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The relationship between density perceptions and satisfaction in the retail setting: Mediation and moderation effects

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ABSTRACT

This paper examines the role of affective evaluations as a mediator of the effect of perceived density on satisfaction. It also suggests that expected density and the shopping context moderate the density–satisfaction relationship. The proposed effects are tested in an experiment, using written scenarios and video stimuli to manipulate perceived density, expected density, and shopping context. The results support the mediating effect of affective evaluations, and show that both density expectations and shopping context interact with perceived density to determine the consumers' affective evaluations, turning an unpleasant shopping situation in a pleasant one. The findings offer some suggestions on developing appropriate strategies for managing crowd perceptions and consumer expectations in retail settings. This paper breaks away from more traditional research on retail crowding by repositioning density as the initial driver of consumers' experiences and crowding as a mediator of the density–satisfaction relationship.

1. Introduction

Crowding is an important environmental factor in consumers' evaluations of the retail experience (Eroglu, Machleit, & Barr, 2005; Rollo, Grayson, & McNeill, 2009). Recent findings have significantly refined the state of research on the impact of density in retail and services settings (Pan & Siemens, 2011; Pons, Mourali, & Giroux, 2014; Uhrich, 2011). These studies have particularly highlighted the role played by potential mediators (i.e., perceived control) in the density–satisfaction relationship. In addition, several personal or contextual factors such as density expectations, tolerance for crowding, shopping motivations, and the retail outlet nature may moderate the impact of perceived density on consumers' responses (Baker & Wakefield, 2012; Eroglu et al., 2005). Indeed, prior research suggests that perceived density triggers more negative responses in utilitarian setting (Hui & Bateson, 1991; Noone & Mattila, 2009).

Moreover, despite a general consensus on the need for a larger spectrum of services or retail contexts in which density should be studied (Eroglu et al., 2005; Uhrich, 2011), the pleasant and positive features of crowded settings have rarely been a focal point in the existing marketing literature. In fact, most studies have focused on retail contexts associated with lower shopping satisfaction (Kim & Runyan, 2011; Raajpoot, Sharma, & Chebat, 2008) and negative consumers' responses due to high density. On the other hand, despite the fact that hedonic services or events (e.g. amusement parks, concerts) and retail experiences (e.g. concept stores) often acquire value only if they are crowded (Brown, Van Raalte, & Andersen, 2000; Pons, Laroche, & Mourali, 2006), they are rarely studied in the marketing literature. Building on recent findings suggesting a curvilinear relationship between perceived density and consumers' responses (behavioral intentions or satisfaction) (Pan & Siemens, 2011), as well as the key role played by the retail/service context (Pons et al., 2014), the purpose of the present study is twofold. First, it aims to clarify the mediating role played by affective evaluations in the relationship between consumer density and consumer satisfaction. Second, it examines the moderating effects of two variables, namely density expectations and shopping situations (Hui & Bateson, 1991; Machleit, Eroglu, & Powell Mantel, 2000) on consumer satisfaction.

Using an experimental design, and manipulating consumer expectations and perceptions in particular, this paper should provide new avenues to support retailers dealing with crowded stores. In addition, our paper addresses concerns raised by Eroglu et al. (2005) who called for an experimental approach to better isolate potential moderating and mediating effects related to crowd issues (p. 1152: "However, the exploratory findings do suggest that future research is needed.

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Experimental research that manipulates and/or controls for the various moderating effects is called for, with the purpose of isolating the exact role that these factors play").

2. Literature review and hypotheses

2.1. Influence of other customers in the retail setting

Co-consumers represent important actors in service encounters (Booms & Bitner, 1981). Customer–customer interactions in the service experience are often drivers of the overall customer satisfaction/dissatisfaction (Jones, Vilches-Montero, Spence, Eroglu, & Machleit, 2010; Zeithaml, Bitner, & Gremler, 2006). In fact, the interaction between customers is generally described as noise or disturbance occurring during the service delivery (Whiting, 2009). Past literature typically tackles waiting line issues (Hui, Thakor, & Gill, 1998; Zhou & Soman, 2008) or critical incidents in services delivery (Grove & Fisk, 1997; Zhang, Beatty, & Mothersbaugh, 2010).

On the contrary, only a limited number of studies, mainly dealing with experiential products or hedonic settings, mention that other customers may contribute to create an enjoyable experience (Holt, 1995; Hui & Bateson, 1991; Pan & Siemens, 2011). Indeed, in some situations, crowds can also trigger positive experiences for consumers and positive return for businesses. For example, dense sporting events or retail outlets can trigger higher levels of excitement and positively influence consumers' service experience (Machleit et al., 2000; Pons et al., 2006). In addition, busy restaurants are often perceived as having higher levels of reputation and food quality (Tse, Sin, & Yim, 2002). Finally, crowds can help attract people and be highly positive in contexts such as events, tourism or attractions (Manning, Valliere, Minteer, Wang, & Jacobi, 2000; Mowen, Vogelsong, & Graefe, 2003).

The overwhelming number of studies focusing on the negative impacts of crowd in retail and service contexts may find its roots in the confusion often found in the literature between density and crowding. This question is addressed in the next section.

