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In-store arousal and consumers' inferences of manipulative intent in the store environment

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Abstract

Purpose – The purpose of this article is to show how consumers' inferences of manipulative intent mediate the effects of in-store arousal on pleasure and approach behavior.

Design/methodology/approach – A qualitative study identifies arousal as a dimension of the store environment that may lead to inferences of manipulative intent. An experiment manipulating arousal tests the mediating effect of inferences of manipulative intent on the relationship of arousal with pleasure and approach behavior.

Findings – A qualitative study and the results of an experiment suggest that arousing store environments lead to negative outcomes when consumers infer that such environments are manipulative. The experimental study results show that high in-store arousal increases inferences of manipulative intent, which in turn negatively affect pleasure and approach behaviors. The results also indicate that the effects of in-store arousal on inferences of manipulative intent vary with age.

Practical implications – The study results recommend that practitioners carefully design their store environments, such that arousal they create does not lead consumers to believe that the environment is manipulative.

Originality/value – This article contributes to extant literature by emphasizing the crucial role of inferences of manipulative intent in the effects of in-store arousal.

Keywords Arousal, Approach behavior, Inferences of manipulative intent, Pleasure, Store environment

Paper type Research paper

1. Introduction

A stimulating in-store atmosphere – including tangible and intangible elements such as lighting, ambient music, odor and temperature – can induce specific emotional outcomes (Kaltcheva and Weitz, 2006; Mohan *et al.*, 2013; Sherman *et al.*, 1997; Turley and Milliman, 2000) and lead consumers to spend more time and money in the store (Donovan and Rossiter, 1982; Sherman *et al.*, 1997). Previous studies have shown that when a store environment is stimulating, increased arousal positively affects consumers' emotions – like pleasure – and shopping behavior (Kaltcheva and Weitz, 2006). Retailers can thus gain in triggering high levels of arousal by manipulating a store's "atmospherics" (Kotler, 1973; Bitner, 1992).

Nevertheless, consumers analyze the various elements surrounding them during shopping trips. Thus, the deliberate efforts retailers make to create sophisticated



environments might cause shoppers to perceive atmospherics as manipulative tools, purposefully designed to entice them to buy. Despite Donovan and Rossiter's (1982, p. 55) recognition of the "perceived persuasiveness of store atmosphere", little research, except Lunardo and Mbengue's (2013) study, has examined this effect of in-store atmosphere on consumers inferences of manipulative intent (IMIs). What Lunardo and Mbengue show is that an incongruent atmosphere can lead consumers to engage in IMIs. However, they do not account for the role of arousal and it thus remains to be investigated whether arousal can play a role in the elicitation of IMIs.

Initially developed in the context of advertising, IMIs, defined as a cognitive process in which consumers believe "that the retailer is attempting to persuade [them] through an incongruent atmosphere", have since been applied in the context of retailing (Lunardo and Mbengue, 2013, p. 824). Although retailers may not necessarily intend to be manipulative, we contend that IMIs might limit positive responses such as the emotion of pleasure or approach behavior (vs avoidance behavior). To this end, and in line with Chebat and Michon (2003, p. 537) who criticize the focus on "the emotional effects of the environment to the detriment of the study of the meaning of the environment", we investigate whether retailers' creation of high-arousal environments induces consumers' IMIs and, if so, how IMIs affect pleasure and approach behavior. We also consider the role of shoppers' ages because people are better able to identify manipulative intent over time (Boush *et al.*, 1994).

To address our research questions, we draw on the persuasion knowledge model (PKM; Friestad and Wright, 1994) as a theoretical framework. Initially elaborated in the field of advertising, the PKM offers compelling explanations of how consumers process and develop understanding of and reactions to persuasion tactics (Boush *et al.*, 1994; Campbell and Kirmani, 2000; Friestad and Wright, 1994; Kirmani and Wright, 1989; Wright *et al.*, 2005). Extending the model to the retail context, we examine the impact of highly arousing environments on the conscious and cognitive processes that consumers develop in a store. A qualitative study (Study 1) first explores consumers' perceptions of in-store environments and shows that high levels of arousal, triggered by the heavy use of atmospherics, induce IMIs, which affect both pleasure and approach behavior. The study suggests that shoppers' age moderates the effects of IMIs on pleasure and approach behavior. A quantitative study (Study 2) then tests and confirms the hypotheses that (1) arousal induces IMIs, (2) IMIs mediate the effects of arousal on pleasure and approach behavior and (3) age moderate the effect of arousal on IMIs.

Theoretically, this research enriches understanding of cognitive (as well as affective) processes that underlie the stimulus – organism – response (SOR) model (Mehrabian and Russell, 1974). On the basis of the PKM model, it also shows that arousal is a source of IMIs and thus extends Lunardo and Mbengue's (2013) study, which focuses solely on their effects. Practically, unlike previous research showing positive effects of arousing environments, this research suggests that retailers should employ arousing atmospherics cautiously to avoid triggering consumers' IMIs and causing detrimental effects on pleasure and approach behavior.

2. Theoretical background: from arousal to IMIs

The topic of in-store arousal has received substantial attention and highlights arousal as central for triggering pleasure and approach behavior in retail settings. However, the question whether arousing environments may be a source of cognitive processes that

lead consumers to infer that retailers try to manipulate their behavior remains unanswered. Yet research has emphasized some discrepancies between the sophisticated atmospheric efforts retailers tend to make and the ways consumers appraise the resulting arousing environments (Bäckström and Johansson, 2006; Dulsrud and Jacobsen, 2009; Lunardo and Mbengue, 2013), suggesting that consumers behave as “interpretive agents” (Arnould and Thompson, 2005, p. 874). It remains to be investigated though whether arousing environments can lead them to draw inferences about retailers’ manipulative intents. Thus, we examine arousal and its retail environments and elaborate a theoretical argument on why arousal might be a source of IMIs about the retailer’s use of atmospherics.

