



Effect of Store Design on Perceived Crowding and Impulse Buying Behavior

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ABSTRACT

Retailing has undergone tremendous changes in the present business environment. One reason being the increase in business of the online retailers. Customers now have a choice and preference to choose the channel of their choice. The profit margins of several retailers have gone down due to this stiff competition. To stay tuned to the changing business environment retailers need to develop strategies to increase footfalls and increase their loyal customer base. To have a loyal customer base retailers have to focus on increasing the level of shopper satisfaction. The more the shopper satisfaction, the more will be the tendency to purchase a product or service. There are several parameters associated with shopper satisfaction in a retail environment. One such parameter is the store design. In this paper, the researcher wants to find out the role of store design and its overall impact on increasing the impulse purchase behavior. The researcher uses perceived crowding as the influencer of emotional behavior of the customer. Perceived crowding is a combination of human crowding and spatial crowding. The emotional behavior generated are arousal, pleasure and dominance. The emotional behavior generated due to perceived crowding may have an impact on the shopper satisfaction level. The satisfaction level of the shoppers may in turn trigger the impulsive behavior of the customer.

Keywords: Store Design, Human Crowding, Spatial Crowding, Arousal, Pleasure, Dominance, Shopper Satisfaction, Impulse Buying

JEL Classifications: M300, M310

1. INTRODUCTION

Due to stiff competition, retailers all over the world are trying to increase their customer base to sustain in the long run. To attract the shoppers, retailers are restructuring their outlets in tune with the changing retail landscape. The retail environment has the capacity to create an atmosphere that attracts shoppers. The store design can have an impact on the shopper perception too. Usually big retail outlets have an impression to accommodate a large number of shoppers inside the store. The retail store seem to be spacious and comfortable with a large variety of products. Whereas a small retail outlet may be perceived to be compact and less spacious, with less variety of products available. A good and appealing store design may inspire customers to visit the store. The store atmosphere also plays an important role in keeping the shoppers longer inside the store and busy with browsing and shopping (Bellizzi & Hite, 1992). The retail value chain is responsible for keeping the shopper in the store for longer durations. The satisfaction level attained in each element in the retail value chain enhances the shopper experience and

satisfaction (Berman et al., 2011). The size, outlook and design of the store may create different perception in the shopper's mind. The effect of perceived crowding, i.e., human crowding or spatial crowding originates from the perception of the shopper about the store design. When a store is crowded with humans, a number of time some shoppers may avoid the store whereas some shopper may be interested in visiting the store. Similarly, when the store is crowded with fixtures and furniture, the customer may or may not be interested in visiting the store. The desire to shop based on the crowding effects totally depends on the shoppers likes, dislikes, attitude and experience. A retail store is a spatially defined environment where shoppers are located while shopping. Shopping usually occurs in the defined environment that has the tendency to create a crowding effect due to both human traffic and the layout of displays. The human crowding effect due to the presence of humans may have an effect on the buying behaviour on the shoppers. Similarly, the spatial crowding effect due to space consumed by the objects may also effect the behaviour of the shopper. Harrell et al. (1980) studied the effect of crowding and tried to find out the impact of crowding. Eroglu and Harrell

(1986) also studied the crowding effects and tried to find out the effects of retail density and crowding.

Perceived crowding effects occur due to perceived space constraints and can be linked to environmental and individual variables. Crowding can be considered as a combined function of the situation the shopper experiences (Stokols et al., 1972), the amount of interaction and stimulation generated (Desor, 1972; Zitnick and Altman, 1972; Baum, A., Paulus, P., 1987; Lepore, Evans, & Schneider, 1992), triggering of personality traits (Stokols et al., 1972), response due to any past experience incurred in such a situation (Zitnick and Altman, 1972). The shopper experiences confusion due to overload of information and physical confrontation and thus may lead to a level of frustration (Proshansky, et al., 1972). This leads to alteration of the shopper behavior.