2.2. The critical distinction between density and crowding

The crowd's impact in a retail environment has been conceptualized in the retail crowding model (Eroglu & Harrell, 1986; Harrell, Hutt, & Anderson, 1980). In this model (Fig. 1), the researchers highlight the difference between density and crowding and the role of density as a driver of crowding: "Density alone does not produce adaptation behaviours. Only when it produces perceived crowding do shoppers act. Perhaps, then, environmental designs can be created which provide for increased density but lessen the feeling of being crowded." (Harrell et al., 1980: 48).

In environmental psychology, literature also emphasizes the difference between the concepts of density and crowding (or affective density): "Density is the perception and estimate of the number of people present in a given area, the space available, and its organization, whereas crowding (which we could call affective density) is the evaluation or the judgment of that perceived density against certain standards, norms, and desired levels of interaction and information" (Rapoport, 1976: 136). Density, thus, acts as a necessary but not sufficient antecedent to crowding (Pons & Laroche, 2007; Whiting, 2009).

2.3. Mediation hypothesis

Using the previous conceptual model, a two-step approach is often used to describe how consumers react to crowded settings. First, consumers roughly assess how dense the shopping environment (perceived density) is, and then, affectively respond to this density level. If they enjoy the density level, the density is described as functional whereas if they dislike the density level, it is described as dysfunctional and is called crowding (Eroglu & Harrell, 1986; Dion, 2004). Indeed, crowding occurs when the density level is not appropriate for the consumer's experience, often leading to negative affective evaluations (emotions or affect) and dissatisfaction. In order to build on the position of Machleit et al. (2000) who had focused on the role of emotions in the density–satisfaction relationship, we have decided to focus on the potential mediating effect of affective evaluations rather than emotions. Overall affective evaluations are simple, positive or negative, general

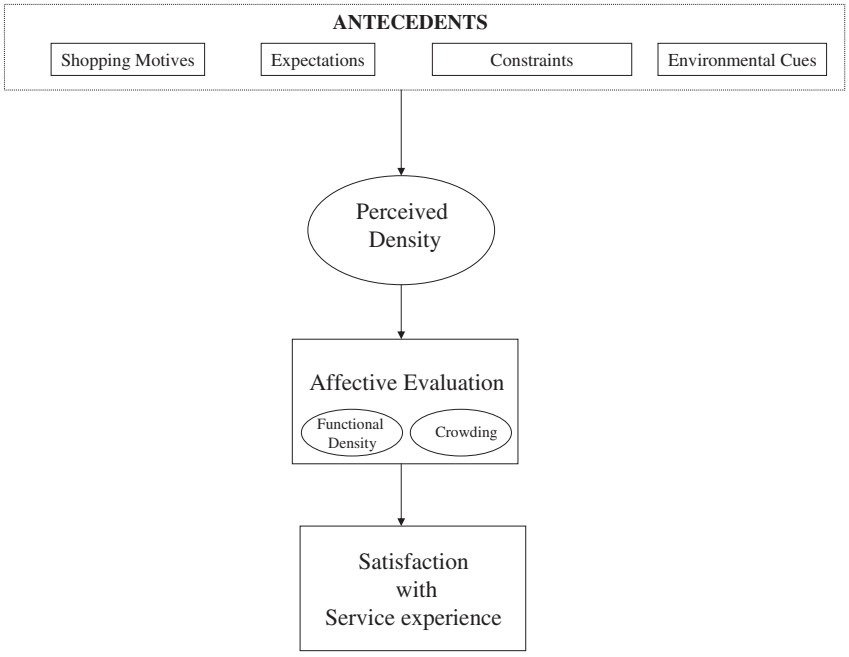

Fig. 1. An extended model of retail crowding.
Adapted from Eroglu and Harrell (1986).

feelings experienced in a given situation. They are not as deep as emotional responses but also influence consumer behavior. Building on this literature, we propose to empirically demonstrate that affective evaluations play a mediating role in the density–satisfaction relationship. Therefore, we posit that:

Hypothesis 1. : In a retail setting, consumers' affective evaluations mediate the effects of consumers' perceived density on consumers' satisfaction.

Using the overload theory and the behavioural constraint theory, most research in marketing focuses on crowding rather than density (Eroglu et al., 2005; Michon, Chebat, & Turley, 2005; Pons & Laroche, 2007). These studies explain how consumers use adaptation strategies such as shorter shopping trips, fewer interactions with others (employees or consumers) or faster choices (e.g., familiar brands) to cope with the stress triggered by the high density encountered in the store (Pons et al., 2006) and limit their dissatisfaction regarding their entire shopping experience. Surprisingly, the potential positive influence of density on the retail experience is often neglected as the empirical studies mainly deal with perceived crowding (a negative affective state). Therefore, the scope of research on crowds in retail remains limited to the negative impact of density on consumers' satisfaction (Kim & Runyan, 2011; Noone & Mattila, 2009). Even recently, several authors (Pan & Siemens, 2011; Uhrich, 2011), who suggest the existence of a potential curvilinear relationship between perceived density and consumers' responses (behavioral intentions or satisfaction), remain in the realm of the negative consequences as they show that intermediate levels of perceived density reduce the negative impact of either low or high levels of density on consumers' experiences.

