

The impact of Environmental Factors on Impulse Buying Behavior Using the Mehrabian and Russell's Framework

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Abstract

This study aimed at highlighting the impact of environmental factors on the impulse buying behavior of Algerian shopper using a Stimulus and response model. In this paper, it is identified and explored how factors related to the environment of purchase and emotional states may influence various dimensions of such kind of behavior at food stores in Algeria' west. According to the results; consumer's emotions cannot be a mediating factor in the impulse purchase process. The results indicate that seller guidance has a significant impact on the impulse buying. We have concluded also that perceived human crowding influence positively the behavior of Algerian shoppers, whereas the time pressure was not approved.

Keywords

Impulse Buying; Environmental Factors; Emotional States; Mehrabian and Russell's Model; Algerian Consumer

Introduction

As a pervasive aspect of Algerian consumer lifestyle (social and economic changes such as dramatic increases in disposable income, a variety of products in local market and credit facilities), impulse buying is a common phenomenon in the marketplace and for that

reason it has become a focal point for considerable marketing activities [1]. It is important for the marketers to be able to understand the different factors affecting the extent in impulse buying behavior. So, there are many factors which affect Consumers Impulse Buying Behavior in Algeria' market but it is only analyzed some situational factors which are: Time pressure, Atmospheric factors (design and employee assistance), perceived crowding and present of others.

The literature recommends that consumer emotions influence shopping behavior in a number of different ways, including impulse buying [2]; [3]. In this sense, the authors seeks to investigate the association of the mediating variables that are emotional states as they proposed by [4] with, on the one hand, the independent variables that are the situational predictors and, secondly, the dependent variable that is; impulse buying behavior of consumers who shop in the area of Algeria' west.

Literature Review and Theoretical Background

The research on impulse buying has been based on varying conceptual definitions of the construct and has focused primarily on in-store retailing. The understanding of this behavior in retail stores was first recognized in the marketing literature by Clover [5] over sixty years ago.

A decade after Clover [5], Stern [6] distinguished four types of impulse buying: pure, reminder, suggestion, and planned impulse buying: (i) Pure impulse buying: is a novelty or escape purchase which breaks a normal buying pattern, (ii) Reminder impulse buying: occurs when a shopper sees an item or recalls an advertisement or other information and remembers that the stock at home is low or exhausted, (iii) Suggestion impulse buying: occurs when a shopper sees a product for the first time and visualizes a need for it, and (iv) Planned impulse buying: takes place when the shopper makes specific purchase decisions on the basis of price specials, coupon offers and the like.

Stern [6] contribution is quite significant, because even today most research studies use his concept of impulse purchases as a starting point [7, 8].

The notion of exposure to stimulus into the concept of impulse buying was introduced by Applebaum [9], and defined impulse buying as "buying that presumably was not planned by the customer before entering a store, but which resulted from a stimulus created by a sales promotional device in the store". Although this was an improvement over the earlier

definition, it was still a limited definition because the stimulus that Applebaum [9] discusses is restricted to sales promotional devices in the store which the consumer could be using as an external memory aid. Over time, researchers began to look at consumer characteristics rather than product characteristics or stimuli as it was agreed that impulse buying is not confined to any particular product or product category [3]. The hedonic or affective components of this type of buying became central in many studies [10, 11, 3]. Rook [3] reported that consumers often felt a calling to purchase the product.

As researchers began to focus on the behavioral dimensions of impulse buying they moved away from viewing impulse buying as an unplanned purchase. Rook and Hoch [12] state the growing consensus among researchers when they suggest that defining impulse buying as unplanned is neither a sufficient condition nor a necessary condition for construal as an impulse purchase, since consumers clearly use store layout as external memory aid. In fact, consumers may plan impulse buys. Rook [3] discusses situations wherein consumers have occasionally described how they plan to go on impulse buying excursions.

Rook [3] suggests impulse buying occurs: when a consumer experiences a sudden, often persistent urge to buy something immediately. The impulse to buy is hedonically complex and may stimulate emotional conflict. Also, impulse buying is prone to occur with diminished regard for its consequences.