Crowding occurs due to high density of people present per unit of space available. However, in a retail outlet environment high density of people present per unit space may impede mobility and decrease the efficiency in shopping (Zitnick and Altman, 1972; Baum, A., Paulus, P., 1987; Lepore, Evans, Schneider, 1992). Crowded refers to receiving of excessive stimulation from social cues (Desor, 1972, p. 79). The effect of crowding is more when there is a restriction of movement due to the presence of other people. The crowding effect also increases when there is a feeling of aggressiveness and anxiety among the people (Stokols et al., 1973). Perception of crowding may differ due to difference in individual characteristics.

It is important to know how crowding effects the customer shopping experience (Milgram, 1970). Understanding the shopper behavior of crowding effects the retailer will be able to develop proper strategies to cater to the need of the shopper. The crowding effect may annoy the shopper, which may force the shopper to leave the outlet. It depends on the shopper experience, which will decide whether the shopper is coming back to the outlet or not in future. Retailer may design some package, which will override the crowding effects and exceed the costs of the shopping task.

2. LITERATURE REVIEW

2.1. Store Design

Retail store design is a well-planned strategy to set up a store in a particular way to optimize space, create an appealing atmosphere to enhance sales. Atmosphere comprise of the store exterior, the store layout, the general interior and the interior displays (Berman et al., 2011). Atmospherics or the physical store characteristics project an image and draw customers to the retail outlet (Berman et al, 2011; Bellizzi, Crowley, Hasty, 1983; Hirsch, A., 1995). Creating a conducive store atmosphere may reduce the effects of crowding. An attractive store design will pull more shoppers to a store.

2.2. Human Crowding and Spatial Crowding

People perceives crowding the moment the surrounding environment causes a barrier in any activity (Stokols, 1976; Stokols et al., 1973; Zlutnik and Altman, 1972). Crowding effects

are due to presence of physical, social, personal factors. These factors may create more sensitiveness towards any problem people may face due to availability of scarce space (Stokols, 1972). Crowding results from the stimuli generated due to human density and personal perception arising from the environment (Stokols, 1972). There are two dimensions of crowding, human crowding and spatial crowding (Harrell et al., 1980; Machleit et al., 1994).

Human crowding is a confined feeling that occurs due to presence of high density of humans. Sensitive shoppers may avoid a store if it is crowded. However, shoppers who love to be in crowded places would visit stores that are usually crowded. It also depends on the shoppers past experience and the nature of products available that may be the decision factor for visiting a crowded store. Shoppers spend less time shopping in a crowded store (Eroglu and Harrell, 1986).

Spatial crowding is the shopper's perceptions of restrictiveness of physical body movement within limited customer space while shopping at a store. The feeling arises due to restriction of physical movement due to presence of high spatial density. Physical environment evokes feelings of crowding (Eroglu and Harrell, 1986; Harrell et al., 1980). Physical environment in a retailing context refers to the store layout where we find the merchandise, shelves, fixtures etc. arranged to display the products (Berman et al., 2011). Proper store layout i.e., alignment of shelves properly, proper signage's, category allocations, traffic flow alignment, sufficient space for flow of traffic may subsidize the effect of crowding (Greenbaum and Greenbaum, 1981). Proper store layout provides the necessary space required be shoppers to shop without constraints (Levy and Weitz, 2001) and helps control the traffic flow (Hasty and Reardon, 1996). Density of the physical environment, height of fixtures, nature of merchandise and display patterns influence the shoppers perceived crowding effects. An appealing store atmosphere may also reduce the effects of crowding.

Thus the following hypotheses were developed:

H₁: Store design has a positive impact on human crowding.

H₂: Store design has a positive impact on spatial crowding.

Perceptions of human crowding appear to arise from high human density of shoppers simultaneously participating in browsing, transaction, and interaction activities on the selling floor (Machleit et al., 1994).

Perception of spatial crowding is measured by asking shoppers about their perceptions of crowding at various locations of the store that are of differently designed layouts. Ceiling height and lighting are additional physical factors included in the perceived spatial crowding because they are important elements in store interior design (Hasty and Reardon, 1996), which may affect consumers' perceptions of crowding and their emotions while shopping in the store. Spatial crowding is perceived to have a negative effect on the emotions (Eroglu, Machleit, Barr, 2005).

