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Human Crowding or Spatial Crowding? The Impact of Perceived Crowding on In-store Impulse Purchase

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ABSTRACT

The influence of shopper's perception of the physical environmental factors on impulse buying at the retail level has attracted the attention of researchers since the last three decades but the role of perceived crowding and in-store browsing attracted little attention. This paper attempts to develop and empirically valid a model to investigate the role of perceived crowding and in-store browsing in impulse buying along with the psychological variables. Mall-intercept survey technique was used to collect data from 335 participants from 18 branches of a supermarket chain in different parts of Kolkata. Data were analysed using structural equation modelling. Contrary to prior research the relationship between human crowding and other variables in the model was not supported whereas spatial crowding was found to have significant negative impact in impulse buying. The findings are discussed along with managerial implications and scopes for future research.

KEYWORDS

Perceived crowding, in-store browsing, urge to buy, impulse buying

INTRODUCTION

Perceived retail crowding is an important element of shopper's perception about store atmospherics (Bitner, 1992). It has significant impact on various types of retail outcomes viz. customer satisfaction, attitude towards store, and shoppers' behavioural outcomes (eg. increased sales) (Mehta, 2013). Perceived crowding refers to the perception of individuals to the crowding environment. It has two dimensions viz. human crowding and spatial crowding (Machleit et al., 2000). Human crowding refers to shopper's perception of the extent of human density in a shopping space. Spatial crowding refers to shoppers' perception of getting restricted to move within a customer space (Machleit et al., 1994). Extant research data states that perceived crowding influences customer satisfaction (eg. Li et al, 2009) and attitude towards store (eg. Pan and Siemens, 2011). However, studies are sparse regarding the impact of crowding on buying behavior. This makes crowding research important in the context of retail shopping.

Today a significant part of the retail shopping happens unplanned and on the spot. Shoppers while shopping come across various types of stimuli that lead to impulse buying. Impulse buying refers to unplanned, spontaneous buying occurs on the spot (Rook, 1987). When shoppers get exposed to impulse stimuli, they feel uncontrollable urges to buy on the spot without much deliberation. Sparse research exists on the impact of perceived crowding on impulse buying. While Mattilla and Writz (2008) studied the relationship between perceived crowding and impulse buying, they did not investigate the relationship at the dimension level. This left the scope to explore whether there is any

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differential impact of the influence of crowding dimensions on impulse buying. Further, the researchers in that study used a 2-item scale to measure impulse buying. They did not take into account the actual impulse purchases by the shoppers on a shopping trip.

I study the role of human crowding and spatial crowding in actual impulse purchases by the shoppers. Further, the conceptual model included three more variables; two endogenous variables viz. urge to buy and impulsive buying tendency and one exogenous variable viz. in-store browsing. I include urge to buy as the proximal determinant of the act of impulse buying. Impulse buying can't take place without the generation of uncontrollable impulsive urges in response to stimuli (Hoch and Lowenstein, 2011; Beatty and Ferrell, 1998; Mohan et al., 2013; Bandyopadhyay, 2016).

The objectives of the study are summarized as follows:

1. To test whether perceived crowding at its' dimension level play any role in impulse buying.
2. Whether shoppers' perception of store environment being crowded inhibits shoppers' propensity to browse through the store and examine the retailers' merchandise for recreational/informational purpose.
3. Whether perceived crowding at its dimension level influences impulse buying tendency which is instrumental in evoking impulsive urges to make impulse buying happen.

CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

In this section, I will first give a brief description of the constructs/variable relevant for my research. This will be followed by formulating the relevant hypotheses to develop a conceptual model on the basis of the literature review.

Perceived Crowding

Perceived crowding refers to the psychological state of an individual in reaction to human and spatial density in her/his immediate physical environment. According to Machleit et al. (2005), when the number of people and/or objects in a limited space restricts or interferes with individuals' activities and goal achievement, the individuals perceive that the environment as crowded. Perceived crowding has two dimensions namely, human crowding and spatial crowding (Machleit et al., 1994). Perception of spatial crowding refers to the number of non-human elements in an environment and their relationship to each other while perception of human crowding refers to the number of individuals and the rate and extent of social interaction among themselves in a given setting of physical environment. Extant research revealed that perceived crowding evokes negative emotional reaction and people tend to withdraw themselves from the perceived crowded environment.