Building the potential positive influences of density, this paper breaks away from the traditional stream of research on crowding by repositioning density as the initial driver of consumers' shopping experiences not crowding and affective evaluations as mediators of the density–satisfaction relationship. It also examines conditions (moderators) under which consumers' affective evaluations to similar density levels may switch from negative to positive.

2.4. Moderating effects on the density–affective evaluation relationship

Most of the previous studies on crowding also underline the central role played by antecedents/conditions that may affect the intensity of the negative affective evaluations to density (crowding) in the retailing environment (Baker & Wakefield, 2012; Jones et al., 2010). However, as they solely focus on the moderating effects of these variables on crowding, and not density, the results mainly stress a potential reduction of dissatisfaction. Still, these studies provide fruitful insights on these moderators' roles and their influences. Two of these moderators are detailed hereafter.

2.4.1. Expectations

Consumers often form expectations about what they will find in a store or a service setting. Expectations are described as anticipations of future consequences (Taylor, 1994) or comparison standards (Oliver, 1989). They form the cornerstone of the satisfaction literature based on the expectancy–disconfirmation model (Arnold, Reynolds, Ponder, & Lueg, 2005; Jones et al., 2010). In this model, consumers use comparative standards to assess their satisfaction level (Burns & Neisner, 2006; Falk, Hammerschmidt, & Schepers, 2010; Tse and Wilton, 1988).

Rapoport (1976) stresses the central role played by expectations in the evaluation of dense conditions. In the crowding literature, perceived density is always assessed through standards of comparison with previous experience or desired density levels. Previous research demonstrates that expectations about crowded or highly dense environments clearly influence outcomes for the individual of subsequent high-density situations (Sinha & Nayyar, 2000; Webb & Worchel, 1993).

Machleit et al. (2000) empirically tested the role of density expectations in a retail setting. They posited that when perceived crowding meets or falls short of expectations, consumers should be less dissatisfied than when perceived crowding exceeds expectations. Unfortunately, they offered inconclusive results regarding this hypothesis, as they did not manipulate this variable in an experiment and could not obtain actual measures of crowding expectations.

2.4.2. Shopping situation

The shopping situation in which the dense situation occurs appears to also be an essential moderator of the density–affective evaluation relationship. An extensive amount of marketing research describes how a retail experience unfolds and how others (consumers and employees), during the encounter, may enhance/hinder the experience of the individual shopper (Dion, 2004; Kim & Kim, 2012; Lepore, 2012). Generally, a high density of shoppers consistently triggers a negative influence on affect (crowding) and satisfaction (Lepore, 2012; van Rompay, Galetzka, Pruyn, & Garcia, 2008). Thus, highly dense situations in a service setting often lead to dissatisfaction and stressful situations (Grove & Fisk, 1997; Holt, 1995).

However, some research suggests that the nature of the shopping trip or even the setting itself may reduce the negative influence of density on affect and satisfaction. For instance, density can generate different emotions and effects depending on the environment (Hui & Bateson, 1991). Indeed, certain settings can produce positive effects while others will produce negative consequences.

The vast majority of studies on crowding deal with utilitarian shopping situations such as shopping malls or banks. Only a handful of research describes hedonic/leisure situations such as a concert or a ball game (Holt, 1995). This contextual variable (leisure/hedonic versus utilitarian shopping situation; Babin, Darden, & Griffin, 1994) has yet to be tested in research that would allow both positive and negative consequences to dense situations. For instance, in some hedonic situations, individuals expect the crowd to be present just as much as they expect a great performance (e.g., sports team).

2.5. Moderation hypotheses

The literature review clearly highlights the contributions made by previous studies on retail crowding (Eroglu & Machleit, 1990; Machleit et al., 2000). However, it also suggests several gaps that this paper investigates.

Unlike most of the previous studies, this research suggests that high density itself is not a negative feature of a shopping situation. In fact, specific conditions can interact to create either a positive or a negative experience for the consumer. Two of these conditions relate to the nature of the shopping situation (utilitarian vs. leisure/hedonic) and the level of density expected by the consumer. It is not hypothesized that they individually have an effect on satisfaction, but rather that there is an interaction effect. Using the expectancy–disconfirmation applied to the crowding literature (Machleit et al., 2000), we suggest that in a situation of confirmation of expectations, an assimilation position is taken and the expectations become the basis for satisfaction assessment. On the contrary, when the performance is disconfirmed, a contrast position is adopted and the disconfirmation level mainly contributes to satisfaction. In fact, in the disconfirmation situation (positive or negative), differences are accentuated whereas in a confirmation situation they are drawn to the original expectations (Oliver, 1993). Therefore, we suggest that the density level (confirmed or disconfirmed) only takes a particular meaning (benefit or disbenefit) when interacting with the shopping situation. Using the expectancy–disconfirmation approach, in which a positive disconfirmation means that consumers perceive more people than expected whereas a negative disconfirmation means that consumers perceive fewer people than previously expected and a confirmation means that consumers perceive as many people as

expected (Fournier & Mick, 1999), the following hypotheses are presented:

Hypothesis 2a. : In a hedonic shopping situation, consumers who experience a positive disconfirmation of density level will have a more positive affective evaluation of the situation than those who experience a negative disconfirmation of density level.