2.3. Emotional Responses

Emotional responses are generated under conditions of crowding.

The nonverbal emotional responses of the shopper resulting from the shopping environment are major cues for determining shopping behavior (Baker, Levy & Grewal, 1992; Fiore, Yah, & Yoh, (2000). Perceived crowding can create a sense of tension and arousal as well (Stokols, 1972). The tension created by perceived crowding, may evoke three types of emotional responses in the shoppers. These three emotional responses are pleasure, arousal and dominance (Mehrabian and Russel, 1974; Russell, & Pratt, 1980). Pleasure is a feeling of happiness, joy and satisfaction by an individual. Arousal is the stimulation, which is evoked due to excitement generated in any environmental situation. Dominance is the control of the environment over an individual in a stimulated environmental condition.

Pleasure and arousal dimensions have a strong impact on the consumer buying behavior (Donovan and Rossiter, 1982). The extent of impact varies with the environmental stimuli and retail settings (Turley and Milliman, 2000; Yalch and Spangenberg, 1990). The three emotional responses discussed have an impact on the consumer shopping behavior. In a retail outlet environment, when the store is crowded a feeling of uneasiness arises due to stress (Hui and Bateson, 1991) and the shopper gets less excited (Wakefield and Blodgett, 1994). During crowding, the shopper experiences certain behavioral changes due to the changes in the emotions resulting from congestion. This may also lead to changes in the buying behavior. The shopper may try to avoid such situations. Perceived crowding not only creates a sense of pleasure due to presence of humans but also causes tension and affects arousal in dense environmental settings (Stokols, 1972). This shows that perceived crowding has the tendency to cause negative feelings for shoppers and cause hindrance to the shopping activities (Li et al., 2009).

The following hypotheses were developed:

H₃: Human crowding is negatively related to the emotions of pleasure.

H₄: Human crowding is negatively related to the emotions of arousal.

H₅: Human crowding is negatively related to the emotions of dominance.

H₆: Spatial crowding is negatively related to the emotions of pleasure.

H₇: Spatial crowding is negatively related to the emotions of arousal.

H₈: Spatial crowding is negatively related to the emotions of dominance.

2.4. Satisfaction of the Shopper

Customer satisfaction helps in evaluation of judgements made by shoppers regarding the experience in purchase (Oliver, 1993; Oliver and Swan, 1989; Oliver and Westbrook, 1993; Westbrook and Oliver, 1991). Crowding perception may have an effect on customer satisfaction with the store environment (Eroglu and

Machleit, 1990; Eroglu and Harrell, 1986). Perceived crowding may reduce the effects of pleasure in a store environment (Hui and Bateson, 1991). The feeling of the presence of a crowd may adversely affect the excitement level of the shopper (Wakefield and Blodgett, 1994). Unpleasant encounters of emotions resulting from a shopping experience may in turn affect customer satisfaction (Oliver, 1993; Machleit et al., 1994). The emotions thus generated can affect the relationship between crowding and satisfaction (Machleit et al., 2000; Eroglu, 2000; Machleit & Mantel, 2001). A positive relationship may exist between the emotions of pleasure, arousal and dominance and the satisfaction level of the shoppers (Li et al., 2009). The shopper emotions of pleasure, arousal and dominance may have a positive impact on satisfaction level of the shopper.

The following hypotheses were developed:

H₉: Shoppers' feelings of pleasure are positively related to satisfaction of the shopper.

H₁₀: Shoppers' feelings of arousal are positively related to satisfaction of the shopper.

H₁₁: Shoppers' feelings of dominance are positively related to satisfaction of the shopper.