2.1 The construct of arousal

Arousal comprises an objective dimension (the release of energy collected in bodily tissues; Cacioppo *et al.*, 1996) and a subjective, emotional dimension (the subjective experience of energy mobilization; Russell and Feldman Barrett, 1999), the latter depending on the information rate or load in an environment (Mehrabian and Russell, 1974; Steenkamp *et al.*, 1996). Beyond this dichotomy between objective and subjective arousal, research identifies two bipolar dimensions of arousal: an energetic dimension describing a state of high activation and positive valence (ranging from feeling sleepy to feeling awake) and a tense dimension (ranging from feeling calm to feeling nervous) referring to a state of low activation and negative valence (Thayer, 1989).

2.2 The importance of arousal in retail environments

Noting only the subjective dimension of arousal, prior research has shown that various environmental cues can affect in-store arousal, including ambient scents (Mattila and Wirtz, 2001; Spangenberg *et al.*, 1996), loud or fast-paced music (Kellaris and Altsech, 1992), warm colors (Bagchi and Cheema, 2013; Bellizi *et al.*, 1983) and saturated colors (Valdez and Mehrabian, 1994). For example, Kaltcheva and Weitz (2006) experimentally produce highly arousing environments by combining three elements (complexity, color warmth and saturation) that can create an impression of environmental complexity and prompt high levels of arousal (Berlyne, 1971). Thus, by deliberately manipulating the environment and its atmospherics, retailers can induce arousal, which has proved to increase purchase probabilities (Donovan and Rossiter, 1982; Hoffman and Turley, 2002; Kotler, 1973), willingness to buy (Baker *et al.*, 1992) and propensities to spend extra time or more money in the store (Donovan *et al.*, 1994; Sherman *et al.*, 1997).

Research on arousal also highlights its role as a source of inference, not necessarily pertaining to manipulative intent (Baker *et al.*, 1992; Donovan and Rossiter, 1982; Dubé *et al.*, 1995; Sherman *et al.*, 1997). Arousing store environments, such as those with fast tempo music or warm colors (Kaltcheva and Weitz, 2006), can be potent sources of inferences about the store merchandise (Bellizi *et al.*, 1983; Crowley, 1993). Similarly, arousal evoked by lighting can influence consumers’ perceptions of the store image and appraisal of the products (Areni and Kim, 1994; Baker *et al.*, 1994). Considering the effects of arousal on inferences, we assume that consumers facing arousing environments use their own strategies to interpret the retail setting (Arnould and Thompson, 2005) and might draw inferences about retailers’ manipulative intents. This hypothesis receives support from Bosmans and Baumgartner (2005) who propose that consumers exposed to highly salient sources of extraneous affect (i.e. unrelated to the

product and attributable to an external source, such as an arousing store environment) correct for these influences. As a result, consumers may perceive an arousing store environment as deliberately designed to produce specific, profitable outcomes for the retailer. They may thus develop IMIs about retailers' control attempts through the use of in-store stimuli (Lunardo and Mbengue, 2013).

2.3 Arousal and IMIs: PKM as an explanative model

In considering how consumers' knowledge influences their responses to persuasive messages, PKM is an appropriate framework to examine atmospherics, which Friestad and Wright (1994, p. 3) describe as "messages from which consumers can perceive of a persuasion attempt" and whose underlying influence they may try to decode. Because consumers possess knowledge about persuasion tactics, they endeavor to identify the agent responsible and to find plausible meanings for the strategy. Tactics then enter consumers' cognitive schemas and increase their knowledge of influencing processes. In turn, consumers try to thwart influence tactics that might hinder the achievement of their own consumption. This suggests that IMIs may have negative effects on positive responses (pleasure and approach behavior). Age also plays a role, in that people's knowledge of marketing tactics tends to increase over time (Boush *et al.*, 1994), so younger consumers may be less vigilant than older ones, who have more experience with tactic recognition (Friestad and Wright, 1994).

3. Hypotheses

We posit that highly arousing environments are likely to trigger consumers' IMIs. This suggests the following hypothesis:

H1. High levels of arousal triggered by the store environment induce IMIs.

Previous literature offers support for the assumption that IMIs negatively affect pleasure and approach behavior. First, research indicates that a persuasive attempt gets undermined if consumers perceive that the influence agent is using manipulative tactics (Campbell, 1995; Ellen *et al.*, 2000; Kirmani and Zhu, 2007; Lunardo and Mbengue, 2013). Second, research shows that participants tend to respond contrarily to an experimenter's requests if they believe the experimenter is trying to trick them (Christensen, 1977). Turning to the specific context of retail environments, Foxall and Yani-de-Soriano (2005, p. 524) indicate that "obvious attempts to create pleasure and arousal responses are likely to be counterproductive". They also contend that "providing ambient music and other forms of entertainment can produce avoidance rather than approach responses". Thus, manipulating in-store stimuli can lead to IMIs, decreasing pleasure and approach behavior. Of importance, the literature on the SOR paradigm (Mehrabian and Russell, 1974; see also Donovan and Rossiter, 1982; Donovan *et al.*, 1994) assumes that stimuli (S) cause changes to people's organismic states (O), which then cause approach or avoidance responses (R). As organismic states involve emotions, which then affect cognitions (Kotler, 1973), this suggests that IMIs, as cognitions, may result from arousal and mediate the effect of arousal on pleasure and approach behavior. Thus, we predict the following:

H2. IMIs mediate the effects of in-store arousal on pleasure and approach behavior, such that high (vs low) in-store arousal leads to higher (vs lower) IMIs, which decrease (vs increase) (a) pleasure and (b) approach behavior.

Finally, the PKM indicates that older adults have more persuasion knowledge than younger adults (Boush *et al.*, 1994; Friestad and Wright, 1994; Kirmani and Campbell, 2004). We similarly hypothesize that older consumers might easily notice persuasion attempts and infer that the store is manipulative, even if the in-store level of arousal is low, whereas younger consumers may notice it only if it is highly salient. Thus, age should moderate the relationship between the level of in-store arousal and IMI:

H3. In-store arousal has a weaker impact on young than older consumers' IMIs.

In Study 1, we qualitatively explore consumers' reactions to arousing store environments – specifically, whether IMIs arise in response to such environments. Study 2 provides a quantitative test of the hypotheses.

