FACTORS INFLUENCING CONSUMERS’ CHOICE OF ICE-CREAM: A STUDY ON IMPULSE BUYING BEHAVIOR

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Abstract: Impulsive purchasing is an emotional and cognitive reaction of a consumer to stimulus in purchase environment when demographic profile (like age, gender), situational, social, economic, complexity of decisions (ambiguity in decision process), psychological factors and product attributes are important to influence the behavior. Impulse purchase is also the individual’s internal differences with regard to impulsive acts. So, it is an important task for marketers of ice cream to determine and assesses the factors that influence the consumers’ impulse buying behavior. This study attempted to evaluate the factors influencing consumers’ impulse buying behavior for ice-cream. Consumption of ice-cream is influenced mostly by the attractiveness of the product attributes like taste, flavor, quality, creaminess of ice-cream, availability at convenient location, packaging etc. along with demographic profile, situational, social, economic, complexity of decisions, psychological factors also influence consumers’ impulse buying behavior for ice-cream. It may be relevant to managers to identify the most combination of product attributes as well as other important factors in their promotional activities to induce the consumers’ desire for ice-cream.

Key Words: Impulse buying behavior, Consumer choice, Ice-cream.

INTRODUCTION

Consumers in Bangladesh see ice cream as a fun product which requires novelty and quality coupled with continuous hype around the brand. Due to promotion, innovation and exposure to different cultures the consumption of ice cream has increased. As a result the ice cream industry of Bangladesh is a growing one. The industry is currently growing at a rate of 19%. With an estimated market size of BDT 220 Cr in 2009, the market can be subdivided broadly into branded and unbranded categories. The branded market segment is around BDT 131 Cr with players in both common/conventional ice cream format (BDT 121 Cr), unbranded segment (BDT 79 Cr) and boutique format which is still very small in size (BDT 9.8 Cr) (Miah, 2010).

With increasing market demand, size of the industry is growing but due to entry barriers of lengthy and complex production process and high investment few companies enter this business. Although local companies in the branded segment have captured most of the market share, small

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unbranded local companies own a huge market to themselves. Where branded ice cream consumers look for innovation and quality, unbranded users outside metro cities are currently inclined towards low price low quality products. This creates an opportunity for further market development on the hygiene and health platform. On the other hand, the boutique industry is doing quite well with their approach towards ice cream as a dessert item along with service of other snacks like cakes and coffee at their premises which help them reduce seasonality effects of ice cream.

Branded common format ice cream industry has only few players in the market like Igloo, Polar, Kwality, Savoy and Milk Vita. Igloo is currently the market leader. Polar stayed market leader for 10 years (1986-1996) in their initial days and Kwality challenged and took Polar’s second position. But Polar came back in their second position in recent times. However, Igloo bounced back every time they faced challenge. Milk Vita came in the market with proper dairy ice cream but failed to create an impact as their core business is not ice cream. Some major ice cream boutiques in Bangladesh are Club Gelato, MövenPick, Andersen’s, Gelateria Igloo, Baskin Robbins, Cream & Fudge and Sub Zero. The unbranded market basically is constituted with around 20,000 local small producers that do not use any brand leverage and compete in the market based on significant lower price in the range of BDT 1-5. (Miah, 2010)

Branded common format is dominated by Igloo with more than 51% share with followers like Kwality and Polar where Milk Vita and Savoy are minnows. Boutique segment is competed by Club Gelato (20% share), MövenPick, Andersen’s (3 outlets) and Gelateria Igloo (3 outlets). These three have around 17% share. Market size of unbranded segment is significantly high with BDT 79 Cr. as many people cannot afford higher priced icy fruit sticks available in the branded segment. (Miah, 2010)

The market scenario itself speaks the competitive situation in the industry. Major market players especially Igloo, Polar, Bellissimo (Bellissimo Café) and Kwality are very conscious to fulfill the needs of the consumers. To hold the market position, Igloo needs to focus on the unbranded segment. If they can make one or two lower price ice creams, the unbranded segment can be captured. Besides the company should focus on improvement of factors that influence consumer’s choice of purchasing ice cream so that they can maintain profitable long term relationship with consumers.

This study attempted to link the situational factors that urge the consumers to eat ice-cream and the product attributes that they consider while purchasing ice-cream. Earlier studies focused either psychographic factors or product attributes only. This report is helpful for the ice cream manufacturers to identify the most combination of product attributes as well as important factors and can focus on the situational factors in the promotional activities to induce the consumers.
STATEMENT OF THE PROBLEM

Management decision problem. What should be done to influence the consumption of ice-cream?

Marketing research problem. To determine the underlying causes that motivate consumers to purchase a particular brand of ice-cream vis-à-vis other major brands with respect to factors that influence consumption of ice-cream.