2.5. Impulse Buying

Impulse buying is an unplanned purchase (Bellenger et al., 1978; Cobb and Hoyer, 1986; Berman et al., 2011). Impulse buying is the sudden urge/temptation experienced while shopping to make a purchase (Rook, 1987). Impulse buying includes purchases that are not intentional (Beatty and Ferrell, 1998). Perceived crowding can influence the shopper feelings, sensations and emotions in a retail environment (Hui and Bateson, 1991; Machleit, 2000). The emotions generated influence the shopper buying behavior that leads to impulse purchase (Gardner and Rook, 1988; Rook, 1987). Usually when a crowded place becomes exiting, it generates an urge to buy something. The feeling of pleasure and arousal generated from the crowding may increase the satisfaction level of the shopper that triggers impulse purchase (Li et al., 2009; Baker, Grewal, & Parasuraman, 1994; Grossbart, Rammohan, Lapidus, 1990; Rook and Fisher, 1995). Usually shoppers with a preplanned notion usually tend to ignore the environmental cues (Jarboe, & McDaniel, 1987). A shopper's perception of crowding and his emotional response was found to be positively related to overspending due to impulsive behavior that is generated (Donovan and Rossiter, 1982).

The following hypotheses were developed:

H₁₂: Satisfaction of shopper is positively related to impulse buying.

3. CONCEPTUAL FRAMEWORK

Based on the literature review done the researcher develops the conceptual framework as depicted in Figure 1. The model is based on the studies of perceived crowding by Li et al. (2009); Swee & Siew (1997); Eroglu and Harrel, 1986; Harrell et al. (1980); Gilbert and Hutt (1976); evolution of emotional responses by Mehrabian and Russell (1974). The model includes the variables of store

design, human crowding, spatial crowding, emotional responses of pleasure, arousal and dominance, shopper satisfaction and impulse buying. The concept of the framework is that store design has an impact on perceived crowding i.e., human crowding and spatial crowding. The effect of perceived crowding has an impact on the emotions of the shopper that evokes emotions of arousal, pleasure and dominance in the shopper (Chebat et al, 1995). These emotions has an impact on the shopper satisfaction. A satisfied shopper may have an urge to buy on impulse.

4. RESEARCH METHODOLOGY

4.1. Area of Research

The survey was done in the city of Pune, in the State of Maharashtra, India. The shoppers in organized retail formats especially departmental stores and supermarkets were selected to find out how the store design has an impact on the perceived crowding and trigger the emotions of the shopper. The researcher then tries to check the emotions generated out of perceived crowding and its impact on impulse buying.

4.2. The Questionnaire

The questionnaire was designed using 5-point Likert’s scale. Before the main survey, a pilot research was done on 30 respondents. The errors in the questionnaire were corrected and then the final data was collected from 1000 respondents. Out of 1000 respondents, 960 entries were valid. The valid responses were used for the data analysis.

5. DATA ANALYSIS

5.1. Demographic Characteristics

57% of the respondents surveyed were <30 years of age, 40% of the respondents were 31 60 years and 3% of the respondents were >60 years of age.

5.2. Gender

68% of the respondents surveyed were male and 33% of the

respondents were female.

5.3. Annual Income

43% of the respondents surveyed had an annual income of less than Rupees 6 lakhs, 45% of the respondents had an annual income of Rupees 6 lakhs to 10 lakhs and 12% of the respondents had an annual income of more than Rupees 10 lakhs.

5.4. Marital Status

53% of the respondents surveyed were married and 47% were unmarried.

5.5. Data Analysis

Data was analyzed using SPSS 22 and LISREL 9.2.

Test of reliability for the data used is as follows in Table 1.

5.6. Interpretation

The value of Cronbach’s Alpha of 0.838 of overall reliability of the scales used shows that the data is reliable. The individual value of Cronbach’s Alpha for all the parameters SD (0.584), HC (0.578), SC (0.786), PL (0.615), DO (0.761), SAT (0.690), and IB (0.652) also are greater than 0.50 which shows that the data used is reliable.