Environmental Factors

Time Pressure

Howard et al. [13] characterize the pressure time that the inverse of the available time for a shopper to do the act of purchase. Iyner [14] affirmed that the time pressure restrictions the attention linked to the elements of the environment. More the consumer spent time in the store, more he susceptible to make impulse buying. Time pressure has a negative effect on impulse buying because the consumer may feel frustrated due to the lack of time to shop or browse and in the same time [3]. Opposing to Au et al. [15], when they suggest that the impulsive purchase often achieves in the five first minutes of shopping and the probability of its realization decreases that the time passed. To investigate this issue, the following hypothesis is suggested:

H1: Time pressure has a positive influence on the impulse buying behavior.

Atmospheric Factors

Applebaum [9] was among the first to suggest that the impulsive purchase can be conducted by the consumer's exposition at the time of his experience of shopping to a stimulus of the environment. In the same way, Stern [6] showed the existence of a meaningful relation between the impulsive purchase and marketing's techniques. These techniques create one favorable environment for the impulsive purchase. Some more recent works showed that the variable of the sale atmosphere (sounds, views and odors) are important stimulants that can produce the desire to buy impulsively [16-18]. Rook [3] indicates that the sudden emergency to buy seems to be motivated by the visual confrontation with the product or by stimuli of the environment. Indeed, the interaction of the purchaser with the retail outlet is a main component of the impulsive purchase decisions. In the same way, the design of the retail outlet is able of to give the pleasure and to stimulate the visitor of the store. The different components of the environment act directly on buyers emotional states [19, 20]. It is acceptable, however, to indicate that Park et al. [21] verified the negative impact of the interaction with employee assistance on the tendency to buy impulsively. Hence, the study proposes the following hypotheses:

H2: Atmospheric factors have a positive correlation with the impulse buying behavior.

Presence of Others

Experimented study has found that the presence of others can increase the probability of an impulse purchase, but, the presence of peers increases the urge to purchase, and the presence of family members decreases it. Contrary to Rook and Fisher [22] because they establish that, being lonely in the purchase environment can lead to increase the chance of impulse purchase, when he or she feels that the behavior will be perceived as being irrational. Consequently, the study posits that:

H3: presence of others has a positive correlation with impulse buying behavior.

Perceived Crowding

According to Stokols [23], crowding results from both the density stimuli and personal perception to the environment. Extending the concept, the empirical studies conducted by Harrell et al. [24] identified two dimensions of perceived crowding, human crowding and spatial crowding. Human crowding refers to a closed, confined feeling experienced from high human density while spatial crowding refers to feelings of restricted physical body movement due to high spatial density. Several studies demonstrated that when the environments restrict

or interfere with an individual's activity, the individual perceives crowding. This concept implies that density describes a state of "emotional neutral", while crowding has to do with a state of strong emotional connection. Therefore, perceived crowding is supposed to act negatively as well on the realization of an impulsive purchase as well as on the emotional states of the shopper [25]. We note also, that research on perceived crowding postulates that spatial density is negatively correlated with satisfaction (e.g. [20]; [26] and number of purchases [27] but human density is positively correlated with impulse buying [28]. Therefore, the following hypothesis can be suggested:

H4: Perceived crowding has a positive correlation with the impulse buying behavior.

Emotional States and Mehrabian and Russell Model

Mehrabian and Russell [4] supposed that the impact of the situation on behavior is mediated by emotional responses, so that any set of conditions initially generates an emotional (affective, connotative, feeling) reaction, which in turn leads to a behavioral response (Approach or avoidance) (Figure.1).