Hypothesis 2b. : In a utilitarian shopping situation, consumers who experience a negative disconfirmation of density level will have a more positive affective evaluation of the situation than those who experience a positive disconfirmation of density level.

Hypothesis 3. : In a hedonic shopping situation, consumers who experience high density confirmation will have (a) a more positive affective evaluation of the situation than those who experience a negative disconfirmation of density level, and (b) a less positive affective evaluation of the situation than those who experience a positive disconfirmation of density level.

Hypothesis 4. : In a utilitarian shopping situation, consumers who experience low density confirmation will have (a) a more positive affective evaluation of the situation than those who experience a positive disconfirmation of density level, and (b) a less positive affective evaluation of the situation than those who experience a negative disconfirmation of density level.

3. Methodology

3.1. Research design and sample

A 2 (situation shopping: leisure vs. utilitarian) × 2 (perceived density: high vs. low) × 2 (expectations: high density expected vs. low density expected) factorial design was used in this experiment. Written scenarios and video stimuli were used to operationalize the manipulated variables. Previous research (Machleit et al., 2000) suggests that using videotapes and role-playing scenario techniques to recreate a given crowded retail situation produced valid consumer responses. This approach may have limited external validity, but allow to overcome potential limits regarding experimental designs for the study of crowding issues. The scenarios were written by the researchers, reviewed by experts and pretested on subjects. The video stimuli were shot and edited by a professional. The two situations chosen for the final questionnaire, as either hedonic or utilitarian, were identified through pretests among 153 students who were asked to rate six situations (bar, restaurant, hockey game, mall, bank and bookstore) using the hedonic side of the hedonic and utilitarian shopping value scale (Babin et al., 1994). The two situations with the lowest (bookstore) and the highest (bar) average scores were significantly different on a 7-point Likert scale ($M_{bar} = 6.2$ vs. $M_{bookstore} = 3.1$; $F_{(1151)} = 95.52$, $p < 0.001$). Therefore, a bar and a bookstore situation were adopted in this study. It is important to notice that the bookstore was a university bookstore where students shop for their books during the school year and not a hangout place as more commercial retail bookstores can offer.

The confirmation/disconfirmation variable was manipulated in two steps. First, expectations of density were manipulated through written scenarios, in which clear statements about what density to expect in the retail setting were made (see Table 5 for the scenario example). Then, after subjects started filling the questionnaire, a short video was presented. The density in the store was manipulated. In one condition, there were a lot of consumers whereas in the other one there were only a few. Everything else was kept identical. All the pretests indicated adequate manipulations. Significant differences were found for expectations ($M_{highexp} = 6.1$ vs. $M_{lowexp} = 3.1$; $F_{(1,62)} = 164.3$, $p < 0.001$) and for the estimation of the number of persons (1 question) in the video ($M_{many} = 118.9$ vs. $M_{few} = 6.9$; $F_{(1,62)} = 53.8$, $p < 0.001$). Twenty-five introductory business courses in a Canadian University with at least 30 students registered were randomly selected. The final sample was composed of 572 respondents (54.6% females). As the data collection was made in a bilingual university, students were offered the choice between a French and English version of the questionnaire that had previously been back translated. There were no significant differences between the two languages on individual variables as well as other key measures used in the study.

3.2. Procedure

Upon arrival, participants were informed about the procedure and length of the data collection. First, students had to answer questions pertaining to general personality trait measures. Then, a scenario describing a service encounter was presented. The researcher read it aloud while students could also read it. They were then asked to picture themselves in the situation just described; this point was emphasized. Then, the subjects turned the page and answered the first part of the questionnaire. This part asked about the students' density expectations for the situation previously described in the scenario. On the next page, the scenario was repeated and read again by the interviewer. In addition, the subjects were told that they were about to enter the service setting previously described. Then, a short video (1 min), supposed to depict the situation, was shown. They were told to watch the video carefully. After viewing the video twice, the students answered the last part of the questionnaire pertaining to perceived density, affective evaluations and satisfaction. Subjects were then debriefed, thanked and dismissed.

3.3. Measures

A self-administered questionnaire was used to gather the data. All the items were measured on a 7-point Likert scale (Table 4). Both density expectations and perceptions were measured by using similar questions but with a different wording underlining the pre- or post-encounter situation. In the case of expectations, items such as "I expect this place to be crowded" or "I expect a lot of people to be in this place" were used whereas in the case of perceptions items were "There are a lot people in this place" or "This place is crowded." Most of these items were borrowed from Pons et al. (2006) and adapted from existing studies on crowding (Hui & Bateson, 1991; Machleit, Kellaris, & Eroglu, 1994; Webb & Worchel, 1993).