THEORETICAL FRAMEWORK

Scientists often identify impulsive purchasing with increased/excessive buying. It shows that there is no clear line between these types of purchase. For this reason, according to Parboteeah (2005), these types of purchase may be reflected in continuum where in one side there is an impulsive purchasing and in the other side – excessive or/addictive purchasing. It may be stated that the main difference of impulsive purchasing form other types of such purchasing is that impulsive purchasing behavior is not a usual and constant behavior, what is characteristic to cases of excessive and compulsive purchasing.

It can be affirmed, that impulsive purchasing is consumer behavior as a respond to experienced stimulus (Piron, 1991 based on Parboteeah, 2005) and a result of unreasonable decision taking of a consumer (Engel and Blackwell, 1982 based on Coley, 2002; Hausman, 2000; Coley, 2002).

The following framework was used in this study:

Figure 1: Proposed Theoretical Model for Impulse Purchase.

Source: Developed by Authors.

The main assumption of this theoretic model of impulsive purchasing in the market of consumer goods is that impulsive purchasing is an emotional and cognitive reaction of a consumer to stimulus in purchase environment when demographic profile (like- age, gender), situational, social, economic,
complexity of decisions (ambiguity in decision making process), psychological factors and product attributes are acting. All these factors or any combination of these factors can influence consumers to purchase impulse product like ice-cream. Moreover, in the post purchase reaction, specific product attributes can also influence to repurchase. Different stimulus (attractive advertisement, price discount etc) given by the company can influence consumers’ need to purchase an impulse product, like- ice cream.

Demographic variables (age, sex, occupation, family size, lifestyle), social factors (hanging with friends, out shopping, at cinema, after special launch, at parties, family outing), economic factors (extra amount of money), and situational factors (temperature) all together or any one or two variables will derive the consumers’ demand and the demand for impulse product (ice cream) can be recognized.

Moreover different psychological variables (loneliness, boredom, anger, relaxation, happiness, excitement), complexity of decision (which brand will buy, how much to spend, health problem), and product attributes (taste, flavor, package, quality, size, availability etc.) together or any one or two of these variables can influence the purchase of impulsive product (ice cream).

Besides, different product attributes (taste, flavor, package, quality, size, availability etc.) can influence post purchase reaction (wish to purchase another or never to purchase again).

**LITERATURE REVIEW**

**Impulse Buying Definition**

A theme dominating most of the work in marketing depicts impulse buying essentially as 'unplanned' purchase behavior (Bellenger et al., 1977; Kollat and Willet, 1967; Stern, 1962). This is an easily observable and operational definition but it is quite limited (Levy, 1959). Early research has attempted to identify product characteristics of impulse products, such as low price, small size, or short product life (Stern, 1962). Rather than focusing on the product as a reason for impulse purchases, researchers in the following years attempted to link impulsive buying to individual difference factors.

**Impulsive Buying Tendency**

One major influence on an impulse purchase is the individual’s internal differences with regard to impulsive acts. Impulsivity as a personality trait has been studied extensively by psychologists. Rook and Fisher (1995) therefore conceptualized an individual’s impulse buying tendency as a consumer trait and defined buying impulsiveness as buying “spontaneously, unreflectively, immediately, and kinetically.” Those with a higher impulsive buying tendency, tend to purchase more on impulse. Rook and Fisher have taken a more “neutral” stance toward impulse purchase, arguing that buying impulsively is not necessarily “irrational” or “risky,” because in the time between the impulse to buy and the actual purchase, normative evaluations can play a moderating role. Hence, even if a person has a high tendency to
impulsive buying, what he or she actually buy on impulse would still be greatly influenced by situational factors and social norms.

**Factors Affecting Impulsive Purchasing**

Scientists have distinguished factors (Parboteeah, 2005) that affect impulsive purchasing while theorizing the concept. Researches of consumer behavior and marketing paid greatest attention to identification of common factors that increase impulsive purchasing. These factors may be classified into four groups: Characteristics of a consumer; Peculiarities of purchase environment; Situational factors; and characteristics of goods.

According to Parboteeah (2005), characteristics of a consumer are individual characters of a consumer supported by demographic features that increase consumer’s tendency to be impulsive. Characteristics of a consumer are as: age, sex, culture, mood, tendency to materialism, enjoy of buying, tendency to buy impulsively and perception of inadequacy level. Parboteeah (2005) and Dovaliene and Virvilaite (2008) explained several peculiarities of purchase environment i.e. store layout, atmosphere, types and staffs stimulate impulsive buying. Situational factors, environmental and individual factors that also have influence on impulse purchasing. They can be as follows: consumer time, means, influence group and examination of goods.

