

CROWDING AND ITS EFFECTS ON PERCEIVED CONTROL: A STUDY OF RETAIL OUTLETS

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ABSTRACT

Retail outlets are growing fast and gaining significance day by day, thus for their efficient management it is necessary to study various factors which can affect them. Crowding in these outlets and the resultant perceived control assumed by customers is one such aspect which requires attention. This study found a positive and significant effect of crowding on perceived control in retail outlet customers. There is positive effect of age also on perceived control of these customers.

Keywords: Crowding, Perceived Control, Retail

INTRODUCTION

According to Philip Kotler (1997) retailing includes all the activities involved in selling goods or services to the end consumers for personal, non-business use. These are the final business entities in a distribution channel that acts as a link between manufacturers and customers. Manufacturers make products and sell them to retailers or wholesalers. Wholesalers resell these products to the Retailers and finally, retailers resell these products to the end consumers. Any organization selling to final consumers whether it is a manufacturer, wholesaler or Retailer-is doing retailing.

Retailing has become such an essential part of our everyday lives that it is often taken for granted. The nations that have enjoyed the greatest economic and social progress have been those with a strong growing retail sector. The world over retail business is dominated by small family run chains and regionally targeted stores. The larger retailers have set up huge supply/distribution chains, inventory management systems, financing pacts, and wide scale marketing plans which have allowed them to provide better services at competitive prices by achieving economies of scale.

Machleit & Eroglu (2000) defined crowding as that when the number of objects, people or both in a limited space (density) restricts an individual from his/her activities and goal achievement, the individual will perceive the environment as being crowded. Crowding perceptions are subjective, that is, shoppers in the same store may perceive dissimilar levels of crowding depending on individual characteristics and situational constraints. Eroglu and Harrell (1986) suggested that crowding is subjective to the individual and

the situation; a high density situation may not result in the negative and stressful outcome called crowding. Instead, it may result in a positive outcome called functional density. They further explained that retail density may not lead to feelings of crowding if the amount of perceived density is evaluated as being functional.

Ajzen (1991) defined perceived control as an individual's perceived ease or difficulty of performing the particular behavior. It is assumed that perceived behavioral control is determined by the total set of accessible control beliefs. Averill (1973) defined decisional control as "the extent of choice on means and goals that a person has in a situation". The concept of control has been operationalized in three different ways; behavioral control, cognitive control and decisional control. Behavioral control refers to the "availability of a response which may directly influence or modify the objective characteristics of an event". Cognitive control has been broken down into predictability and cognitive reinterpretation of a situation. Finally, decisional control refers to "choice in the selection of outcomes or goal".

REVIEW OF LITERATURE

Cohen and Sherrod (1978) found that individual's health situation which gets effected by high density levels depends largely on his beliefs about the environment rather than the environment he is in. They further implied that negative effects of higher density levels can be bettered by good sense of perceived control such as merely changing their attitudes towards that environment. Langer and Saegart (1977) indicated that manipulations of density and warnings about the effects of density will directly influence control. Further he found that perceived crowding is a direct function of density. Proshansky et. al. (1974) suggested that density is a key determinant of individual's perceived control in a particular setting. Density can smooth the progress of or obstruct most wanted behaviors; the influence it has will then determine the individual's perception of crowding. Freedman (1975) observed that density produces positive emotional and behavioral effects in some settings and negative effects in some other settings.

Sherrod (1974) found that high density subjects who were told that they could depart from the crowded room whenever they chose performed better on post crowding measures of frustration tolerance than subjects who had no such control. Cohen, Rothbart and Phillips (1976), Hiroto (1974) also suggested that externals who generally feel controlled by their environment are more liable to learned helplessness than are internals those who feel control over themselves and their environment. Karlin, Epstein and Aiello (1978), Schopler and Walton (1974) indicated that externals are more strongly affected by density than internals.