4. Study 1: exploring consumers' perceptions of in-store environments

4.1 Procedure, data and sample

This study explores whether arousal prompts consumers to develop IMIs about retailers' use of atmospherics, how IMIs affect their pleasure and approach behavior and the role of age in the elicitation of IMIs. To cultivate a deeper understanding of this phenomenon, we take a qualitative and phenomenological approach and attempt to shed light on the essential meanings of consumers' experiences (Holbrook and O'Shaughnessy, 1988; Thompson *et al.*, 1989).

The primary data consist of tape-recorded, in-depth interviews collected over a six-month period with 21 shoppers. The informants were selected sequentially in two large French cities (populations of approximately 150,000) in the northeastern metropolitan area, and recruitment continued until the study achieved information saturation. The researchers ensured that the informants' profiles varied in age, gender, socioeconomic status and shopping experience, because demographics likely affect people's perceptions and evaluations of the store environment (Grewal *et al.*, 2003). However, the nature of the research topic led to an overrepresentation of female (13) over male (8) informants, reflecting their interest in shopping. Informants' ages ranged from 25 to 61 years, with an average age of 38 years and a median of 34 years (Table I). Except for three retired and two unemployed people, the informants worked in tertiary-sector occupations, a proportion that aligns with general employment trends in France. All informants had completed at least a secondary education. Eight lived in the countryside and 13 in urban environments.

Before starting, the interviewers assured the informants that their identities would remain confidential. To minimize any risk of interviewer-induced bias, the topic and research question (i.e. whether in-store arousal leads to IMIs) were never introduced. Because informants could be influenced by their own efforts to understand the motives for the study and thus change their attitudes toward shopping situations (Rosenthal and Rosnow, 1997), we took great care to be as neutral as possible and began with "grand-tour" questions (McCracken, 1986) related to topics such as their "personal interest in shopping", "lived experiences in stores", "general perceptions of store environments" and "representations of an ideal point of sale". In line with the principles of in-depth qualitative and exploratory research, informants could guide the flow and content of the discussion. The interviewers refrained from asking predetermined questions unless the dialogue halted. Informants were encouraged to recall experiences pertaining to ordinary local shopping trips or less frequent experiences in themed stores,

| First name | Gender | Age | Marital status | Occupation | Time of first mention of IMI | Length of the interview |
|-----------------|--------|-----|----------------------|-------------------------|------------------------------|-------------------------|
| Clothilde | F | 23 | Single, no children | Finance student | 6 min 34 sec | 41 min |
| Flore | F | 25 | Single, no children | Psychology student | 5 min 12 sec | 84 min |
| Julie | F | 25 | Married, no children | Account manager | – | 68 min |
| Cécile | F | 28 | Single, no children | Director's assistant | 18 min 51 sec | 39 min |
| Anne-Laure | F | 29 | Single, no children | Receptionist | – | 31 min |
| Céline | F | 33 | Single, no children | Secretary | 4 min 36 sec | 61 min |
| Karine | F | 34 | Single, 1 child | Pharmacist | – | 43 min |
| Christelle | F | 37 | Married, 2 children | Director's assistant | 16 min 27 sec | 54 min |
| Emmanuelle | F | 39 | Married, 1 child | Nursery school teacher | 12 min 30 sec | 47 min |
| Laurence | F | 46 | Married, 2 children | Personal assistant | 16 min 24 sec | 81 min |
| Véronique | F | 51 | Divorced, 1 child | Primary school teacher | – | 26 min |
| Evelyne | F | 54 | Married, 3 children | Primary school director | 11 min 22 sec | 48 min |
| Marie-Françoise | F | 58 | Married, 1 child | Retired | 11 min 08 sec | 29 min |
| Mathieu | M | 29 | Single, no children | Financial consultant | 13 min 43 sec | 48 min |
| Roman | M | 29 | Single, no children | Unemployed | 9 min 24 sec | 73 min |
| Nicolas | M | 30 | Single, no children | High school teacher | 5 min 36 sec | 61 min |
| Claude | M | 31 | Single, no children | Lecturer | 7 min 24 sec | 72 min |
| Jimmy | M | 34 | Single, no children | Unemployed | 18 min 41 sec | 42 min |
| Aldo | M | 59 | Divorced, 3 children | Doctor (anesthetist) | 7 min 15 sec | 41 min |
| Christian | M | 60 | Married, 2 children | Retired | 7 min 44 sec | 28 min |
| Louis | M | 61 | Married, 2 children | Retired | 17 min 21 sec | 36 min |

Table I.
Summary of
respondent
characteristics
(Study 1)

off-center shopping malls or retail parks. They mentioned nine retail sectors and 51 store brands – mostly specialty stores (43 of 51) selling clothing, footwear, cosmetics, furniture, interior decoration, home improvement supplier, gardening, food and restaurants – during the interviews. The methodological assumption was that when people talk about what they like and do, they also define themselves through what they dislike and avoid doing (Hogg and Banister, 2001). Although the informants spontaneously recalled episodes of what they had noticed and liked in stores, they regularly focused on disturbing perceptions of arousing store environments. Somewhat surprisingly, mentions of IMIs often arose quickly during the conversation. The time it took for respondents to mention their inferences of retailers' manipulative intents ranged between 4 and 19 minutes and averaged 11.25 minutes. These discourses brought to light three main themes:

- (1) high levels of in-store arousal trigger strong IMIs;
- (2) strong IMIs decrease pleasure and approach behavior; and
- (3) age moderates perceptions of IMIs depending on the level of in-store arousal.

4.2 Findings: from arousal to IMIs and from IMIs to subsequent behaviors

The main finding common to all interviews is that people observe, make attributions and infer in their attempts to give meaning to their most familiar environments. These interpretive capacities must be articulated within the “context of the context” (Askegaard and Linnet, 2011), which refers to the macro-social explanatory frameworks within which the phenomenology of lived experiences is embedded. Consumers thus are informed not only by themselves and their experiences but also by various actors in their environment. For example, television programs regularly investigate firms that have committed fraud, and media reports frequently reveal scams in various domains, such as pricing, retailing and advertising. Making such behaviors visible should sharpen people's awareness and activate their metacognitive processes (Friestad and Wright, 1994). These various factors then combine to produce a culture of vigilance that affects consumers' abilities to question what they see when shopping (Kirmani and Zhu, 2007). As we detail next, our findings show that high levels of arousal trigger strong IMIs, which decrease pleasure and approach behavior. Finally, we find that age moderates the relationship between levels of in-store arousal and IMIs.