Urge to Buy

Rook (1987) advanced the affective aspects of impulse buying. He posited that exposure to impulse stimuli brings in individuals affective reactions and individuals feel sudden spontaneous urge or impulse to buy something. If the urge is stronger than the willpower of individuals (to restrain buying urge), impulse buying gets exhibited unless thwarted by situational impediments (Dholakia, 2000; Beatty and Ferrell, 1998; Bandyopadhyay, 2016). In the words of Beatty and Ferrell (1998), "felt urge to buy impulsively is a state of desire that is experienced upon encountering an object in the environment. It clearly precedes an act of impulse action". Mohan et al (2013) found that urge to buy)

is not only the proximal determinant of impulse buying but also a mediator between the stimuli (antecedents) and the act of impulse purchase.

In-store Browsing

In-store browsing refers to shopper's in-store examination of a retailer's merchandise for recreational and/or informational purposes without any prior intention of purchase (Beatty and Ferrell, 1998). The notion of in-store browsing is related to in-store stimulation and relieve of stress which is deeply grounded in the stimulation theories (e.g., Berlyne, 1969) and tension reduction theories (eg. McGuire's, 1974 cited by Arnolds and Reynolds, 2003). Literature suggests that browsing without shopping intention makes the shopper feel energetic, enthusiastic and alert (Watson et al., 1988; Beatty and Ferrell, 1998) and has hedonic value (Arnolds and Reynolds, 2003).

Impulsive Buying Tendency (IBT)

Rook (1987) argued that trait impulsivity is a key individual variable which is associated with impulse buying. This trait impulsivity was a general impulsivity construct of individuals. Beatty and Ferrell (1998) described impulsive buying tendency as a sub trait of the general impulsivity construct and addressed IBT as the differential proclivity of individuals to buy on impulse. They define IBT as 'both the tendencies (1) to experience spontaneous and sudden urges to make on-the-spot purchases and (2) to act on these felt urges with little deliberation and evaluation of consequence'.

The inclusion of the trait factor impulse buying tendency (IBT) in the model draws its rationale from Puri (1996), Beatty and Ferrell (1998). Puri (1996) taking a cue from Hoch and Lowenstein (1991) stated that people differ in their impulsiveness in response to buying stimuli. Some people are Hedonics who are susceptible to impulsive urges while the others are Prudents who stave off the impulsive urges using self-control mechanism. The hedonic individuals are high on impulsive buying tendency while the Prudents are not. Bandyopadhyay (2016) argued IBT gets activated by other endogenous or exogenous variables and lead to impulse buying. Hence I included IBT in the model.

Impulse Buying: The Act of Impulse Purchase

In line with Mohan et al (2013), I have defined impulse buying as the act of actual purchase by shopper's which happen on impulse. When a shopper visits a store generally they have plan of purchasing certain items according to their need. But most often along with the purchase planned items, they end up purchasing certain items which are unplanned, bought on the spot, upon exposure to certain stimuli. I, in this study, captured those items by physical verification of the shopping invoice after Mohan et al. (2013) and considered that as impulse buying for the purpose of the present study.

Perceived Crowding and Urge to Buy

Crowding causes discomfort because it gives a shopper the sense that he/she has no control over their environment (Hui & Bateson, 1991). Ward and Barnes (2001) studied the influence of dominance on consumer response in a retail environment. Customers that had a higher sense of control reported feeling more pleasant, aroused and involved. The problem with crowding in the context of retail shopping is that it may create a lot of stress in shoppers (Ward & Barnes, 2001).

Most of the studies related to the impact of perceived crowding on consumer behavior investigated the relationship between perceived crowding and consumer satisfaction (Mehta et. al.,

2013). Very few studies attempted to relate perceived crowding to impulse buying. The relationship between urge to buy and perceived crowding had been researched only a handful of studies. Mattila and Writz (2008) investigated a negative relationship between perceived crowding and impulse buying. The researchers did not study perceived crowding at its dimension level. Also, perceived crowding has been identified as one of the antecedents of negative affect for a shopper (Ward and Banes, 2001). In a retail setting, negative affect often creates a desire to withdraw from the environment as it makes the consumer perceive the store to be unlikely to solve his/her intended purpose for visiting it (Eroglu and Machleit, 1990). As a result, further exposure to impulse stimuli gets deterred and hence generation of impulsive urges gets inhibited. On the basis of the above discussion I hypothesize that:

H1a: The more the perceived human crowding the less will be the urge to buy.

