RISE\_TIME) for each display were the emotional arousal covariates. Finally, two covariates were derived from the SAM scale:

- (1) VALENCE\_TARGET was the valence rate of the cause-related product value;
- (2) AROUSAL\_TARGET was the emotional arousal rate reported by participants.

Other covariates controlled for effects such as age in five levels, income, income stability (four levels ranging from uncertain to fixed income), education in five levels and number of children of the participants. The factors were gender, blocking (G1, G2), brand-cause fit and display sequence. [Table II](#) resumes and describes the variables included in the experiment.

Before final models were built, results of repeated measures logistic regressions including all covariates and factors were observed so as to identify the most significant variables. Final models included variables leading to a sizable decrease in observed quasi-likelihood goodness of fit criterion (QIC). Corrected quasi-likelihoods goodness of fit criteria under the independence model (QICC) were also recorded. Both QIC and QICC are the standard way to evaluate generalized estimating equations models ([Pan, 2001](#)).

The two final models obtained are depicted in [Tables III](#) and [IV](#).

For the hedonic condition model, the higher the duration of attention towards the target product, the higher the likelihood of the final decision being an altruistic choice as postulated in *H1a*. A significant effect of pleasure on the choice of cause-related product is also confirmed as postulated in *H2a*. It is also verified that emotional arousal significantly influences cause-related marketing effectiveness as postulated in *H3a*. Indeed, an increase in skin conductance level or a decrease in the time to reach the arousal peak is associated with a higher likelihood of a cause-related product to be chosen. It is also found that cause-related marketing effectiveness increases with the stability of participants' income. By contrast, as the number of children increases, the probability of picking cause-related hedonic products decreases. Overall, predicting accuracy of the hedonic model is high, with the cause-related product choice being accurately predicted in 81.7 per cent of the times (area under the curve [AUC] = 0.90). [Figure 3](#) shows the receiver operating characteristic (ROC) curve of the hedonic condition model.

Utilitarian choices, in turn, are significantly influenced by four variables. Attention towards brand logo positively impacts the probability of selecting the cause-related product, not alternative products in the shelf, thus, confirming *H1b*. In addition, attention towards donation amount positively impacts cause-related choices. This effect, although not postulated, is an interesting finding given that excessive donation amount can induce scepticism about the true motivations of the brand towards charities. Thus, when driven by cognitive motivations, consumers are expected to pay attention to the amount being donated to the cause. Contrary to the hedonic case, overall attentional measures are non-significant in explaining cause-related marketing effectiveness on utilitarian choices. Similarly to the hedonic case, both pleasure (*H2b*) and time to reach the arousal peak are significant in predicting the cause-related choice, whereas in the

Measurement technique	Variable name	Description	Type of variable	
Eye-tracking	PERC_DUR_TARGET	Percentage attention duration towards the product in the shelf that has an associated cause	Continuous covariate [0-100 per cent]	
	PERC_DUR_BRAND	Percentage attention duration towards the brand logo of the product with an associated cause	Continuous covariate [0-100 per cent]	
Skin conductance	SUM_DUR_CAUSE	Total attention duration towards the social cause logo	Continuous covariate [0-100 per cent]	
	SUM_DUR_DONATION	Total attention duration towards the donation amount of the product with an associated cause	Continuous covariate [0-100 per cent]	
Self-assessment manikin scale	SCL_MEAN	Average skin conductance response level in each condition	Continuous covariate	
	SCR_RISE_TIME	Average time to reach the emotional response peak in each condition	Continuous covariate	
Experimental conditions	AROUSAL_TARGET	Emotional arousal rate reported by participants	Ordinal covariate [1-9]	
	VALENCE_TARGET	Pleasure rate of the cause-related product value	Ordinal covariate [1-9]	
	BRAND_CAUSE_FIT	High or Low brand-cause fit	Factor	
	BLOCKING_GROUPS	G1 or G2 brands	Factor	
Final questionnaire	DISPLAY_SEQUENCE	The sequence of each display presented to participants	Factor	
	AGE	Age	Ordinal	
Dependent variable	GENDER	Male or Female	Factor	
	NUMBER_OF_CHILDREN	Number of children	Ordinal	
	INCOME	Participants' income	Continuous	
	EDUCATION_LEVEL	Education level	Factor [Bachelor-Post-Doctorate]	
	INCOME_STABILITY	Income stability to measure how certain was their fixed income	Factor [Uncertain – Fixed Income]	
	CAUSE_RELATED_CHOICE	A dichotomous variable with the value of 1 when a participant opted for the cause-related brand and 0 when the participant picked one of the three alternatives	Binary [0;1]	