The test of the structural model was performed using SEM in order to examine the hypothesized conceptual framework by performing

Table 1: Reliability statistics

Parameters	Cronbach’s alpha	Number of items
Overall reliability	0.838	20
SD	0.584	3
HC	0.578	3
SC	0.786	3
PL	0.615	2
AR	-	1
DO	0.761	2
SAT	0.690	3
IB	0.652	3

SD: Store design, HC: Human crowding, SC: Spatial crowding, PL: Pleasure, AR: Arousal, DO: Dominance, SAT: Shopper satisfaction, IB: Impulse buying

Figure 1: Proposed model to study the relationship between store design, crowding and impulse buying

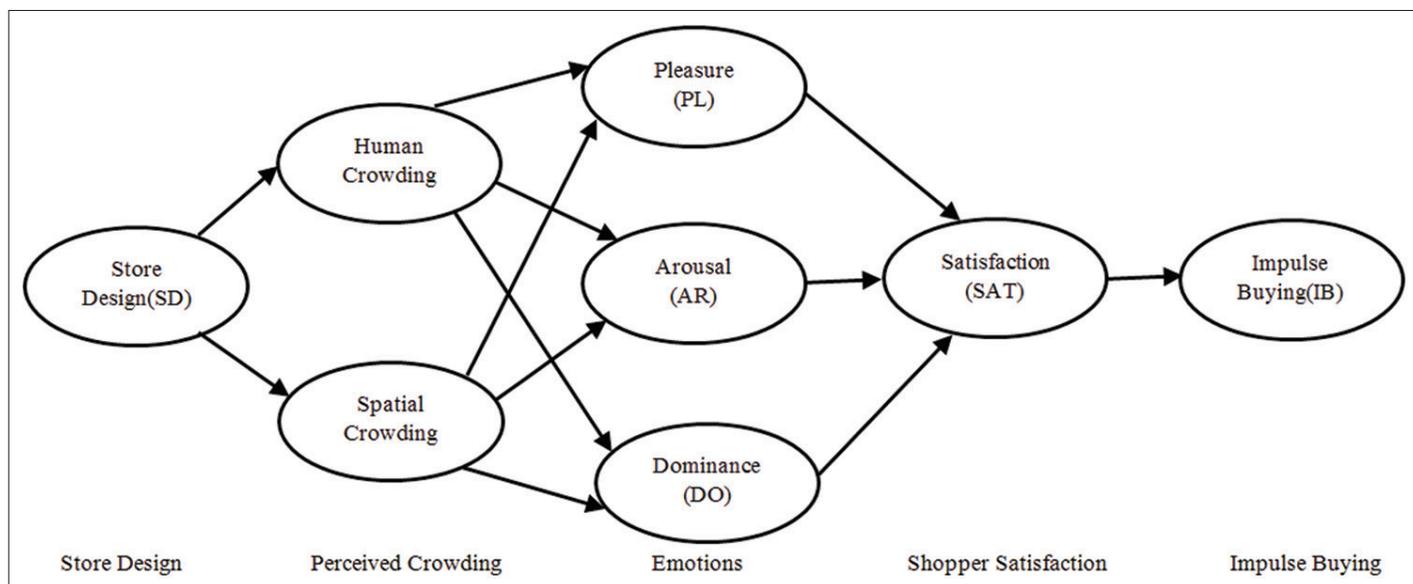


Table 2: Goodness of fit indices for structural model

Fit indices	Accepted value	Model value
Absolute fit measures		
χ^2 (Chi-square)		64.321
df		16
Chi-square/df (χ^2/df)	<3	4.02
GFI	>0.9	0.951
RMSEA	<0.10	0.0503
Incremental fit measures		
AGFI	>0.80	0.89
NFI	>0.90	0.959
CFI	>0.90	0.958
IFI	>0.90	0.959
RFI	>0.90	0.906
Parsimony fit measures		
PCFI	>0.50	0.423
PNFI	>0.50	0.541

RMSEA: Root mean square error of approximation, GFI: Goodness of fit index, df: Degrees of freedom, AGFI: Adjusted goodness of fit index, NFI: Normed fit index, CFI: Comparative fit index, IFI: Incremental fit index, RFI: Relative fit index, PCFI: Parsimony comparative of fit index, PNFI: Parsimony normed fit index