Rodin, Solomon and Metcalf (1978) concluded that respondents with control felt considerably less crowded than those without control, and the type of delegated control interacted with density in influencing evaluations of room ambience and personal comfort. High-density rooms were judged to be less pleasurable

and more crowded than low-density rooms. Results suggested that control mediates responses to density and is directly related to the experience of crowding. Judith Rodin (1976) observed that children who lived in high inhabited density were significantly less likely than children from less dense homes to try to control the administration of available outcomes. Children from high density homes did significantly more poorly than less crowded children when the first problem was unsolvable

OBJECTIVES OF THE STUDY

- To evaluate the cause and effect relationship between Perceived Crowding as independent variables and Perceived Control as dependent variable.
- To evaluate the effect of age Perceived Control.

RESEARCH METHODOLOGY

The study was causal in nature with survey being the mode used for data collection. The population for the study included all the residents of Gwalior above 16 years of age. The sample frame included all the residents of Gwalior above 16 years of age who visited retail outlets selected for the purpose of the study. Non probability purposive sampling technique was used to identify sample elements of the study. The sample size for the study was 360 individual customers. Re-standardized questionnaires based on the survey of literature were prepared to measure both the variables of the study in Indian context. The standardized measures for crowding Machleit et al. (1994), Lee et al. (2011) and for perceived control Rompay et al. (2008), Chang (2008) were taken into consideration while framing the elements of the measures used for the study. The responses were obtained from the customers on a Likert type scale of 1 to 5 for all the variables in which 1 indicated minimum agreement and 5 indicated maximum agreement. The measures were checked for the consistency and reliability before the data was processed for further analysis. Analysis of data was performed through Cronbach's Alpha, Linear regression and One Way ANOVA.

HYPOTHESIS

Ho (1): There is no effect of Perceived Crowding on Perceived Control.

Ho (2): There is no effect of Age on Perceived Control.

RESULT AND DISCUSSION

Reliability Measure

Nunnally (1978) recommended that instruments used in basic research should have reliability of 0.7 or higher. Reliability coefficient, Cronbach's Alpha was computed using PASW 18 Software and results came out as:

Table 1 Reliability Statistics for total Data

Measure	Cronbach's Alpha	Number of Items
Perceived Crowding	.813	13
Perceived Control	.710	06

It was observed from the above table that the reliability coefficient Cronbach's alpha value for both the variables was greater than 0.7 indicating that the reliability of both the measures was high and therefore the measure have been used for the further study.

Factor Analysis

Kaiser- Meyer-Olkin (KMO) measure of sampling adequacy and Barlett's test of sphericity was used to find whether the data is relevant for factor analysis. The principal axis factoring analysis of factor analysis was used with Varimax rotation to keep variables whose factor loadings were above 0.5 and Eigen values were above 1 (one).

Factor Analysis of items of Perceived Crowding

The raw data was tested before doing factor analysis for sampling adequacy and sphericity and then made a decision if the data was appropriate or not.

Table 2 KMO and Bartlett's Tests results of Perceived Crowding

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.829
Bartlett's Test of Sphericity	Approx. Chi-Square	1030.401
	Df	55
	Sig.	.000

The KMO and Bartlett's test of Sphericity evaluates whether the data is suitable for factor analysis. To proceed to satisfactory factor analysis, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy should be greater than 0.5. The table shows the Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.829. The Bartlett's Test of Sphericity evaluates the null hypothesis that the item-to-item correlation matrix is an identity matrix. The null hypothesis is rejected as the p-value is 0.000, less than .05 (the hypothesis is being tested at 5% level of significance). This means the statements in the questionnaire have relationship with

other statements. Thus making the data collected using crowding is suitable for applying exploratory factor analysis (EFA).

Table 3 Rotated Factor Results of Perceived Crowding

Factor Name	Eigen Values			Variables converged	Loading
	Total	% Var.	Comm. Variance		
Spatial Crowding	2.547	23.152	23.152	5. I felt restricted in the shelving section. 6. It was inconvenient to move around. 3. felt restricted due to environment. 4. inconvenient due to lack of space. 11. felt restricted since the ceiling was low and light was dim. 8. inconvenient in the passage of the frozen foods/dairy product and vegetable section. 7. I felt restricted in the frozen food/dairy product and vegetable section.	0.680 0.658 0.613 0.608 0.561 0.505 0.415
Human Crowding	1.265	11.500	34.652	1. store was too busy 2. The store seemed very crowded	0.726 0.716
Payment Queues	1.165	10.594	45.246	9. restricted near cash counter area 10. inconvenient to move around near cash counter area	0.856 0.391

Discussion of Factors

Factor 1 – Spatial Crowding (2.547): this factor has appeared as the main factor of crowding which has a % variance of 23.152. Major elements of this factor are felt restricted in the shelving section (0.680), inconvenient to move in shelving section (0.658), restricted due to store environment (0.613) and inconvenient due to lack of space (0.608).