4.2.1 High levels of arousal trigger strong IMIs. The informants differed in their perceptions of IMI. Eight recalled episodes of perceived manipulation quickly, within the first 10 minutes of the interview. For these consumers, IMIs are prominent, quickly reactivated and easily mobilized when they recall shopping experiences (e.g. “Everything is done to influence the buyer”, “Retailers use atmospherics and set the store on purpose”, “[The retailers] want to rip us off”). Nine informants provided examples of IMIs only after the average time had elapsed, such that their IMIs resulted from an extended elaboration in which they interpreted that retailers create highly arousing environments to make them buy more. By comparing various settings, their atmospherics and their arousing properties, these informants came to infer that highly arousing environments are designed to affect their behavior. Finally, only four female consumers of various ages and occupational statuses did not express any belief that in-store environments were manipulative. Except for these, all informants put particular

emphasis on the arousing properties of retail environments, expressed through terms such as “exaggeration”, “excess” and “too much” arousal:

It can be very excessive sometimes. Everything they do to make us buy. And I feel that’s more of an aggression (Roman, M, 29).

Highly arousing properties of in-store environments that were frequently noticed included music, which is “always too loud so, in general, it is more a sensory assault than a stimulation” (Nicolas, M, 30), and smell, which was also repeatedly mentioned as part of atmospherics:

It’s always the same thing, a strong odor that hits you as soon as you enter the store, or a too loud noise (Evelyne, F, 54).

Informants also contrasted shops that tended to produce higher levels of stimuli with stores that used lower levels:

In high-tech stores, there is a lot of noise, harsh lighting. But there are also shops where the music is a little less loud, where the lighting is a little more subdued (Roman, M, 29).

In turn, they compared shops that used moderate levels of stimuli with those whose arousing properties were intended to keep people in the store longer:

There is zero music by Decathlon. It’s their strategy because they say: “it’s our customer. We want to make him save time”. Whereas at Leclerc, for example, their strategy is to keep people as long as possible in the store (Clothilde, F, 23).

Beyond noticing the variable uses of atmospherics, the informants tried to make sense of what they perceived when shopping (Friestad and Wright, 1994). They could have interpreted the creation of an arousing environment as a disinterested act, designed to improve their retail experience, but instead most suspected retailers of manipulative intent when in-store arousal reached high levels:

I remember at Abercrombie the girl who sprays perfume every quarter of an hour on the clothes on the shelf. Horrible! Frankly! There, you really see that all is done on purpose. In fact, even if it smells good – although a bit too strong – you think they really take you for an idiot [...]. I think we will be really jaded when we will realize that all this is done not to make things more pleasant for us, but simply to make us spend more (Claude, M, 31).

In these narratives, 17 of 21 informants believed that retailers intentionally used atmospherics to put them in an energetic state so that they would spend more. However, the expected outcome of pleasure and approach seemed jeopardized by the IMIs induced by the retailers’ use of overly strong stimuli.

4.2.2 IMIs have effects on approach and pleasure. Some informants reached the point that they no longer believed arousing environments were designed for their pleasure but rather existed only to produce favorable outcomes for the retailer. When they perceived the level of atmospherics as too high and thus manipulative, these respondents expressed strong displeasure:

It smells too strong. You really feel they want to rip us off. It bothers me because it’s really just taking people in and treating them like consumers (Flore, F, 25).

In turn, they exhibited strong negative attitudes and intentions to leave or avoid the store:

L'Occitane, well, then you know, it smells too strong. Here, it has a repulsive effect on me. So I leave the store. I don't come back any more, I avoid it (Evelyne, F, 54).

More broadly, the heavy use of atmospherics and feelings of being manipulated led some informants to stop patronizing some retailers:

I think they put too much emphasis to be honest. This kind of stuff, it makes me want to leave. For example, loud music. Loud music, yes, that's for sure! But now, I am trying to take an important step that is to turn back more often to small retailers instead of supermarkets where I am assaulted from all sides (Louis, M, 61).

With somewhat more nuance, Laurence explained that she would likely leave stores depending on the sound level, though this problem was less salient when the retailer "respects the customer" by using lower levels of stimuli:

Let's say, I can accept it [loud music] some days and then not others, while [I can accept] quiet and pleasant music playing in the background, no matter how I feel (Laurence, F, 46).

In-store arousal triggered by high levels of atmospherics thus proved detrimental to anticipated pleasure and approach outcomes. The discourses provided by most of the informants indicated that they perceived most highly arousing settings as manipulative. In turn, the activation of IMIs contributed to decreasing their pleasure and approach behaviors.

4.2.3 Age moderates the perception of IMIs depending on the level of in-store arousal. To achieve "shopper capture" (Cochoy, 2007), retailers function as agents that attempt to learn exactly how their target markets react to specific environmental cues. To this end, and according to the informants, the arousing properties of the environment represent a parameter that retailers manipulate deliberately to target specific customer segments:

Anyway, it's done on purpose. Well, I suppose that a shop that wants to attract young consumers will play appropriate music to attract them (Cécile, F, 28).

Young people's taste for exciting environments (Raju, 1980) can also lead retailers to use strong stimuli that older shoppers may not tolerate:

[There are] some stores where they play a lot of music. In some stores designed for youth, hype-style, there play bass loudly, and for me personally [...] no, does not make me run, but [...] it makes me tired. After a while, you have the music in your ear, it's unpleasant. This is more in clothes shops for young people. In my opinion, this is intended for them. They hope that people will feel very good in the store, and will buy. And, ultimately, they buy. It is done on purpose anyway (Marie-Françoise, F, 58).