Table 3: Results of path analysis

Summary of hypotheses testing results				
Path	Estimate (β)	SE	P	Results
SD→HC	-1.98	0.125	0.000	Accept H ₁
SD→SC	3.52	0.295	0.000	Accept H ₂
HC→PL	1.96	0.118	0.000	Accept H ₃
HC→AR	0.02	0.0268	0.551	Reject H ₄
HC→DO	1.49	0.0399	0.000	Accept H ₅
SC→PL	0.17	0.276	0.537	Reject H ₆
SC→AR	0.57	0.0397	0.000	Accept H ₇
SC→DO	1.17	0.142	0.000	Accept H ₈
PL→SAT	-0.01	0.0167	0.444	Reject H ₉
AR→SAT	0.13	0.102S	0.203	Reject H ₁₀
DO→SAT	0.1	0.0291	0.000	Accept H ₁₁
SAT→IB	6.64	0.745	0.000	Accept H ₁₂

B: Standardized beta coefficients, SE: Standard error, *P<0.05, (tested at 5% significance level) SD: Store design, HC: Human crowding, SC: Spatial crowding, PL: Pleasure, AR: Arousal, DO: Dominance, SAT: Shopper satisfaction, IB: Impulse buying

a simultaneous test. Table 2 depicts that the goodness-of-fit for the model was met: CFI = 0.958, GFI = 0.951, AGFI = 0.89, NFI = 0.959, and RMSEA = 0.0503. The overall values provided evidence of a good model fit. All of the model-fit indices exceed the respective common acceptance levels, following the suggested cut-off value, demonstrating that the model exhibited a good fit with the data collected. Thus, it was possible to proceed to examine the path coefficients.

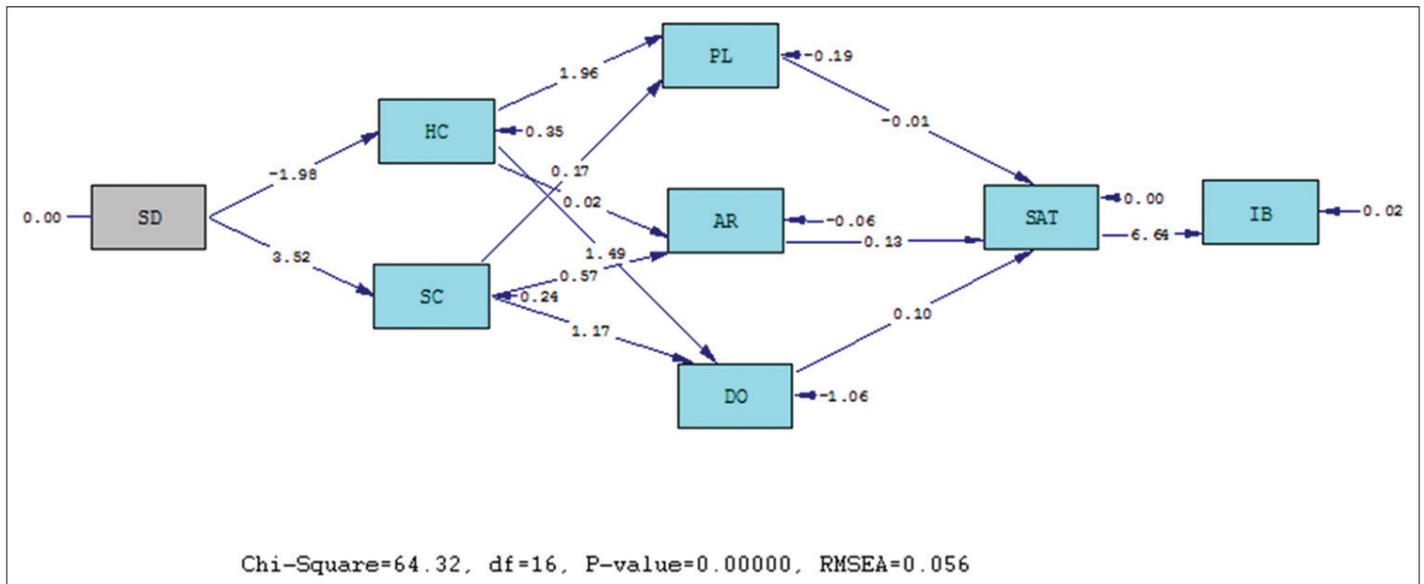
Properties of the causal paths for the structural model (standardized path coefficients (β), standard error, and hypotheses result) are signified in Table 3 and Figure 2.