H1b: The more the perceived spatial crowding the less will be the urge to buy.

In-Store Browsing and Urge to Buy

According to Beatty and Ferrell (1998), in-store browsing without specific purchase intent is more significant than actual acquisition of products and creates positive feelings in the shoppers. In an in-store browsing episode it is possible that browsers encounter a very lucrative consumer promotion of a product. Browsers in such cases make an unplanned purchase not necessarily with a utilitarian motive but being carried away with a hedonic motive of achievement by winning a bargain (Arnold and Reynolds, 2003). Browsing may also be a source of stimulation to shoppers. Stimulation may positively influence in-store purchases. In a study conducted by Jarboe and Mc Daniel (1987) browsers were found to make more unplanned purchases than non-browsers in a regional mall setting (Beatty and Ferrell, 1998). This makes in-store browsing is a crucial component in an impulse buying episode (Beatty and Ferrell, 1998). When shoppers browse through the store they are exposed to more and more impulse stimuli. These stimuli include elements of the shopping situation, store atmospherics or marketing mix elements, say, the product, package etc. (Dholakia, 2000). Furthermore, according to Watson et al (1988), in-store browsing induces positive emotions (affect) in shoppers which tend to increase the likelihood of impulse purchase. Exogenous impulse stimuli as encountered in a browsing episode alone or through endogenous psychological variables evoke uncontrollable urges in shoppers to buy something immediately, spontaneously and without much deliberation (Dholakia, 2000; Mohan et al., 2013). This led us to hypothesize the following:

H2: In-store browsing positively influences urge to buy impulsively.

Perceived Crowding and In-store Browsing

If the store environment is perceived as crowded, the shopper may refrain from browsing and withdraw himself/herself from such crowded environment (Xia, 2010). In such a situation the shopper will have reduced opportunity to come across/know the impulse stimuli which deters impulse buying. Based on such rationale I propose the following hypotheses:

H3a: The more the perceived human crowding the less will be the in-store browsing by the shoppers.

H3b: The more the perceived spatial crowding the less will be the in-store browsing by the shoppers.

Perceived Crowding and Impulse Buying Tendency

One facet of personality psychology deals with the debate whether personality traits consistently predict behaviours across varied situations and contexts or it is primarily situation specific. Today most of the personality psychologists have converged to posit that both person (trait) and situation contribute to human behavior (Fleeson and Nofhle, 2009). Crowding is a perceived psychological state which depends on human and spatial density of ones' immediate environment. Trait relevant favorable situational cues may be instrumental in activating the traits which in turn leads to behavior (Tett and Burnett, 2003). Bandyopadhyay (2016) argued that psychological state variable may be instrumental in activating impulse buying tendency which leads to impulse buying through urge to buy. Based on the above stated rationale I hypothesize the following:

H4a: Perceived human crowding negatively influences impulse buying tendency

H4b: Perceived spatial crowding negatively influences impulse buying tendency

Impulse Buying, Urge to Buy and Impulse Buying Tendency

Impulse buying (IB) as considered in the present study refers to any act of unplanned purchase which is essentially associated with affective psychological responses that occurs immediately and spontaneously with no pre-shopping intention to buy the specific product or complete a buying task. I did not consider any unplanned purchase as impulse purchase which occurred upon reminder (that it was 'out-of-stock) upon exposure to product stimuli.