Similarly to Marie-Françoise, older informants tended to infer that highly arousing store environments are often designed for younger segments of consumers. She also suggested that loud music has become such "a common practice" that it occurs in almost all stores. What she perceives as a manipulative tactic, including "music, scents, these are done to influence, clearly!" could go unnoticed by young people unless they sense high levels of atmospherics. For example, Nicolas provides many instances in which atmospherics are "thoughtfully and cleverly designed to influence his behavior", while also recognizing that atmospherics are likely to be effective only when their level is high:

In stores, there is music [...]. I don't mind. I find it enjoyable without necessarily noticing it. But as regards the sound level, once I'm aware of it, the music doesn't influence me anymore. In

fact, it's when I don't hear it that it influences me. Sometimes I don't hear it and that's precisely when it may be the most effective (Nicolas, M, 30).

This excerpt suggests that unless atmospherics prompt a high-arousal level, they likely remain unperceived by young people, compared with older shoppers, who may be more likely to notice atmospherics at any arousal level.

5. Study 2: testing the mediating role of IMIs and the moderating role of age on pleasure and approach behavior

The qualitative study showed that a high level of arousal in retail stores is a central factor in the elicitation of IMIs. We test this hypothesis by manipulating in-store arousal (*H1*). We also examine the mediating role of IMIs between in-store arousal and pleasure or approach behavior (*H2a* and *H2b*). Finally, we address the role of age in determining the effect of in-store arousal on IMIs (*H3*).

5.1 Design

The method was based on a 2 (low arousal vs high arousal) \times 1 between-subjects experiment. Participants were randomly assigned to the low- and high-arousal store environment condition (low complexity stores with cool, low-saturated color vs high complexity stores with warm, high-saturated color). Participants reviewed a slide show file with nine pictures of toy stores, selected through a pretest and separated by 60 seconds each (see Section 5.2). The instructions asked participants, while watching the slide show, to project themselves into the situation of shopping there and to indicate the pleasantness of their virtual experience in the environment, their shopping behavior intentions (approach behavior) and the degree of manipulative intent they perceived.

Relying on still pictures offers three methodological advantages (Kaltcheva and Weitz, 2006; Mattila and Wirtz, 2006). First, it injects variance into the independent variables, that is, the arousing properties of the in-store environment. Second, compared with videos, still pictures provide more standardized, controllable settings. Third, they have ecological validity for complex cognitive processes and affects (Bateson and Hui, 1992). Overall, using various pictures in the slide show to offer a stimulus sampling enhances the external validity of our study (Wells and Windschitl, 1999). We also included manipulation checks.

5.2 Manipulation of arousal: stimuli selection and pretest

A pretest with 28 undergraduate students helped us select proper images to represent the in-store environments, to ensure sufficiently contrasting stimuli for the high and low arousing conditions. To ensure that the environments could be contrasted in terms of arousal, 20 pictures of a single category of store – a toy store – were chosen. Beyond their appeal to consumers across age, gender and socio-cultural categories, such stores are of interest because they are mainly hedonic, often providing multi-sensory environments and delivering emotional experiences (Holbrook and Hirschman, 1982). As such, they represent other environments whose level of arousal can be easily manipulated. To limit biases, the pictures were the same size and did not contain any logos that might induce uncontrolled (positive or negative) representations of the store. During the pretest, participants viewed the set of 20 pictures and were asked to imagine themselves

shopping there. They also rated, on a seven-point scale, the extent to which they would feel “stimulated” (anchor 1) versus “relaxed” (anchor 7) or “excited” (anchor 1) versus “calm” (anchor 7) (reverse coded, with higher scores indicating higher arousal; $\alpha = 0.70$).

A repeated-measures multivariate analysis of variance provided the test for any significant differences in the arousal-inducing properties of each store environment. The results indicated significant differences [multivariate $F(1, 19) = 10.824, p < 0.01$], such that some stores appeared significantly more arousing than others. Using paired tests and the mean of each store’s arousal level, we selected nine pictures to represent highly arousing store conditions (stores 1, 4, 5, 6, 11, 12, 14, 15 and 18) and nine pictures for the less arousing condition (stores 2, 3, 7, 8, 9, 13, 16, 17 and 19). Stores 10 and 20 were excluded because of their ambiguous arousal properties. We computed the arousal mean for each condition. A paired-sample t-test confirmed that the stores selected for the high-arousal condition induced more arousal than those selected for the low-arousal condition ($M_{\text{High}} = 5.29, M_{\text{Low}} = 4.13; t = 11.07, p < 0.01$) (see the [Appendix](#)).

5.3 Sample and procedure

The participants for the main study were undergraduate students who agreed to take a survey about shopping. We contacted potential candidates by e-mail and used a snowballing technique, asking them to redirect the message to other potential candidates. To ensure the random allocation of participants to the two arousal conditions, two e-mails were created, one for each arousal condition. Participants thus received an e-mail containing either the slide show file presenting the highly arousing store environments or the slide show file presenting the less arousing store environments. The final sample consisted of 102 participants: 59 women (43 per cent), 70 per cent between 17 and 36 years of age ($M = 32.02, SD = 14.30$; overall range between 17 and 74 years) and 45 per cent employment rate. To ensure that the participants were comparable across experimental conditions, we matched them by gender and age. The satisfactory statistical tests indicated no significant differences in gender or age between cells ($\chi^2_{\text{Gender}} = 1.13, p = 0.28; t_{\text{Age}} = 0.455, p = 0.65$).

5.4 Measures

Major constructs included IMIs, pleasure, approach behavior and arousal, along with their psychometric properties, as presented in [Table II](#). In addition, we included perceived crowding ([Hui and Bateson, 1991](#); [Van Rompay et al., 2008](#)) and familiarity with the store ([Inman et al., 2009](#)) as manipulation checks because both can affect the dependent variables – especially pleasure and behavior. The measures used seven-point scales from extant literature or were adapted for our study.