6. CONCLUSION

The impact of physical environmental factors on store image and its impact on store patronage is a topic that continues to attract research attention (Fantasia, 1996; Miller, 1993). The notion that in-store atmospherics affect consumer shopping behavior is widely accepted in the marketing literature (Areni and Kim, 1994; Herrington, 1996; Kotler, 1973; Turley and Milliman, 2000). In the research, the data analysis shows that there is an impact of the store design on perceived crowding. It seems that shoppers will be attracted to the store if the human crowding is less. Whereas the spatial crowding attracts the shoppers to the shop.

Human crowding increases the emotions of pleasure and dominance. A crowded atmosphere has a tendency to excite the shopper and be carried away by the crowd flow. Whereas it doesn't arouse the shopper due to the feeling of uneasiness of the crowded atmosphere. Spatial crowding on the other hand increases the emotions of arousal and dominance of the shopper due to the feeling of availability of more products in a limited space. The shopper doesn't feel pleasure in shopping due to feeling of congestion. Research to date has shown that the level of in-store crowding perceived by shoppers can affect

Figure 2: Path analysis



their patronage decisions as well as satisfaction with the overall shopping activity (Eroglu and Machleit, 1990).

Ideally research shows that pleasure and arousal leads to shopper satisfaction. But in the research it is seen that pleasure and arousal doesn't have an impact on the shopper satisfaction. It is the dominance that leads to shopper satisfaction. Perhaps the store designed properly may have a greater dominance on the shopper, which will direct the shopper to browse through the store seamlessly. Iacobucci et al. (1995) suggested that the physical environment plays a significant role in shaping customer satisfaction. Thus, the researcher feels that a proper designed store may have the capacity to increase the shopper satisfaction level thereby increasing the tendency to shop more.

Shopper satisfaction leads to more patronage of the store and increase impulse purchases. A satisfied shopper not only becomes a loyal customer but also recommends the store to other customers. Consumer satisfaction is important to the retailer because it has been shown to be a recursive process in which satisfaction with a previous experience influences future shopping choices (Woodruff et al., 1983).

The research shows that store design if done strategically may lead to more pleasant shopping thereby increasing the emotional responses of the shopper leading to shopper satisfaction and more impulsive buying. Today many retail marketers view the store environments as increasingly important to satisfying their customers by providing a positive total shopping experience and use a communication tool to position the store in the consumers' mind (Levy and Weitz, 2001).

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APPENDIX

ID	Parameters
SD	
SD1	The store design gives a crowded store outlook
SD2	The store looks crowded from outside
SD3	I think the store is crowded
HC	
HC1	I found the store too busy during my shopping trip
HC2	The store traffic was high
HC3	I found a lot of shoppers in the store
SC	
SC1	The store looks more congested due to the design and layout
SC2	The store feels very spacious when I shop in the store
SC3	I felt confined when shopping in the store
PL	
PL1	I feel happy when shopping in a crowded environment
PL2	My mood is always positive in a crowded environment
AR	
AR1	I felt aroused when shopping in a crowded store
DO	
DO1	I feel controlled while shopping in a crowded store
DO2	I feel like being driven by the store environment in a the crowd
SAT	
SAT1	I was satisfied with my shopping experience at the store
SAT2	I would like to come back to the store for more shopping
SAT3	This is the store which I regularly like to come for shopping
IB	
IB1	I buy things that is not in my list when I see the store crowded
IB2	I often purchase more when the store is crowded
IB3	I feel motivated to buy in stores which are crowded

SD: Store design, HC: Human crowding, SC: Spatial crowding, PL: Pleasure, AR: Arousal, DO: Dominance, SAT: Shopper satisfaction, IB: Impulse buying