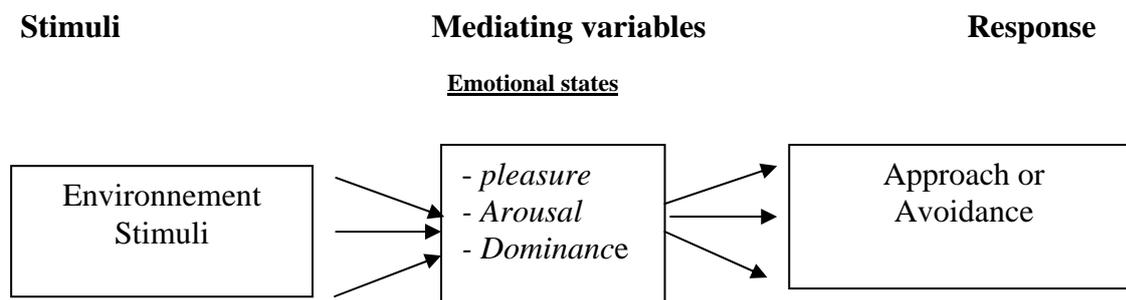


Figure 1. The Mehrabian-Russell model

Further, the universe of all possible emotional responses may be represented by one or a combination of three basic dimensions: pleasure, arousal and dominance. Pleasure as an emotional state is distinguished from "preference, liking, positive reinforcement or approach-avoidance...since the latter responses is also determined by the arousing quality of a stimulus" [4]. It is a composite of feelings such as happiness, contentment, satisfaction, etc. Arousal is an activity orientation and is "a measure of how wide awake the organism is, of how ready it is to act". Finally, dominance is a reflection of the extent to which the individual feels in control of or overpowered by his environment. The higher the level of dominance perceived in the situation, the more submissive is the state of the individual. Thus, this study proposed the following hypotheses:

- H5.** The emotional states ((a) pleasure, (b) arousal and (c) dominance) mediate the relation between the time pressure and impulse buying behavior.
- H6.** The emotional states ((a) pleasure, (b) arousal and (c) dominance) mediate the relation between the atmospheric factors and impulse buying behavior.
- H7.** The emotional states ((a) pleasure, (b) arousal and (c) dominance) mediate the relation between the presence of others and impulse buying behavior.
- H8.** The emotional states ((a) pleasure, (b) arousal and (c) dominance) mediate the relation between the perceived crowding and impulse buying behavior.

Material and Method

To determine the sample size for this study, the power analysis program “G*Power” was used as an alternative of traditional method (Table 1, Figure 2). G*Power performs high-precision statistical power analyzes.

Table 1. Results of A-Priori Power Analysis Using G*Power

Effect Size	Significance Level	Statistical Power	Sample Size	Actual Power
0.05: Large	0.05	0.95	3100	0.9127
0.08: Medium	0.05	0.95	1500	0.9501
0.20: Small	0.05	0.95	260	0.9505

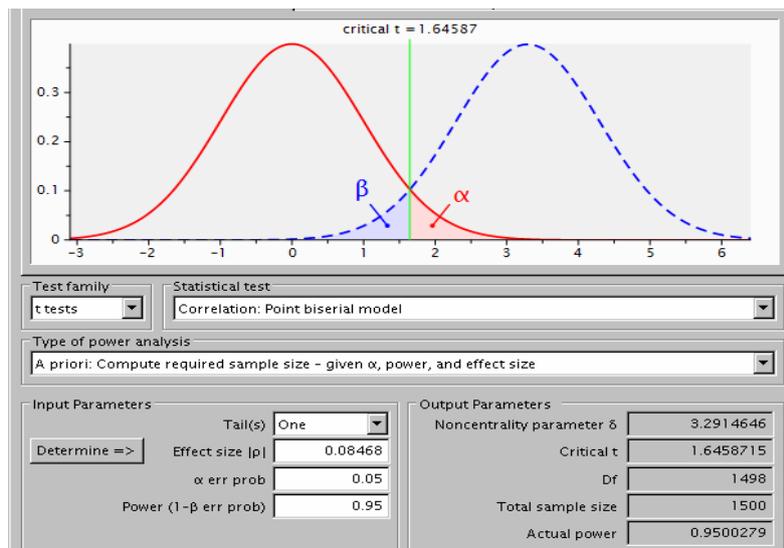


Figure 2. Results of A-Priori Power Analysis Using G*Power

Population and Sample

The consumers, who shop in food stores in the area of Algeria' west were taken as the population for this study. A sample (probability sampling method) of 1500 consumers was pooled up for the current study in which respondents of this study were requested to complete the questionnaire on voluntary basis and not a single attempt was made to chase non-respondents, so the real sample of this study was 1357 consumers. Among this sample, 434 consumers declared that they achieved an impulse buying. The data was collected between April and May 2012.