In particular, we measured IMIs with [Campbell’s \(1995\)](#) scale, using items tailored to fit a retail context ([Lunardo and Mbengue, 2013](#)). The scale was reliable ($\alpha = 0.92$) and unidimensional, with one factor that accounted for 72 per cent of the variance extracted (eigenvalue = 4.32). We assessed pleasure ($\alpha = 0.93$) with the widely used six-item scale from [Mehrabian and Russell \(1974\)](#). For approach behavior, we used [Kaltcheva and Weitz’s \(2006\)](#) scale, though we excluded the two reversed items from the original version, to prevent degradation of scale unidimensionality. Thus, we applied a four-item scale ($\alpha = 0.62$). [Mehrabian and Russell’s \(1974\)](#) arousal scale supported our arousal manipulation check. In line with the bi-dimensional conceptualization of arousal

| Constructs | Items | Loading | AVE (%) | α | Manipulative intent in store | | |
|----------------------------|--|-------------------------|---------|----------|------------------------------|------------|------|
| Positive arousal | Relaxed – Stimulated | 0.779 | 51.33 | 0.85 | | 657 | |
| | Calm – Excited | 0.815 | | | | | |
| | Unaroused – Aroused | 0.878 | | | | | |
| Negative arousal | Dull – Jittery | 0.913 | 25.92 | 0.86 | | | |
| | Wide-awake – Sleepy | 0.910 | | | | | |
| IMI | The way this atmosphere tries to persuade people seems acceptable to me (R) | 0.882 | 72.00 | 0.92 | | | |
| | The atmosphere tries to manipulate the customers in ways that I don't like | 0.915 | | | | | |
| | I would be annoyed by the atmosphere because the retailer seemed to be trying to inappropriately control the consumers | 0.899 | | | | | |
| | I don't mind this atmosphere: the retailer tries to be persuasive without being excessively manipulative (R) | 0.781 | | | | | |
| | This atmosphere is fair in what is shown | 0.810 | | | | | |
| | I think this atmosphere is fair | 0.795 | | | | | |
| | Pleasure | Depressed – Contented | | | 0.904 | 75.06 | 0.93 |
| | | Unhappy – Happy | | | 0.927 | | |
| | | Unsatisfied – Satisfied | | | 0.888 | | |
| | | Annoyed – Pleased | | | 0.888 | | |
| Approach behavior | Despairing – Hopeful | 0.763 | 46.77 | 0.62 | | | |
| | Bored – Relaxed | 0.816 | | | | | |
| | I would enjoy shopping in this store | 0.700 | | | | | |
| | I would return to this store | 0.537 | | | | | |
| | I would be willing to buy things at this store | 0.692 | | | | | |
| Familiarity with the store | I would be willing to recommend this store to my friends | 0.784 | | | | | |
| | Very unfamiliar/very familiar | – | – | – | | | |
| Perceived crowding | Uncrowded/crowded | – | – | – | | | |

Note: AVE = average variance extracted

Table II.
Description and psychometric properties of the measures

(Thayer, 1989), a factorial analysis using Varimax rotation revealed two dimensions: positive arousal (“excited”, “stimulated” and “aroused”) and negative stimulation (“jittery”, “frenzied” and “wide-awake”). Because IMIs may arise in response to positive stimulation (as highlighted in Study 1), only the first dimension ($\alpha = 0.85$) informed our analyses. Positive stimulation accounted for 51.33 per cent of the variance of arousal, with an eigenvalue of 3.08. We measured perceived crowding with the item “uncrowded/crowded” and store familiarity with the item “very unfamiliar/very familiar” (see Table II).

All scales were unidimensional, with single eigenvalues greater than 1 (Hair *et al.*, 2005). We also ensured that the constructs were distinct by checking their discriminant validity. The average variance extracted for each construct was higher than the squared correlation between that construct and any other construct, in support of discriminant

validity (Fornell and Larcker, 1981). As evidence of convergent validity, the average variance extracted values exceeded 0.50 for all dimensions (Fornell and Larcker, 1981) (see Table III).

6. Results

6.1 Manipulation checks

With analyses of variance, we tested the effectiveness of the arousal manipulation, using the arousal condition as the independent variable and the arousal manipulation check as the dependent variable. Participants viewing the highly arousing store environments rated their arousal as significantly higher ($M_{High} = 4.65$) than participants in the less arousing environment ($M_{Low} = 3.66$; $t = -4.02, p < 0.01$), in support of our manipulation. Furthermore, a t-test showed that the two sets of pictures did not differ in terms of perceived crowding ($M_{Low} = 4.11, M_{High} = 4.69$; $t = -1.65, p > 0.10$) or store familiarity ($M_{Low} = 3.60, M_{Low} = 3.51$; $t = 0.241, p > 0.10$).

6.2 Hypotheses tests

H1 was examined using another t-test. As expected, more IMIs occurred when arousal was high ($M_{High} = 3.22$) rather than low ($M_{Low} = 2.51$; $t = 2.51, p < 0.05$) (Table IV). The tests of the hypothesized mediating role of IMI in the path from in-store arousal to pleasure and approach behavior relied on Zhao *et al.*'s (2010) recommended procedure. Using the PROCESS macro (Model 4; Hayes, 2012), we found that the indirect path of the effect of arousal on pleasure through IMIs was significant, as expected. The 95 per cent confidence interval (CI; 5,000 bootstrap samples) excluded zero [-.25; -.02], which suggests that IMI mediated its effect. That is, in-store arousal increased IMIs ($\beta = 0.43, t = 3.17, p < 0.05$), which decreased pleasure ($\beta = -0.26, t = -3.21, p < 0.05$). Thus, *H1* was supported. We found no direct effect of in-store arousal on pleasure ($\beta = 0.15, t = 1.32, p > 0.10$). This indirect-only, full mediation (Zhao *et al.*, 2010) highlights the role

| Variables | Inferences | Arousal | Pleasure | Approach behavior |
|-------------------|------------|---------|----------|-------------------|
| Inferences | 0.720 | | | |
| Arousal | 0.091 | 0.51 | | |
| Pleasure | 0.079 | 0.04 | 0.75 | |
| Approach behavior | 0.016 | 0.04 | 0.25 | 0.47 |

Table III.