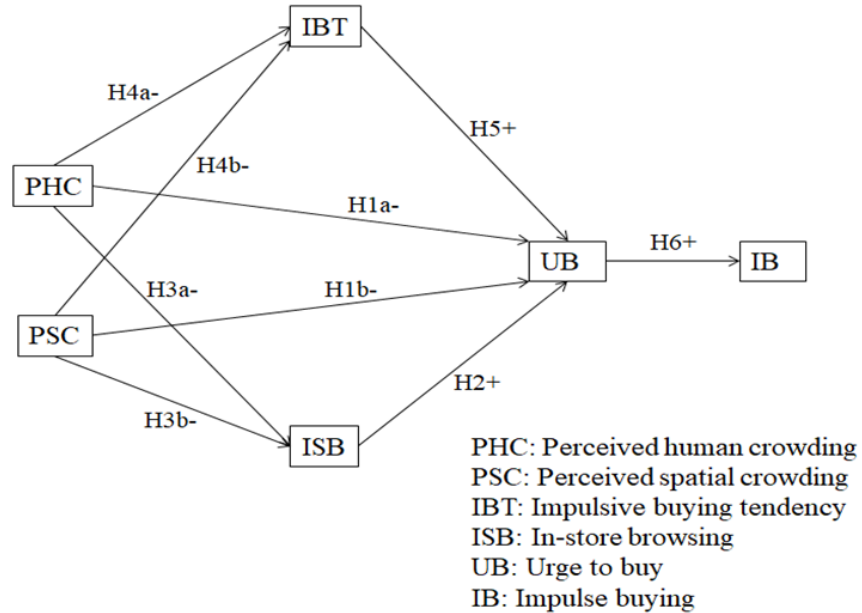
Hoch and Lowenstein (1991), in their seminal research argued that when shoppers get exposed to exogenous and/or endogenous stimuli, they feel urges to buying things on impulse. The impulsive shoppers are more readily succumb to such urges than shoppers with strong willpower to offset such urges. Dholakia (2000) discussed various categories of stimuli which evoke impulsive urges in shoppers and shoppers who fail to resist such urges because of weaker self-control mechanism tend to end up in making unplanned impulsive purchases.

Further literature suggests that people are neurologically different in their propensity to react to the impulse stimuli (Verplanken and Sato, 2011). Some individuals are more impulsive than others. This differential proclivity to exhibit impulse buying is attributed to impulsive buying tendency (IBT) which drives impulse buying (Beatty and Ferrell, 1998, Dholakia, 2000; Mohan et al., 2013). In line with extant research, I propose the following hypotheses:

H5: Impulsive buying tendency positively influences urge to buy.

H6: Urge to buy positively influences the act of impulse buying.

Figure 1: The Hypothesize Model



RESEARCH METHODOLOGY

Sample

Mall-intercept survey technique was used to collect data in line with prior research (Mohan et al., 2013). The study was conducted in Kolkata, a metro city of Eastern India. Data were collected from 18 branches of a supermarket chain at different locations in Kolkata.

A total of 1251 shoppers were approached and 335 participated the study voluntarily yielding a response rate of 26.77%. 21 responses were found incomplete. Hence 314 responses were used for data analysis. The sample was fairly representative of urban adult Indian shoppers. The sample demographics is summarized in table 1.

Table 1: Demographics of Sample

Gender	
Male	62%
Female	38%
Education	
Secondary	14%
Higher Secondary	16%
Graduation	52%
Post-Graduation	8%
Others	10%
Age	
Mean age	37 years
Household Income	
Mean household income	Rs. 25000

Measures

The constructs namely PHC, PSC, UB, ISB, and IBT were measured with multiple-item scales adapted from literature. The items were measured using a 5-point Likert's scale (1: Strongly disagree and 5: Strongly agree). The scales were administered after pre-testing. The dependent variable (IB) was measured first in line with recent Indian studies (Mohan et al., 2013; Bandyopadhyay, 2016). Subsequently, counterbalancing of the questions in the self-report questionnaire was performed. The content validity of the scales was measured using Lawsche's method (10 member panel). The construct validity and reliability of the measures were assessed statistically. The demographic data was captured at last.

Procedure of Data Collection

The data collection follows the process in line with recent Indian studies (Mohan et al., 2013; Bandyopadhyay, 2016). Data were collected through second year management students with basic understanding of marketing research. Data were collected during different times of the day and in different days of the week (Bush and Hair, 1985; Bandyopadhyay, 2016). The interviewers were divided into ten groups, and each group consisted of three interviewers. The interviewers intercepted every fifth shopper upon their exit from the store(s) and approached them for taking part in the survey. The total purchases of each respondent were recorded and unplanned items were separated from the planned items. To separate the reminder impulse buying items from the pure impulse items, interviewers asked the respondents the question: "when you saw this item, were you reminded that you were out of this item and needed it" (Mohan et al., 2013, Bandyopadhyay, 2016). One of the interviewers got the questionnaire filled by the respondents. One of the interviewers recorded those items as purely impulse items which were unplanned and could not be classified as reminder items. One interviewer counted the number of pure impulse items purchased by each respondent to arrive at a total number.