**Notes:** A “factor” is a nominal independent variable, which partitions the sample; a “covariate” is an ordinal or continuous independent variable

**Table II.**  
Description of  
variables included in  
the experiment

hedonic case the time to reach the arousal peak negatively influences choice, here its effect is positive. Moreover, skin conductance level and arousal measurement using SAM are non-significant in this case (*H3b*). The overall accuracy of the model reveals that 79.3 per cent of participant's choices are predictable ( $AUC = 0.886$ ). Also, good specificity and sensitivity values reveal that the model minimised the risk of error type I and II, as illustrated by the ROC chart of [Figure 4](#).

A comparison between standardised coefficients in both models found that pleasure is higher in hedonic than in utilitarian conditions ( $\beta_{\text{hedonic}} = 1.986$ ;  $\beta_{\text{utilitarian}} = 1.226$ ) as suggested by [Vieira \(2013\)](#). The significant but contrary effect of time to reach arousal peak in cause-related choices reinforces the role of autonomic reactions on such choices. A swift response for hedonic cause-related products contrasts with a slow, non-emotional response for cause-related utilitarian products. Actually, this finding reinforces and refines *H3a* and *H3b*.

[Table V](#) shows scores and significance of variables discarded by models. Brand-cause fit non-significance may stem, as suggested in the literature, by the fact that familiarity with the cause moderates the effect of brand-cause alliance on attitude towards both the cause and the brand ([Lafferty et al., 2004](#)). In this experiment, familiarity with the cause was one of the conditions a priori made homogeneous.

[Table VI](#) shows QIC and QICC for all models tested:

- baseline models where only intercepts were included;
- models where all covariates and factors were included (full models); and
- models including only significant variables (final models).

**Table III.**  
Hedonic condition  
GEE logistic  
regression model

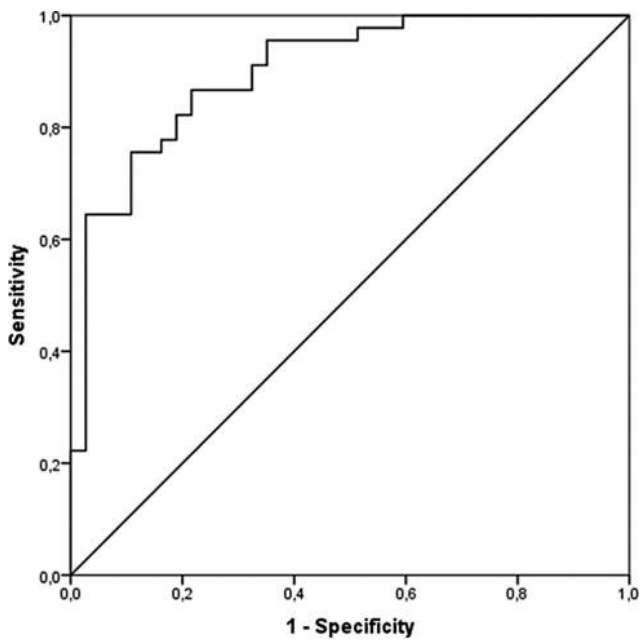
Parameter	$\beta$	Standard error	Exp( $\beta$ )	95% Wald Conf.		Hypothesis test	
				Lower	Upper	Wald $\chi^2$	Significance
Intercept	-0.596	0.376	0.551	-1.333	0.141	2.511	0.113
PERC_DUR_TARGET	1.716	0.542	5.561	0.651	2.780	9.978	0.002
SCL_MEAN	0.831	0.410	2.296	0.027	1.635	4.103	0.043
SCR_RISE_TIME	-0.753	0.381	0.471	-1.500	-0.006	3.906	0.048
SAM_AROUSAL_TARGET	0.707	0.306	2.029	0.107	1.307	5.340	0.021
SAM_VALENCE_TARGET	1.986	0.486	7.287	1.035	2.938	16.733	0.000
NUMBER_OF_CHILDREN	-0.779	0.308	0.459	-1.383	-0.176	6.408	0.011
INCOME_STABILITY	0.743	0.307	2.102	0.140	1.345	5.838	0.016