Measurement

The instrument contained sub-parts. These sub-parts were retrieved from different previous studies. The behavioral aspect of impulse buying in which items were arranged to measure the impulse buying tendency was adopted from the paper of [22] and then further modified. Whereas, the attitudinal aspect of impulse buying in which items were arranged to measure frequency was adopted from the paper of [29] and then further modified. The sub-part of the questionnaire regarding Store environment was adopted in paper [30], where items are measured on three measurements: design, employee assistance and atmosphere. The sub-part of the questionnaire regarding time pressure was adopted from the paper of [7], where items are measured on three measurements using a likert scale. The sub-part of the questionnaire regarding perceived crowding was adopted from the paper of [20], it was captured via two dimensions human and spatial crowding where are measured in three-item scale. The sub-part of the questionnaire regarding emotional states was measured through three dimensions: Pleasure, Arousal and dominance from Merhabian and Russell work [4].

After collecting 174 responses the reliability of the instrument was checked by the help of Statistical Package for Social Sciences (SPSS). The value of Cronbach's Alpha was 0.761, which confirmed the reliability of the instrument and then further responses up to 1357 were collected.

Results and Discussion

A survey was conducted among a convenience sample of 1357 subjects who were recruited among customers of a wide variety of food stores in Algeria' west. There were 583

women and 774 men. Ages ranged from 13 to 77 years (M=49.4 years, SD=17.2 years). Most respondents reached between 15000 and 25000 DA as income.

To rule out the argument that emotional states are a mediating force between social factors and impulse purchase behavior, we ran a multiple regression analysis. Baron and Kenny [31] proposed a four step approach (for measuring the mediating effect) in which several regression analyses are conducted and significance of the coefficients is examined at each step (Table2).

Table 2. Testing for mediation by Baron and Kenny [31]

Steps	Analysis
Step1	Conduct a simple regression analysis with X (<i>Independent variable</i>) predicting Y (<i>Dependent variable</i>) to test for path c alone, $Y=B_0+B_1X+e$
Step2	Conduct a simple regression analysis with X predicting M (<i>intervening variable</i>) to test for path a, $M=B_0+B_1X+e$
Step3	Conduct a simple regression analysis with M predicting Y to test the significance of path b alone, $Y=B_0+B_1M+e$
Step4	Conduct a multiple regression analysis with X and M predicting Y, $Y=B_0+B_1X+ B_2M+e$

The data presented in table 3, 4, 5 and 6; show the results extracted on the basis of multiple regression to find the association level between the Independent, the moderate and the dependent variables.

Table 3. Statistical analysis for relationship of environmental factors and impulse behavior

Model		Non standard Coefficients		Standard Coefficients	t	Sig.
		A	S.E	β		
Environmental factors	(Constant)	4.373	.262		16.658	.000
	H1. time pressure	-.539	.090	-.313	-6.003	.962
	H2. Atmospheric factors	.010	.022	.025	2.455	.001
	H3. Presence of others	-.141	.090	-.075	1.564	.000
	H4. Perceived crowding	.002	.040	.002	1.048	.000

dependant Variable : Impulse buying

The testing of hypotheses developed earlier revealed the following results:

Hypothesis 1 proposed a positive relationship between time pressure and impulse buying behavior of the consumers. For simple regression analysis, time pressure was used as an independent variable and impulse buying behavior as a dependent variable. The results are shown in table 3, time pressure had no significant effect on impulse purchase behavior of the consumers during their shopping experience at the store. Thus, hypothesis 1 was rejected.

The effects of the atmospheric factors on the impulse purchase behavior are examined through the hypothesis 2. As shown in Table 3, the results support the hypothesis that store environment is positively related to impulse buying behavior ($\beta = .025$, $p < .001$). Thus, H2 was supported. The results show also that the design of the store most strongly affected impulse behavior, followed by atmosphere factor, while the personal support had the least effect of the three dimensions of store environment.

Hypothesis 3 stated that the presence of others influence positively the impulse buying behavior. The results of multiple regression analysis for relationships between the presence of others and impulse purchase behavior (Table 3) indicate that going to buy with others was negatively related to impulse purchase behavior ($\beta = -.075$, $p < .001$). Thus, H3 was rejected. Hypothesis 4 predicted there is a positive relationship between overall perceived store crowding and the impulse buying behavior of the consumers. This hypothesis was tested using simple regression analysis. As shown in Table 3, significant positive relationships were found between overall perceived crowding and the behavior of impulse purchase ($\beta = .002$, $p < .001$), spatial crowding and human crowding. Therefore, the hypothesis 4 was supported.