**Consumer Decision Making Process: General Goods versus Impulse Product**

A consumer’s behavior at any given point in time is distinctly related to personal characteristics of self-control and impulsivity. The degree of magnitude in which these actions exists are dependent upon one another. The same is true with the amount and extent to which a decision process takes place. Consumers treat decision making as a means-end chain of problem solving where goals are sought to be achieved or satisfied. The greater the need or desire for accomplishment, the greater the motivation to succeed (Huffman et al., 2000).

In 1982, Engel and Blackwell designed a general model to explain consumer decision-making (Figure-1). According to the model, consumers process information in five stages or sub processes before making a consumption decision. The first stage involves problem, or need recognition. The next stage involves a search for alternative solutions and relevant information about potential solutions to a problem from either the external environment, or from knowledge memory. The third stage involves evaluation of the alternatives in terms of salient beliefs about relevant consequences. The fourth stage involves the purchase of the chosen alternative. Finally, the post-purchase stage is a reevaluation of the wisdom of the decision about the choice alternative made in light of its performance (Engel and Blackwell, 1982). Each of these stages takes place with a goal in mind and the need for that goal defines how and to what extent it will occur.
In the said model, Engel’s and Blackwell’s ignored impulsivity stage which involves emotional processes, should appear directly after the problem recognition stage. If self-control does take precedence then a move to the next stage or the search stage of the process occurs. If impulsivity is stronger, then the search stage and the alternative evaluation stage relating to relevant consequences is by-passed altogether. Figure 2 shows the adjusted model, which attempts to illustrate how impulsivity is part of the decision making process.

The Engel/Blackwell model views the process of consumer decision making as involvement with weighing the costs and benefits of alternative actions. It fails to include factors that influence impulsivity of both the purchase and the consumption of the product. Since it is the individual consumer who experiences the impulse to buy, not the product, concentrating solely upon product category and retail format when predicting impulse buying is an extremely limited perspective (Burroughs, 1996; Piron, 1991; Rook, 1987; Rook and Hoch, 1985). A method for better understanding impulse buying would incorporate characteristics of the individual consumer as well as their thoughts and emotions. Impulse buying behavior is a fact of life; most all consumers have made an impulse purchase at least once in their life. According to Welles (1986), nine out of ten shoppers occasionally buy on impulse.

For a thorough understanding of consumer behavior, researchers must recognize that consumers are influenced both by long-term rational concerns and by more short-term emotional concerns, which affect their decision to purchase (Hirschman, 1985; Hoch and Loewenstein, 1991).
Impulse buying takes place when desires are strong enough to override restraints (Hoch and Loewenstein, 1991; Weinberg and Gottwald, 1982). Without the power of self-control, people give in to desires and impulsive behavior occurs (Youn, 2000). Since it is the individual consumer why experiences the impulse to buy, not the product, concentrating solely upon product category and retail format when predicting impulse buying is an extremely limited perspective (Burroughs, 1996; Piron, 1991; Rook, 1987; Rook and Hoch, 1985). The degree to which impulsiveness occurs depends heavily on these two components, affective impulsivity and cognitive self-control. Another six lower components like irresistible urged to buy positive buying emotion, mood management, cognitive deliberation, unplanned buying, disregard for the future (Coley, 2002, pp. 6-7). In this study, two factors: mood management and unplanned/impulse buying will be adopted to determine consumers’ preference for purchasing ice-cream.

Consumer lifestyle involving social setting (friends, family outing, and parties) and context of consumption (fun, boredom relief, pleasantness) may influence the consumption of ice-cream (Miah, 2010, pp. 42-48). Ice-cream manufacturers may face another challenge coming from ice cream parlors and restaurants. Consumers aged 18-24 prefer to eat ice cream at shops like Baskin Robbins (Randolph, Mass.) or Ben & Jerry's (South Burlington, Vt.) rather than at home. The brand of ice cream clearly is more important to some: females, consumers over the age of 35. Demographic factors like marital status, sex, education, family size were considered as important factor influencing consumption of ice-cream (Davis et al., 2009). One of the main factors that influence the ice-cream consumption is the temperature. The frequency of purchasing ice cream is higher in the summer and lower in the winter. The demand for ice cream increases every year.