**Note:**  $\beta$  are standardized coefficients

**Table IV.**  
Utilitarian condition  
GEE logistic  
regression model

Parameter	$\beta$	Standard error	Exp( $\beta$ )	95% Wald Conf.		Hypothesis test	
				Lower	Upper	Wald $\chi^2$	Significance
Intercept	-0.239	0.292	0.787	-0.812	0.334	0.669	0.413
PERC_DUR_BRAND	0.948	0.323	2.580	0.314	1.581	8.602	0.003
SUM_DUR_DONATION	0.919	0.357	2.507	0.226	1.612	6.752	0.009
SCR_RISE_TIME	1.066	0.322	2.903	0.436	1.696	10.987	0.001
SAM_VALENCE_TARGET	1.226	0.353	3,406	0.533	1.918	12.024	0.001

**Note:**  $\beta$  are standardized coefficients



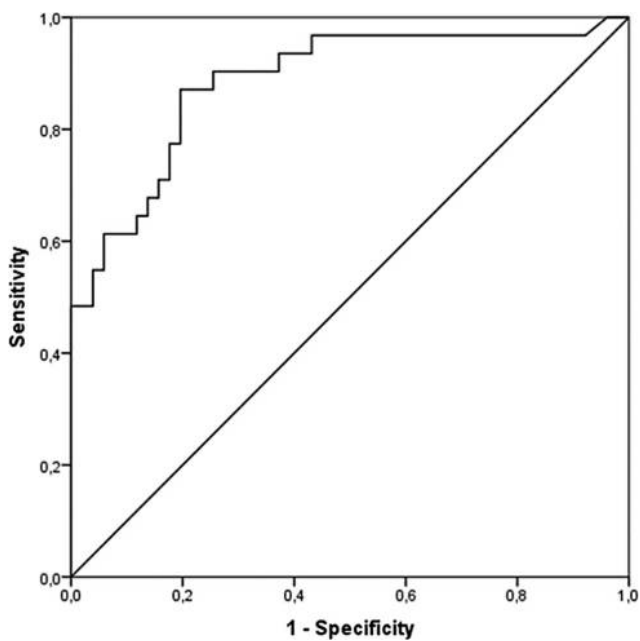
Cause-related  
marketing  
effectiveness

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**Figure 3.**  
ROC curve (hedonic  
condition)

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**Figure 4.**  
ROC curve  
(utilitarian condition)

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**Table V.**  
Variables excluded  
from the two final  
logistic regressions

Variables	Hedonic		Utilitarian	
	Wald $\chi^2$	Significance	Wald $\chi^2$	Significance
PERC_DUR_TARGET	–	–	0.097	0.755
PERC_DUR_BRAND	1.041	0.308	–	–
SUM_DUR_CAUSE	0.177	0.674	0.136	0.712
SUM_DUR_DONATION	1.577	0.209	–	–
SCL_MEAN	–	–	0.113	0.737
SCR_RISE_TIME	–	–	–	–
AROUSAL_TARGET	–	–	0.253	0.615
VALENCE_TARGET	–	–	–	–
BRAND_CAUSE_FIT	0.008	0.927	1.619	0.203
BLOCKING_GROUPS	2.248	0.134	3.247	0.072
AGE	0.888	0.346	1.948	0.163
GENDER	0.580	0.446	0.279	0.597
NUMBER_OF_CHILDREN	–	–	1.275	0.259
INCOME	0.076	0.783	0.093	0.761
EDUCATION_LEVEL	0.455	0.500	1.042	0.307
INCOME_STABILITY	–	–	1.443	0.230
DISPLAY_SEQUENCE	0.379	0.538	0.120	0.729