The overall affective evaluation was assessed by asking respondents how they felt about the situation they just encountered in the video. Items such as "I feel happy" or "I feel good" were borrowed from scale measuring affective evaluations (Derbaix, 1995; Murry & Dacin, 1996). In addition, items capturing negative and positive affective states were respectively measured using the following items: cheerful, relaxed, content, angry, irritated, and upset (Bohner, Hauschildt, & Knäuper, 1993; Krahé & Bieneck, 2012). Satisfaction was measured for the overall service experience as suggested by Oliver (1980, 1993). Three items were borrowed and adapted from his consumption satisfaction scale.

As these measures were borrowed from different studies and were developed in different contexts, a series of analyses was performed on each of the latent variables used in the model to determine their psychometric properties and particularly assess their reliability and validity. Results from exploratory factor analyses using the principal component extraction method suggested adequate dimensionalities and satisfying reliability indicators for each factor present in the model (all Cronbach alphas above 0.86). Moreover, a confirmatory factor analysis (CFA) was performed on the measurement model. Results of the CFA analysis suggest a good fit of the model to the data. The comparative fit index (0.971) and the root mean square error approximation (0.047) are both in line with the established criteria (CFI above 0.90, and RMSEA below 0.07). Finally, construct (convergent and discriminant) validity was assessed. Convergent validity is established

when the Average Variance Extracted from the measures of a construct (dimension) is superior to the 50% threshold and discriminant validity is established when the variance shared between constructs (dimensions) is inferior to the Average Variance Extracted. Results support the convergent and discriminant validity of the measurement tools. Moreover, the correlation between each pair of dimensions in our scale, plus or minus two standard errors, did not include the unity (Anderson & Gerbing, 1988). This result gives additional strength to the discriminant validity results.

4. Results and discussion

4.1. The density–satisfaction relationship: the mediating effect of the affective evaluation to density

In this section, the relationship that ties density and satisfaction is analyzed. The model hypothesized in Fig. 2 is first tested on the overall sample. The goal of this first evaluation is to check if an underlying constant pattern of relationship exists between density and satisfaction. In a second round of analyses, the moderating effect of the situational shopping situation variable (leisure versus utilitarian) interacting with different levels of density is analyzed through multigroup studies.

As the construct validity and reliability of the measurement model were assessed in the previous analysis, the hypothesized model is directly estimated. The fit indicators further suggest an adequate performance of the specified model. The indicators support the fact that the model fits the data well (χ^2/df = 3.43). The CFI was 0.936 and the RMSEA was 0.060. As shown in Table 1, all of the structural relationships but one were significant at $p < 0.001$ (t-value >1.96; Anderson & Gerbing, 1988).

These results support the existence of a model linking density in a service setting and satisfaction. As hypothesized, perceived density only influences satisfaction through affective evaluations, which in turn, positively influences satisfaction. Therefore, Hypothesis 1 is supported. The path analysis also seems to confirm the over-described negative relationship between crowding and satisfaction. However, as suggested in the literature review, the shopping situation should moderate this relationship. Therefore, a multigroup analysis was performed to assess structural differences between the bar and bookstore situation. After checking for configural and metric invariance across the two situations, the structural invariance of the model was evaluated.

All the parameters in the causal structure are constrained to be equal across the two situations. The fit indicators of the resulting model suggest a relatively poor fit of the data (χ^2 = 863.2, 161° of freedom, χ^2/df = 5.36, CFI = .861 and RMSEA = 0.088). Furthermore, the Lagrange Multiplier test for releasing constraints indicated that one constraint (out of 3) should be released, supporting the poor similarity of structural coefficients between the two groups. The identical paths across the two groups are the non-significant effect of density on satisfaction and the impact of affective evaluation on satisfaction. Once the constraint on the density–affective evaluation path is released, the model is reassessed. The final indicators suggest a fairly good fit to the data (χ^2 = 422.7 with 160 degrees of freedom, χ^2/df = 2.64, CFI = .941 and RMSEA = 0.067). The parameter estimates are presented in Table 2.

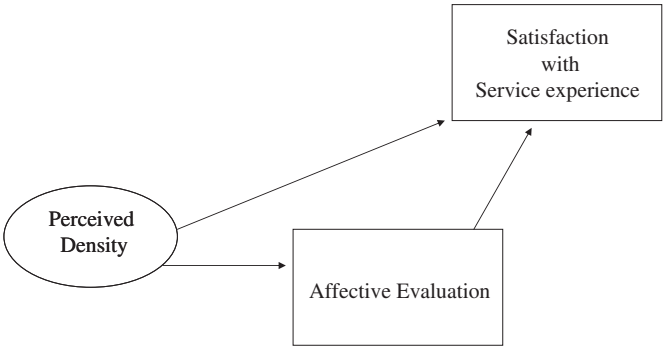

Fig. 2. The density–satisfaction general model.

Table 1
Standardized estimates for the density–satisfaction general model.