Convergent and discriminant validity

Notes: Cells present the squared correlations between constructs; the average variance extracted appears on the diagonal

| Variables | Overall | Low-arousal condition | High-arousal condition |
|-------------------|-------------|-----------------------|------------------------|
| Arousal | 4.13 (1.34) | 3.66 (1.33) | 4.65 (1.16) |
| IMI | 3.72 (1.11) | 2.51 (1.42) | 3.22 (1.40) |
| Pleasure | 4.67 (1.19) | 4.87 (1.07) | 4.49 (1.26) |
| Approach behavior | 4.03 (1.30) | 4.31 (1.39) | 3.77 (1.17) |

Table IV.

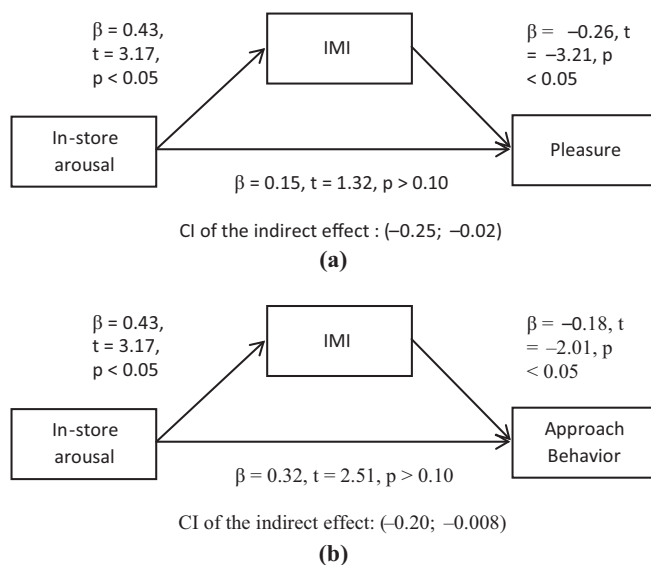
Descriptive statistics

Note: Standard deviations are in parentheses

of IMIs as an underlying mechanism that can explain the effect of in-store arousal on pleasure, in support of *H2a* [Figure 1(a)].

We used the same procedure to test the mediating effect of IMIs on the arousal – approach behavior relationship. Again, the indirect path of the effect of arousal on approach behavior through IMIs was significant, with a 95 per cent CI (5,000 bootstrap samples) that excluded zero $[-0.20; -0.008]$, in support of IMIs' mediating role. As we noted, in-store arousal increased IMIs ($\beta = 0.43, t = 3.17, p < 0.05$), which also decreased approach behavior ($\beta = -0.18, t = -2.01, p < 0.05$). However, contrary to our findings regarding pleasure, we found a direct effect of in-store arousal on approach behavior ($\beta = 0.32, t = 2.51, p < 0.05$). This complementary mediation (Zhao *et al.*, 2010) suggested that IMIs only partially mediated the effects of in-store arousal on approach behavior, though it still offered support for *H2b* [Figure 1(b)].

The test for *H3*, regarding the potential moderating effect of age, relied on linear regressions of the interaction between in-store arousal and age, using the PROCESS macro (Hayes, 2012). The results of the linear regression showed that the interaction between in-store arousal and IMIs was significant ($\beta = -0.02, t = -2.01, p < 0.05$). Moreover, the results showed that in-store arousal had a weaker impact on younger consumers' IMIs than on older consumers' IMIs. The Johnson – Neyman point (Hayes and Matthes, 2009; Spiller *et al.*, 2013) occurred at a value of 29.17. This indicates that consumers below this age exhibited significantly higher levels of IMIs only when the level of in-store arousal was high. For older consumers, we found no difference in perceptions of manipulative intent between highly and less arousing store environments (Figure 2). Thus, *H3* was supported.



Notes: (a) Pleasure; (b) approach behavior

Figure 1.
Mediating Effects of
IMI

7. Discussion and conclusion

This research relies on a qualitative and a quantitative study to demonstrate that in-store arousal induces consumers' IMIs, which subsequently decrease pleasure and behavior. By examining consumers' IMIs as a cognitive construct to explain reactions to store environments, this study proposes new insights into consumers' conscious awareness of retailers' manipulations. With our qualitative study, we find that arousal makes sensory cues more salient, such that it prompts consumers to search for cues being used by the retailer, thus leading to IMIs. By showing that IMIs mediate the effects of in-store arousal on pleasure and approach behavior, we emphasize the importance of cognition for explaining the effects of the store environment on consumers' emotions and behaviors. Finally, this study reveals that the level of IMIs that consumers develop in response to in-store arousal depends on their age. Although we found a transition point (around 29 years of age) that refers only to the present study and might vary with other samples, it suggests an age span within which in-store arousal leads consumers to develop IMIs.

7.1 Theoretical contributions and implications

This article represents one of just a few studies that examine the store environment as a potential source of consumer IMIs. As such, this research makes three contributions. First, as our qualitative study demonstrates and our quantitative study confirms, arousal is a critical antecedent of consumers' IMIs. We thus extend the work of Lunardo and Mbengue (2013), which focuses mainly on the effects of IMIs, not its antecedents.

Second, this research highlights the role of age in determining the effects of in-store arousal on IMIs. Consistent with the PKM, in our qualitative study, we hypothesize that younger people are less knowledgeable than older people about manipulation tactics (Boush *et al.*, 1994; Friestad and Wright, 1994). Our quantitative study then validates this hypothesis by showing that younger people's cognitive mechanisms (IMIs) become activated mainly when their emotions (arousal) have been triggered by highly arousing properties in the environment (Mehrabian and Russell, 1974). This finding is important because it stresses the significance of emotions (arousal) in activating cognitive mechanisms in young consumers, whereas for older consumers, these mechanisms are activated regardless of the level of arousal.