Factor 2 – Human Crowding (1.265): This factor has appeared as the main factor of crowding which has a % variance of 11.500. Major elements of this factor are store was too busy during my shopping trip (0.726) and store seemed very crowded because of lot of shoppers (0.716).

Factor 3 – Payment Queues (1.165): This factor has appeared as the main factor of crowding which has a % variance of 10.594. Major elements of this factor are felt restricted when waiting near cash counter (0.856) and inconvenient to move around near cash counter area (0.391).

Factor Analysis of items of Perceived Control

The raw data was tested before doing factor analysis for sampling adequacy and sphericity and then made a decision if the data was appropriate or not.

Table 4 KMO and Bartlett's Tests results of Perceived Control

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.717
Bartlett's Test of Sphericity	Approx. Chi-Square	203.041
	Df	15
	Sig.	.000

The KMO and Bartlett's test of Sphericity evaluates whether the data is suitable for factor analysis. To proceed to satisfactory factor analysis, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy should be greater than 0.5. The table shows the Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.717. The Bartlett's Test of Sphericity evaluates the null hypothesis that the item-to-item correlation matrix is an identity matrix. The null hypothesis is rejected as the p-value is 0.000, less than .05 (the hypothesis is being tested at 5% level of significance). This means the statements in the questionnaire have relationship with other statements. Thus making the data collected using perceived control quality is suitable for applying exploratory factor analysis (EFA).

Table 5 Rotated Factor Results of Perceived Control

Total Variance Explained						
Factor	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.965	39.309	39.309	1.233	24.658	24.658
2	.939	18.779	58.088			
3	.780	15.603	73.691			
4	.724	14.474	88.165			
5	.592	11.835	100.000			

Extraction Method: Principal Axis Factoring.

REGRESSION ANALYSIS

Table 6 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.281 ^a	.079	.077	3.16358

a. Predictors: (Constant), Perceived Crowding

The linear regression coefficient adjusted R^2 is 0.077 indicating that independent variable perceived crowding contributes 07.7% variance in the dependent variable perceived control, in other words independent variable contribute 07.7% to perceived control.

Table 7 AnovaAnova^b

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	308.039	1	308.039	30.778	.000 ^a
Residual	3582.958	358	10.008		
Total	3890.997	359			

a. Predictors: (Constant), Perceived Crowding

b. Dependent Variable: Perceived Control

The ANOVA table evaluates whether the regressions model is good fit to the data. The value of F was 30.778 which is significant at 0.000% level of significance indicating high predictability of model.

Table 8 CoefficientsCoefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	12.744	.820		15.544	.000
Product Quality	.125	.023	.281	5.548	.000

a. Dependent Variable: Perceived Control

The significance of beta is tested using T-test and values in model was 5.548 for perceived crowding which was significant at .000 indicating strong positive relationship between perceived crowding and perceived control.

One Way Anova**Table 9 Anova****ANOVA**

Perceived Control

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	77.907	2	38.954	3.647	.027
Within Groups	3813.090	357	10.681		
Total	3890.997	359			

Above table shows that the value of F is 3.647 which is significant at $p=.027$ which is less than .05, indicating that there is significant difference amongst different age groups on dependent variable perceived control.