	General model
Fit indicators	
CFI	0.936
χ^2/df	257.8/75 = 3.43
RMSEA	0.060
Path tested	Standardized estimate (t-value)
Density➔ affective evaluation	−.194 (−2.05)
Density➔ satisfaction	NS
Affective evaluation ➔ satisfaction	.877 (21.2)

A closer analysis of the results yields some key findings. The poor quality of the overall fit indicators of the constrained model supports the non-equivalence of one parameter estimate in the two situations. The effect of the shopping situation seems to simply switch the nature of the influence of perceived density on the affective evaluation of the situation. The traditional negative influence of density is only working in the utilitarian situation. On the contrary, in the leisure/hedonic situation, the density enhances the retail experience of the consumer. Contrary to traditional positions on crowding, these results support the potential positive impact of density on consumers' experiences. In order to evaluate the role of density expectations in the previous process, several manipulation checks were performed.

4.2. Manipulation checks

The confirmation/disconfirmation variable manipulation was checked. A paired sample t-test was used in order to ensure that the four confirmation/disconfirmation groups reflected adequately the confirmation/disconfirmation variable manipulation. These results supported adequate manipulations and the conformity with the experimental design of the study.

The two situations adopted for the final questionnaire used a video clip shot in a bar and in a bookstore. Respondents did not report any difference in the perceived similarity between them and the people in the video ($F_{(15,558)}$ = .957, p = .413) for each condition. These results indicate that the respondents could relate to the subjects used in the respective service situations.

4.3. Analyses of variance

4.3.1. Main effects

The emphasis in this study is on the fact that density alone does not necessarily lead to crowding (negative affective evaluation) and dissatisfaction. It is suggested here that the triggering mix is more complicated and interactions between several variables may be necessary.

Table 2
Standardized estimates for the density–satisfaction model in the bar and bookstore situations.

Path tested	Bar	Bookstore
	Standardized estimate (t-value)	Standardized estimate (t-value)
Perceptions➔ affective evaluation	.760 (8.1)	−.661 (−8.9)
Perceptions➔ satisfaction	NS	NS
Affective evaluation ➔ satisfaction	.460 (4.8)	.501 (4.9)

When only looking at the impact of the density confirmation/disconfirmation variable across the service situations, the mean comparisons of affective evaluation do not reveal any main effect of the density confirmation/disconfirmation. Indeed, there is no significant mean difference in terms of affective evaluation ($F_{(3570)} = 1.52$, $p = 0.206$) between positive disconfirmation ($M_{positive\ disconfirmation} = 4.03$), high density confirmation ($M_{high\ confirmation} = 3.73$), low density confirmation ($M_{low\ confirmation} = 3.84$) and negative disconfirmation ($M_{negative\ disconfirmation} = 3.99$). This result demonstrates that perceiving more people than expected in a service situation does not necessarily lead to more dissatisfaction. Machleit et al. (2000) suggested that shopper affective evaluations and satisfaction would be higher in negative disconfirmation and lower in positive disconfirmation cases. They found mixed results in their three studies. In our framework, we find inconclusive results for the lone effect of density expectations and perceptions on satisfaction. This result suggests that density alone does not influence affective evaluations.

Also, as expected, there is no main effect of the shopping situation (hedonic versus utilitarian) on the affective evaluation to density. The situation has no effect on the affective evaluation of the density encountered ($M_{bar} = 5.08$ vs. $M_{bookstore} = 4.96$; $F_{(1572)} = 1.825$, $p = 0.177$).

4.3.2. Interaction effects

Interaction effects of the manipulated variables on affective evaluations are presented below. The ANOVA results show a significant two-way interaction (Table 3).

Results in Fig. 3 suggest that the confirmation/disconfirmation of a density level in a shopping situation interacts with the nature of the shopping situation itself to alter consumers' affective evaluations of the situation.

First, significant differences in affective evaluations exist between the leisure setting (bar) and the utilitarian setting (bookstore) for each level of confirmation/disconfirmation. The mean comparisons between the two settings for a negatively disconfirmed situation ($M_{bar} = 2.8$ vs. $M_{bookstore} = 5.1$; $F_{(1145)} = 180.6$, $p < 0.001$), for the confirmation of a high density ($M_{bar} = 4.3$ vs. $M_{bookstore} = 3.1$; $F_{(1135)} = 71.6$, $p < 0.001$), for the confirmation of a low density situation ($M_{bar} = 3.2$ vs. $M_{bookstore} = 4.4$; $F_{(1141)} = 41.8$, $p < 0.001$) and for a positively disconfirmed situation ($M_{bar} = 5$ vs. $M_{bookstore} = 2.8$; $F_{(1145)} = 270.1$, $p < 0.001$) are all significant. These results mainly show that in a positive disconfirmation or in a confirmation of a high density, affective evaluations to the setting are significantly more positive in the leisure/hedonic situation than in the utilitarian one. On the contrary, in the case of a negative disconfirmation or a confirmation of a low density, the relationship is reversed, and affective evaluations are significantly more positive in the utilitarian situation than in the leisure/hedonic one. Dense shopping settings clearly lead to different outcomes for the consumer depending on the shopping situation. The utilitarian setting results support previous studies where high density is shown to have a negative impact on consumers' affective evaluations (Eroglu & Machleit, 1990); however, this impact is reversed in the case of leisure/hedonic service situations with high density triggering strong positive affective evaluations from the consumer. This is the first time an empirical study in a controlled environment demonstrates the potential positive influence of crowds in a shopping situation.