Table 4. Statistical analysis for relationship of emotional state (Pleasure) and environmental factors

Model	Non standard Coefficients		Standard Coefficients	t	Sig.
	A	S.E	β		
(Constant)	1.219	0.109		11.172	0.000
H6a. Atmospheric factors	0.011	0.010	0.059	1.166	0.244
H7a. Presence of others	-0.075	0.043	-0.085	-1.744	0.082
H8a. Perceived crowding	0.015	0.020	0.037	0.748	0.455

dependant Variable: Pleasure

Table 5. Statistical analysis for relationship of emotional state (Arousal) and impulse buying behavior

Model	Non standard Coefficients		Standard Coefficients	t	Sig.
	A	S.E	β		
(Constant*)	0.963	0.128		7.538	0.000
H6b. Atmospheric factors	0.016	0.011	0.071	1.402	0.162
H7b. Presence of others	-0.005	0.023	-0.012	-0.234	0.815
H8b. Perceived crowding	0.040	0.051	0.039	0.800	0.424

dependant Variable: Arousal

Table 6. Statistical analysis for relationship of emotional state (Dominance) and impulse buying behavior

Model	Non standard Coefficients		Standard Coefficients	t	Sig.
	A	S.E	β		
(Constant*)	1.451	0.281		11.172	0.000
H6c. Atmospheric factors	0.075	0.130	0.037	1.546	0.624
H7c. Presence of others	-0.034	0.147	-0.185	-1.194	0.197
H8c. Perceived crowding	0.278	0.090	0.571	0.489	0.674

dependant Variable: Dominance

The relationship between time pressure and emotional responses is not tested because there is no direct relation between this variable and the impulse buying. However, this provide reject H5a, H5b and H5c.

Coefficients of the impact of atmospheric factors on emotional states (pleasure, arousal and dominance) on pleasure ($\beta = 0.059$, $p > .001$), arousal ($\beta = 0.071$, $p > .001$) and dominance ($\beta = 0.059$, $p > .001$) are not significant. These results provide reject H6a H6b and H6c.

As shown in Table 4, 5 and 6, the relationship between Presence of others and emotional responses is not significant. Nevertheless, the result rejects H7a, H7b and H7c. The relationship between perceived crowding and emotional responses is not significant, this lending to reject H8a, H8b and H8c.

Managerial Implications

The results of this study indicate that environmental factors influence impulse behavior in the food store among Algerian shoppers in different manners; atmospheric factors appears to be a significant factor, to promote impulse buying retailers should create a store environment where the negative perceptions of impulse are reduced, stores should have highly legible environment and implement steps to promote shopping efficiency. This implies that marketers and retailers need to design shopping environment that reduce the expected shopping difficulties of their target consumers. It is important to understand that shoppers have varying types and amounts of product and store knowledge, which may affect their navigational search strategies. For Algerian consumers, time pressure doesn't affect the unplanned purchase in food stores. These findings are not consistent with previous research such as in Iyner [14]. This study investigates also the impact of lonely going to buy on the impulse behavior. The results advise that the presence of others in the moment of purchase tends to reduce the behavior of impulse purchasing. These findings are reliable with Rook and Fisher [20], in the same time they don't support the results of Luo [32]. The findings do not support the proposal of Grossbart et al. [27] that shoppers do not an impulse buying behavior when they perceive the store crowding. The study of the impact of perceived crowding on the unplanned purchases showed that both the spatial crowding and human crowding had a positive influence on this behavior. These findings are consistent with Jiunn-Ger [28] suggestion that human density is positively correlated with impulse buying. So, this study suggests that store managers might be able to reduce the negative effect of crowding by training their employees to be extra friendly at busy times.

Retailers can take these findings to maintain trained their employees and provide adequate signs and best environment whenever some relocation of products took place.

The present study uses Stimulus and Response model [4] to measure shoppers' emotional reactions (pleasure, arousal, and dominance) since it has been frequently used for evaluation of emotions in the retail setting environment. However, researchers suggest that emotional states may mediate the environmental factors and making impulse purchases; in this sense, the study determines that the emotional states not affect the impulsive purchases.

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