Table 10 Post Hoc Tests

Multiple Comparisons

Dependent Variable: Perceived Control

(I) AGE(J) AGE	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval			
				Lower Bound	Upper Bound		
Tukey HSD	1.00 2.00	-.73188	.38384	.138	-1.6352	.1715	
	---	3.00	-1.20489*	.50459	.046	-2.3924	-.0173
	2.00 1.00	.73188	.38384	.138	-.1715	1.6352	
	---	3.00	-.47301	.53695	.653	-1.7367	.7907
	3.00 1.00	1.20489*	.50459	.046	.0173	2.3924	
	---	2.00	.47301	.53695	.653	-.7907	1.7367
Dunnett T3	1.00 2.00	-.73188	.39460	.182	-1.6811	.2174	
	---	3.00	-1.20489	.51906	.067	-2.4706	.0608
	2.00 1.00	.73188	.39460	.182	-.2174	1.6811	
	---	3.00	-.47301	.57325	.794	-1.8630	.9170
	3.00 1.00	1.20489	.51906	.067	-.0608	2.4706	
	---	2.00	.47301	.57325	.794	-.9170	1.8630

*. The mean difference is significant at the 0.05 level.

A Tukey post-hoc test revealed that perceived control was statistically significantly different in the 55& above age group as compared to the 16-35 age group ($p = .046$). However, there were no statistically significant differences between the 16-35 age group and 36-54 age group ($p = .138$), or the 36-54 age group and 55& above age group ($p = .653$).

CONCLUSION

The outcome of the study indicated that perceived crowding has a positive and significant effect on perceived control. Moreover there is also significant effect of age on perceived control. Therefore the retailers should consider in store crowding as a mechanism to enhance customers perceived control.

REFERENCES

Ajzen, I. (1991) the theory of planned behavior, *Organizational Behavior and Human Decision Processes*, 50, 179-211.

Averill, J. R. (1973) "Personal Control over Aversive Stimuli and Its Relationship to Stress," *Psychological BuUelin*, 80 (4), 286-303.

Cohen, S, Rothbart, M and Phillips, S (1976) locus of control and generality of learned helplessness in humans. *Journal of personality and social psychology*, 1976, 34, 1049-1056.

- Cohen, S. and Sherrod, D. R. (1978) When density matters: environmental control as a determinant of crowding effects in laboratory and residential settings, *Population and Environment* vol 1 no 3
- Eroglu, S. A. & Harrell, G.D. (1986) 'Retail crowding: Theoretical and strategic implications', *Journal of Retailing*, 62: 347-363.
- Freedman, Jonathan L. (1975), *Crowding and Behavior*. San Francisco: Freeman
- Hiroto, D.S. (1974) locus of control and learned helplessness, *Journal of experimental psychology*, 1974, 102, 187-193.
- Judith Rodin (1976) Density, perceived choice, and response to controllable and uncontrollable outcomes, *Journal of Experimental Social Psychology*, Volume 12, Issue 6, November 1976, Pages 564-578
- Karlin, R. A, Epstein, Y.M. and Aiello (1978), J.R. A setting specific analysis of crowding in a Baum & Y Epstein (Eds) *human responses to crowding* Hillsdale, N.J. Lawrence Erlbaum associates, 1978
- Kotler, P. (1997) *Marketing Management*, 9th Ed., Prentice Hall, New Jersey.
- Langer and Susan Saegart (1977), "Crowding and Cognitive Control." *Journal of Personality and Social Psychology*. 35(3), 175-182.
- Machleit, K.A. and Eroglu, S.A. (2000) Describing and Measuring Emotional Response to Shopping Experience. *Journal of Business Research*, 49, 101-111.
- Proshansky, Harold M., William H. Ittelson, and Leanne G. Rivlin (1974) "Freedom of Choice and Behavior in a Physical Setting," in *Environmental Psychology*, Ed. Harold M. Proshansky et al. New York: Holt, Rinehart & Winston, 170-181.
- Rodin, Susan K. Solomon, and John Metcalf (1978), "Role of Control in Mediating Perceptions of Density." *Journal of Personality and Social Psychology*. 36 (9). 988-999.
- Schopler, J and Walton, M. (1974) The effects of structure, expected enjoyment, and participant's internality-externality upon feelings of being crowded. Unpublished Manuscript University of north Carolina Chapel Hill, 1974.
- Sherrod, D.R. (1974) crowding, perceived control and behavioral aftereffects *journal of applied social psychology* 1974, 4, 171-186