DATA ANALYSIS

Data Preparation

Once data were collected, a number of procedures were used to prepare the data for subsequent analysis. An examination of missing values yielded 21 responses which were treated with multiple imputation procedures because of the robustness of the method (Hooper et al., 2008).

Measurement model

Structural equation modelling (SEM) technique was applied using AMOS17.0. First the measurement model was examined and then the structural model. After examining the reliability of each of the constructs, the measurement model showed a good fit ($\chi^2/df = 2.87$, RMSEA = .057, SRMR = .045, CFI = .96) above than the recommended (RMSEA < .06, SRMR < .08, CFI > .95) cut-off values (Hu and Bentler, 1995).

Convergent and discriminant validity were assessed in line with prior research. The significant factor loadings (>0.50), substantial construct reliability (CR>0.70) and substantial average variance extracted (AVE > 0.50) demonstrated the convergent validity of the constructs (Fornell and Larcker, 1981). Also, the squared correlation between each pair of constructs was computed. It was found that

the squared correlation between each pair of constructs was lower than the minimum of their AVE, evidencing the discriminant validity of the measures (Hair et al., 2006). The psychometric properties of the scale are summarized in table 2.

Table 2: Scale Summary

Measure	Source	Scale Items	FL	CR	AVE
Human Crowding (PHC)	Machleit et al. (1994)	The store seemed very crowded to me	.65	.83	.55
		The store was a little too busy during my shopping trip	.72		
		There was not much traffic in the store during my shopping trip (R)	.81		
		There were a lot of shoppers in the store during my shopping trip (R)	.79		
Spatial Crowding (PSC)	Machleit et al. (1994)	The store seemed very spacious (R)	.75	.83	.62
		I felt cramped shopping in the store	.82		
		The store had an open airy feeling to it (R)	.70		
		The store was felt confining the shopper	.88		
Impulse buying tendency (IBT)	Mohan et al. (2013)	I avoid buying things that are not in my shopping list (R)	.77	.85	.59
		When I go shopping I buy things that I had not intended buying	.69		
		I am a person who makes unplanned purchases	.85		
		When I see something that really interests me, I buy it without considering the consequences	.76		
		It is fun to buy spontaneously	.65		
Urge to Buy (UB)	Mohan et al. (2013)	In the current shopping trip, I experienced many sudden urges to buy unplanned items.	.81	.88	.71
		In the current shopping trip, I was tempted to buy many items that were not on my shopping list	.88		
		In the current shopping trip, I experienced no sudden urges to buy unplanned items (R)	.84		
In-store Browsing (ISB)	Beatty and Ferrell, 1998	The percent of time I spent for looking around inside the store in the current shopping trip was fairly high	.77	.80	.58
		I would say I was primarily 'just looking around' in the current shopping trip.	.70		
		I devoted most of my attention to the items I planned to buy in this shopping trip (R).	.81		

Common Method Variance (CMV)

Several procedural and statistical remedies were taken to deal with the CMV issue. As the data pertaining to the independent and dependent variables were taken from the same source assessment of CMV was necessary. As procedural remedies a few measures were taken. First, no personal information about the respondents was collected so that social desirability bias is reduced. In line with Mohan et al (2013), the dependent variable was captured as a direct measure while the independent variables are captured using Likert scale so as to reduce possible method bias due to commonalities of scale endpoints and anchoring effects (Podsakoff et al., 2003).

As statistical remedies Harman's (1967) single factor test was conducted followed by common factor method as suggested in extant literature (Podsakoff et al., 2003). Harman's single factor test revealed that less than 50% variance gets explained by a single factor. This indicated that CMV is not a major issue for the study.