Second, significant differences in the affective evaluations also exist between the four confirmation/disconfirmation levels for each setting. The mean comparisons between the confirmation/disconfirmation levels for the bar ($M_{posdisc} = 5$ vs. $M_{highconf} = 4.3$ vs. $M_{lowconf} = 3.2$ vs. $M_{negdisc} = 2.8$) ($F_{(1287)} = 60.5$, $p < 0.001$) and the bookstore ($M_{posdisc} = 2.8$ vs. $M_{highconf} = 3.1$ vs. $M_{lowconf} = 4.4$ vs. $M_{negdisc} = 5.1$) ($F_{(1279)} = 157.6$, $p < 0.001$) are all significant. These results show that in a leisure/hedonic situation (Bar), the affective evaluation is significantly more positive when positive density disconfirmation occurs than when confirmation (high or low density) does, which in

Table 3
Simple effect analysis for significant two-way interaction.

Source	Dependent variable	F	p
Situation (A)			
A within B (1)	Affective evaluation	357.1***	0.000**
A within B (2)	Affective evaluation	236.9***	0.000
A within B (3)	Affective evaluation	209.1***	0.000
A within B (4)	Affective evaluation	804.6***	0.000
Confirmation/disconfirmation (B)			
B within A (1)	Affective evaluation	104.3***	0.000
B within A (2)	Affective evaluation	302.6***	0.000

Numbers in () represent the respective levels of variables (situation: bar = 1, bookstore = 2; confirmation/disconfirmation: neg disc = 1, high conf = 2, low conf = 3 and pos disc = 4).
** $p < 0.05$.
*** $p < 0.001$.

Table 4
Measures and reliability.

	Cronbach alpha
Perceived density (adapted from Pons et al., 2006) (expected is measured with similar questions after scenario reading and before video presentation)	
In this place, I am continuously touched by others.	0.85
People are very close to me in this place.	
There are a lot of people in this place.	
I have literally no personal space in this place.	
This place is crowded.	
I can easily walk through this place.	
In case of emergency, people could leave this place quickly.	
There are a high number of people in this place.	
This place is jammed.	
I can leave this place quickly if needed.	
This place is virtually empty.	
It is easy to make my way through the crowd in this place.	
Affective evaluation (adapted from Derbaix, 1995; Murry & Dacin, 1996; Bohner et al., 1993; Krahé & Bieneck, 2012)	
I feel happy in this place.	0.83
I feel good in this place.	
I don't have a great feeling in this place.	
I feel relaxed in this place.	
I feel cheerful in this place.	
I feel content in this place.	
I feel angry in this place.	
I feel irritated in this place.	
Satisfaction (adapted from Oliver, 1980, 1993)	
I am satisfied with my experience in this place.	0.91
I think I did the right thing by coming to this place.	
My choice to come here was a wise one.	

Table 5
Scenarios used for the study.

Scenario 1: Bar (fun)–high expec (crowded). It is Friday night. You want to spend the night in a student bar close to the university. This is a very fun place to go and it is usually very busy. The owners expect to have a full house. You decide to go there and enjoy the party.
Scenario 2: Bar (fun)–low expec (crowded). It is Monday night. You want to spend the night in a student bar close to the university. This is a very fun place to go but it is exam period at the university. The owners expect to have a slow Monday night. You decide to go there and to enjoy the party.
Scenario 3: Bookstore (util)–high expec (crowded). It is a few days before the beginning of classes. You are trying to buy your class books for the present semester at the university bookstore. This is the busiest time of the year in this place. The owners expect to have a full house all day long. You decide to go there and to purchase your books.
Scenario 4: Bookstore (util)–low expec (crowded). It is the end of the semester. You are trying to buy your class books for the next semester at the university bookstore. This is the slowest time of the year in this place. The owners expect to have a very quiet day. You decide to go there and to purchase your books.

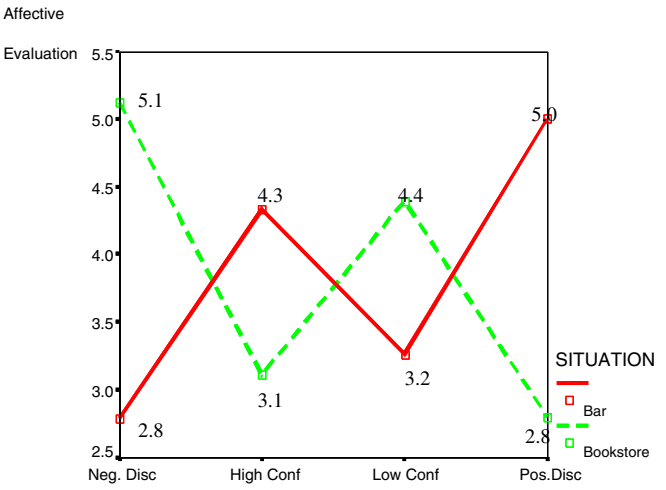

Fig. 3. Situation by confirmation/disconfirmation interaction effect on affective evaluation.

turn, is significantly higher than in a negative density disconfirmation situation (Hypotheses 2a, 3a and b). In the case of a utilitarian (bookstore) setting, these relationships are reversed (Hypotheses 2b, 4a and b).