**Table VI.**  
Goodness of fit  
criteria for both  
hedonic and  
utilitarian models

Included	Hedonic		Utilitarian	
	QIC	QICC	QIC	QICC
Intercept-only	114.83	114.89	110.57	110.75
Full Model	91.65	95.57	83.06	89.25
Final Model	80.57	81.31	72.96	75.67

It is clear that final models fit the data better than full models. This is the result of the reduction in degrees of freedom engaged when compared with the explanatory power of variables selected.

## 7. Conclusion

The study has used an experimental design involving observational measurement to explain how rationally uncontrolled reactions may mediate consumer's choices. Although the alternatives used in the study (cause-related vs unrelated, hedonic vs utilitarian, high- vs low-fit products) constitute an excellent test bed, it is likely that findings may apply also to other emotionally motivated purchases. Where marketing campaigns are designed to associate a product with contents capable of arousing emotions, similar results are expected as suggested by [Mehrabian and Russel \(1974\)](#). One such case might be the association of a brand with sports events ([Mazodier and Quester, 2014](#)).

The higher than usual fit suggests that it is indeed worthwhile to extract practical lessons from the present experiment. Companies who care about creating and leveraging a positive image of the brand should consider and design cause-related marketing partnerships with a good fit to the cause and to consumers' social identity, especially when promoting hedonic products among homogeneous competing brands.

When designing cause-related marketing campaigns, brand and cause, managers should not underrate the role that emotions and attention have on the product salience in the shelf.

As a major theoretical contribution, this paper demonstrates that physiological reactions such as emotional arousal and attention are indeed important markers to predict altruistic behaviour in both hedonic and utilitarian conditions. Thus, emotionally-driven decisions should be measured, not just by subjective scales but also by physiological measurements that reflect objective, often unconscious drivers of human decision.

The findings suggest that attention and emotional arousal mediate cause-related marketing effectiveness. Implications to marketing practice are two-fold. First, social marketing campaigns should be designed to increase consumers' attentional focus and promote a pleasurable experience. Indeed, because findings suggest that attention, pleasure and arousal do foster cause-related marketing effectiveness, more effort should be devoted to packaging design, specifically to the raising of altruistic visual cues of the donation-based promotion and to the raising of positive emotional responses through guilt reducing effects. Second, because consumers' motivation towards cause-related products in utilitarian conditions is focused on pleasure, on the brand logo and on the donation amount and not so much on the overall packaging design, when conducting cause-related marketing initiatives using utilitarian products charities should carefully chose their partners among brands that are familiar to the target audience and that elicit a positive consumption experience. Also, the donation amount should be carefully set so that it does not induce consumer scepticism about the true motivations of the company towards the cause. Scepticism may indeed hamper cause-related marketing effectiveness. It was also found that cause-related marketing effectiveness in hedonic choices increases as the stability of participants' income increases. Moreover, cause-related marketing (C-RM) effectiveness decreases as the number of children increases. Hence, future research may try to find the underlying motivations for such behaviour.

Although findings provide evidence that attention and emotional arousal are autonomic responses that affect cause-related marketing effectiveness, some limitations should be acknowledged. The experimental setting was a simulated shelf and not a real-world shopping environment. Experiments greatly enhance the internal validity of results while controlling for the influence of extraneous variables. However, it is recognised that a real point of purchase contains a variety of cues affecting consumer's attention and emotional arousal. Background music and scents that are often used to increase positive emotions (Lam, 2001), for example, may affect the nature and intensity of both emotive experiences and cognitive processes.

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### Further reading

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