Third, this research reveals a mediating effect of consumers' IMIs, such that arousal increases IMIs, which decrease pleasure and approach behavior. Our quantitative study

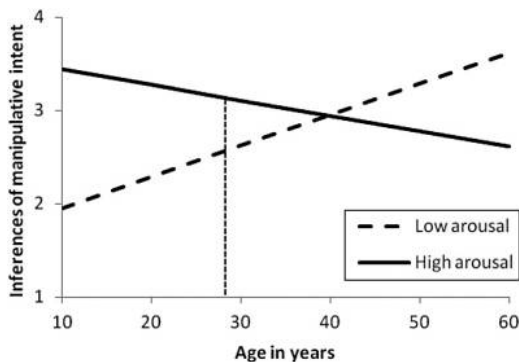


Figure 2.
Interactive effects of age and arousal on inferences of manipulative intent

demonstrates that when arousal leads consumers to believe that the environment is designed to control their behavior, the manipulative intent exerted through atmospherics becomes salient and more likely to be noticed. As a consequence, consumers respond negatively by expressing decreased pleasure and approach behavior. Nevertheless, whereas IMIs fully mediate the arousal – pleasure relationship, they only partially mediate the arousal – behavior relationship. That is, IMIs help explain why arousing environments lead to less pleasure but are not the sole mechanism explaining why consumers might spend less money or purchase fewer items in arousing environments.

7.2 Managerial implications

Retailers devote considerable resources to creating store atmospherics (e.g. music, color, complexity of store layout, merchandise presentation) that enhance consumers' emotions. When a consumer interacts with a store's physical environment, feelings of arousal and pleasure can make the shopping trip a genuine experience (Holbrook and Hirschman, 1982). However, as our research shows (Study 1), most informants decode environments from a cognitive (as well as emotional) perspective and view the arousing store environment as a tool the retailer implements to influence their behavior. Therefore, our first recommendation lies in retailers' cautious use of arousing stimuli. When using arousing atmospherics, retailers should take care to avoid introducing *overly high* levels of stimulation to prevent the induction of IMIs. For example, retailers likely should avoid very loud music, very bright colors and overly strong ambient scents, which may lead to counterproductive outcomes.

Second, our results show that consumers also react differently to in-store arousal depending on their age. Therefore, retailers should strive to adjust their store environments to match the age of their target audiences. Because older consumers exhibit IMIs even when exposed to low levels of arousal, retailers that target older consumers should be wary of the stimulation levels of their store environments. Conversely, our results show that younger consumers exhibit IMIs only when exposed to high levels of arousal; thus, retailers that target younger consumers can use more arousing stimuli without the risk of triggering IMIs. Nevertheless, most retailers hope to attract customers of various ages, so using moderate levels of atmospherics may be the best option to prevent older shoppers from inferring manipulative intent (Meyers-Levy and Tybout, 1989), without creating major prejudices among younger consumers.

Finally, retailers should consider the potential detrimental effects of implementing highly arousing store environments that induce IMIs. Two particularly negative consequences are prominent.

First, as the PKM model suggests (Friestad and Wright, 1994, p. 10), consumers could exhibit a halo effect such that their IMIs bias their ratings of other elements of the store. In other words, consumers could "refine their impressions" of retailers and extend the negative inferences they draw from atmospherics to elements of the in-store mix (Kardes *et al.*, 2004). If in-store arousal leads consumers to infer that atmospherics are designed to manipulate their behavior, they also might predict that atmospherics serve to disguise the actual properties of other components of the in-store mix (e.g. products) or that these components (products, promotion, prices) similarly constitute attempts to manipulate them. Second, the Internet has supplied consumers with effective means to express their views (e.g. YouTube, Facebook, DailyMotion) and reach a large audience

(Thompson *et al.*, 2006). Retailers thus need to be even more cautious in their use of arousing environments. Consumers are easily able to disparage brands they do not like, as the vast anti-brand advertising parodies available online attest; some Web sites even specialize in this activity (e.g. www.adbusters.org). Consumers who infer that they have been manipulated by arousing atmospherics in stores could use the Internet to spread negative opinions about the retailer.

7.3 Limitations and further research

Several limitations of this study suggest directions for research. First, our experiment provides useful insights into arousing environments but also takes place in a virtual store, which limits the generalizability of the results. Thus, further research using real stores could render a fuller understanding of these phenomena. The manipulation also only involved three arousal-inducing visual elements. Different combinations of these cues (Mattila and Wirtz, 2001) and the inclusion of various other cues – such as design and social manipulations (Puccinelli *et al.*, 2009) or crowding (Eroglu and Machleit, 1990) – could also affect arousal and subsequent responses. Finally, even in the high-arousal condition, IMIs remained below the neutral midpoint ($3.22 < 4$), which calls for a replication of our study in more contrasted retail environments. Further experiments could employ, for example, more explicit visual cues of high in-store arousal, more arousing cues (auditory and olfactory) and/or contexts that are well known for their high-arousal-inducing properties (e.g. the fashion retail industry).

Second, our study focuses on the effects of arousal. However, a wide body of retail research and some excerpts from the qualitative study suggest an effect of congruency on pleasure and approach/avoidance behavior: research shows that the more congruent the environment, the more pleasurable is the experience (Bosmans, 2006; Mattila and Wirtz, 2001; Spangenberg *et al.*, 1996). In other words, incongruency can lead to more negative responses than congruency. However, the underlying mechanism through which such negative effects occur has remained under-examined. What could be argued is that IMIs are the mechanism that explains the negative effects of incongruency. For example, when incongruency exists, such that the store environment is of high quality but the in-store offer is of low quality, consumers may be likely to develop IMIs.

Third, the literature on “affect as information” (Raghunathan *et al.*, 2006) suggests that pleasure affects inferences. According to this framing, a person makes evaluative judgments based on affect, which enhance or decrease his or her subsequent responses. In this regard, research should assess how the level of pleasure consumers feel when facing arousing environments may serve as a cue to evaluate the store as manipulative.

Fourth, beyond atmospherics, research could investigate how retailers’ storytelling might trigger IMIs. Using an appealing story might make consumers more absorbed and less vigilant. It thus would be fruitful to examine whether consumers mobilize critical capacities in such cases and if these capacities induce IMIs.

Finally, regulatory focus could be a useful individual variable to include in further experimental designs. Previous research has shown that regulatory focus is an antecedent of persuasion knowledge activation (Kirmani and Zhu, 2007). Thus, research could investigate whether prevention-focused consumers activate persuasion knowledge and develop stronger IMIs than promotion-focused consumers.

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Figure A1.
Sample pictures used
in the main study

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