This last result on the role of expectations in crowded situations is critical to studies on crowding and represents the key finding in this research. In fact, in any individual situation (bar and bookstore), respondents in the positive disconfirmation situation or the confirmation of high density are always presented with the same video stimulus (an important crowd in the retail setting, high density). However, they present significant differences in the way they affectively react to the situation.

In the bar situation, they are not as happy about the high density level when they expect it (confirmation) ($M_{Pos\ Disc} = 5$ vs. $M_{High\ Conf} = 4.3$; $F_{(1149)} = 18.4$, $p < 0.001$) and in the bookstore situation, they are not as unhappy of this dense setting when they expect it ($M_{Pos\ Disc} = 2.8$ vs. $M_{High\ Conf} = 3.1$; $F_{(1153)} = 21.5$, $p < 0.001$). This finding emphasizes the critical role played by expectations in consumers' affective evaluations of dense situations. This supports the importance of considering relative perceptions of density (in relationship to expectations) rather than absolute (perception-only) levels of density in any crowded retail or service situation. Expectations formed prior to the encounter may act as a catalyst or inhibitor of crowd effects as they can increase positive feelings and/or decrease negative feelings due to the crowd in retail settings. This finding strengthens the important role played by expectations in crowd assessment and may offer retailer options and crowd management tools through expectation management.

5. Discussions and conclusions

The presence of other customers in the service factory has turned the typical retail consumption experience into encounters where, in many situations, customers' evaluation of the service is partly or totally based on the interactions they have with non-service providers. Crowd influences have received surprisingly little attention in the literature, which tended to emphasize the negative impact of having too many people in a retail setting (Eroglu & Machleit, 1990). Integrating research from psychology, services, and retail marketing, this paper evaluates the existing model of retail crowding and offers alternative interpretations to the potential impact of perceived density in various shopping situations.

5.1. Theoretical implications

The main contribution of this study lies in the fact that, under certain conditions, perceived density may enhance customer satisfaction, even in highly crowded situations. This is one of the first empirical studies to manipulate the level of confirmation/disconfirmation of density and show the positive side of crowd in service settings. Several results offer additional interesting developments.

Even though prior research in social psychology has acknowledged the central role played by expectations in crowd assessment (Webb & Worchel, 1993), only Eroglu and Machleit (2005) have investigated the matter empirically. Building on their findings, our results confirm the important role played by the surprise effect in building value for the consumer in a leisure/hedonic setting, especially when the surprise has a positive valence such as when unexpected high density in a bar contributes to building a pleasant and fun atmosphere. Unexpected low density in a utilitarian service situation also brings satisfaction but to a lesser extent. These results once again provide insights on the role of confirmation/disconfirmation of density levels in service situations, and suggest that service managers may benefit as much from managing crowd expectations as they would from managing crowd perceptions. The main contribution of this study lies in the role played by expectations in the way consumers deal with density in a retail setting. As a result, significant interactions between the service situation at stake and the level of density confirmation/disconfirmation suggest that expectations can increase pleasure in a leisure situation with high unexpected levels of density whereas they can decrease negative reactions in utilitarian situation with high expected levels of density. This result suggests the important role played by the surprise effect in building value for the consumer in a leisure setting and increasing negative affective evaluations in the utilitarian situation.

5.2. Managerial implications

Past research highlighted the importance of crowd management for practitioners (Manning & Valliere, 2001; Pons et al., 2006). Indeed, it is crucial for managers to know how crowding affects customers' satisfaction and devote efforts to reduce the negative outcomes for the individuals. From a managerial standpoint, this research contributes to a better understanding of how a crowd should be managed under various conditions. For instance, managers may want to create and use feelings of high density if they find themselves in a situation where the crowd contributes to the experience. They also may want to warn customers and advertise how many fellow customers may be expected in the retail setting. In conclusion, it is important to understand that high density is not always bad and that one can control specific key aspects to use overcapacity to one's advantage.

5.3. Limitations and future research

This study has several limitations that need to be mentioned. The written scenarios and the video stimuli that were used to create expectations and density can limit the generalizability of the findings in actual settings. Thus, future research could be done in real retailing settings to explore consumers' reactions. In addition, measuring affective evaluations of hypothetical situations represents a weakness of the design as consumers may find it difficult to assess their affective state if they are not really experiencing the situation.

This study highlights the moderating role of expectations on the diverse consequences associated with crowding and practitioners can use this factor in their crowd management. However, this aspect should be explored very carefully and needs further research. It could be interesting to identify and investigate more factors and indicators that influence consumers' expectations of density. Indeed, the impact of expectations in crowd situation assessment is limited in previous studies and it should be developed following studies on satisfaction. Also, the identification of other moderating variables such as similarity with the crowd or scarcity of the service offered represents the next step in researching crowd issues. As presented in this study, it is critical to understand circumstances and contexts in order to better manage crowd issues.

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