Further, the fit indices of the original measurement model and the model in which all the items were loaded on a latent CMV factor (not considering the theoretical constructs) were compared. The model with the CMV factor showed a poor fit compared to the original measurement model, thus reconfirmed that CMV was not a major issue with the study.

Structural Model

The structural model showed a good model fit (CMIN/df: 2.85; RMSEA: .06; CFI: .96; SRMR: .04) with all the major fit indices were above the recommended cut-off values. Figure presents the summary of the structural relationships among the constructs. The result of the data analysis supports the hypotheses. The result shows PHC does not have any statistically significant relationship with UB thus refuting H1a hypothesis. PSC negatively influence UB, thus support H1b. ISB was found to be positively related to UB supporting H2. Further PSC was found to be negatively related to ISB, hence supporting H3b but the hypothesized relationship between PHC and ISB (H3a) was not supported.

The negative relationship between PHC→IBT (H4a) was not supported but the relationship between PSC→IBT was established hence supporting H4b. As expected, IBT was found to be positively related to UB (H5) and UB was found to have a positive influence on IB (H6). The summary of the hypotheses testing is presented in table 3.

Table 3: Summary of Hypothesis Testing

Hypothesis	Relationship	Structural Co-efficient	Result
H1a	PHC→UB	-0.10 ^{ns}	Not Supported
H1b	PSC→UB	-0.21*	Supported
H2	ISB→UB	0.55**	Supported
H3a	PHC→ISB	0.05 ^{ns}	Not Supported
H3b	PSC→ISB	-0.20	Supported
H4a	PHC→IBT	-0.07 ^{ns}	Not Supported
H4b	PSC→IBT	-0.21*	Supported
H5	IBT→UB	0.51**	Supported
H6	UB→IB	0.66**	Supported

Notes: *p < .01, **p < 0.001 ; ns: non-significant

DISCUSSION

The findings had some interesting observations. It was found that human crowding does not have statistically significant relationship with the other variables in the model namely impulsive buying tendency, urge to buy and in-store browsing. Thus, the finding of this study is in contrast to prior findings (Xia, 2010). The lack of support of the hypotheses related to human crowding and other variables may be due to the tolerance of the shoppers to human crowding. Kolkata is a highly populated place and shoppers there are adapted to the experience of human crowding. It may be possible that the lack of support of H1a, H3a and H4a is because of the exposure and adaptation of shoppers to human crowding in the context of Kolkata market.

At the same time contrary to prior research spatial crowding shown significant negative impact on impulse buying thus contributing to the incremental understanding regarding the influence of perceived crowding in impulse buying. Support of the hypothesis related to the positive influence ISB on UB strengthens the contention of Beatty and Ferrell (1998) that the more consumers browse the store, the more would be the possibility of impulse purchase. The negative relationship of PSC with ISB incrementally contributes to the current understanding of crowding research as it advances the contention that if consumers feel the environment as crowded spatially, they are less likely to browse through the store and the lack of which would result lesser exposure of the shopper to the impulse stimuli discarding the possibility of impulse purchase to happen. The negative relationship between the spatial crowding and impulse buying tendency was in line of my argument that when the shopper perceives the store crowded by spatial elements, the activation of IBT gets deterred and hence the generation of impulsive urges to buy also deterred reducing the possibility of impulse purchase. The support of the hypotheses $IBT \rightarrow UB$ and $UB \rightarrow IB$, strengthens the contention of Beatty and Ferrell (1998) and Mohan et al (2013) even in the context of Indian supermarkets.

MANAGERIAL IMPLICATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The negative influence of spatial crowding sensitizes the managers to develop retail strategy in such a way; the spatial elements in a store are managed in such a way that the perception of spatial crowding can be minimized to bolster impulse buying. This throws a lot of emphasis of store layout and store design to facilitate and encourage the shoppers to browse through the store which leads them to come across impulse stimuli which influences impulse buying.

Regarding future research, work may be done to explore the moderating impact of crowding expectation in a given setting. Furthermore, the moderation impact of IBT may also be investigated. Prior research suggests that PHC and PSC may lead to negative affect. In that line of understanding, the present model can be modified with the incorporation of negative affect as a mediating variable between PHC and PSC and UB and the result may be analysed for broader understanding of the role of perceived crowding on impulse buying.

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