**OBJECTIVES**

This study is attempted to identify the factors influencing consumer’s impulse buying behavior for ice-cream. Some specific objectives of this study are:

1. to determine product attributes that influence consumers’ choice of ice-cream,
2. to determine the frequency of consumer purchasing,
3. to identify psychological factors that influence consumer purchase pattern,
4. to identify economic factors that affect consumption of ice-cream,
5. to identify the social factors that may have influence on ice-cream consumption,
6. to identify the demographic factors that influence consumers’ choice of ice-cream, and
7. to determine the environmental factors that influence consumption of ice-cream.
RESEARCH QUESTIONS AND RESEARCH HYPOTHESES

Research Questions
1. Which product attributes consumers’ consider while purchasing ice-cream?
2. Which environmental factors influence ice-cream consumption?
3. Which economic factors influence in purchase of ice-cream?
4. Which psychological factors influence in consumption of ice-cream?
5. Which social factors motivate consumers to purchase ice-cream?
6. What is the demographic profile of ice-cream purchasers?

Research Hypotheses
H0 1: Environmental factors have no influence on consumption of ice-cream
H1 1: Environmental factors influence the consumption of ice-cream
H0 2: Economic factors have no influence the consumption of the ice-cream
H1 2: Economic factors influence the consumption of the ice-cream
H0 3: Taste has no significant influence on choice of ice-cream
H1 3: Taste has significant influence on choice of ice-cream
H0 4: Flavor has no significant influence on choice of ice-cream
H1 4: Flavor has significant influence on choice of ice-cream
H0 5: Packaging of ice-cream is not important consideration while purchasing ice-cream
H1 5: Packaging of ice-cream is important consideration while purchasing ice-cream
H0 6: Quality is not important to influence choice of ice-cream
H1 6: Quality is important to influence choice of ice-cream
H0 7: Price has no significant influence while purchasing ice-cream
H1 7: Price has significant influence while purchasing ice-cream
H0 8: Different sizes of ice-cream is important to influence consumers’ choice of ice-cream
H1 8: Different sizes of ice-cream is important to influence consumers’ choice of ice-cream
H0 9: Creaminess has no significant impact on choice of ice-cream
H1 9: Creaminess has significant impact on choice of ice-cream
H0 10: Low fat is not important consideration while purchasing ice-cream
H1 10: Low fat is important consideration while purchasing ice-cream
H0 11: Availability at convenient places is not important to influence choice of ice-cream
H1 11: Availability at convenient places is important to influence choice of ice-cream
METHODOLOGY

First, a qualitative research was conducted to properly identify the problem by using secondary data from different sources i.e., information from various publications, marketing related journals etc. After properly understanding the problem, a descriptive research was conducted to find out various factors that affect the consumers to purchase ice-cream. In this regard, several factors like psychological, demographic, economic, and environmental factors and the product attributes that encourage the customers to purchase ice-cream was needed to evaluate. For this purpose, primary data was collected from different target group of consumers of ice-cream.

In this study, quantitative data from the customers of ice-cream was collected through a survey. As the study attempts to identify the factors that influence consumers’ choice of ice-cream, the strength of relationship between the identified factors and consumers’ choice was needed to examine. In order to examine the associative relationship, multiple regression analysis has been used and thus one dependent variable and multiple independent variables were required. To conduct multiple regression analysis, metric scaled (interval or ratio scaled) data on dependent and independent variables was required. Therefore, a non-comparative scaling technique (see detail in measurement and scaling) was applied in this study. A questionnaire using 7 point Likert scale was designed to collect data from 120 respondents.

For the purpose of analysis, multiple regression has been used to determine the strength of relationship between the dependent variable and one or more independent variables (Malhotra, 2008, p. 552). In normal situation, multiple regression done in marketing research involve interdependency in predictor (independent) variables. This may result in multicollinearity problem. Finally, in order to understand the perception of the consumers for different ice-cream brands, a multidimensional scaling was also used by using respondents’ ratings on each possible pair of different ice-cream brands (Malhotra, 2008, p. 674).

In this study, descriptive research design was adopted to describe impulsive factors and product characteristics that influence consumers to purchase ice-cream. Thus, specific hypotheses were tested to examine the relationships among different variables (situational factor, economic factor, certain attributes and consumers’ choice). Findings of this study will be helpful for ice-cream marketer as input into decision making.

Information on situational, economic, psychological, social, demographic factors and product attributes and consumers’ choice were required for this study. Personal interview technique was used to gather data from the ice-cream consumers.

Consumers’ opinion regarding their choice for different brands of ice-cream was collected through a survey. In addition to this, researchers also collected data through several previous research works, web information, and several journals and magazines.
In order to measure the choice of consumers for ice-cream, the relevant characteristics of the consumers was needed to determine. Therefore, measurement of the characteristics of the objects was required. In order to measure the characteristics of the objects, it was required to measure the dependent and independent variables. It was needed to measure the variables on metric scale as this study attempts to examine the strength of relationship between independent and dependent variables (using multiple regression). So, non-comparative scaling technique was applied to collect metric scaled data. Respondents evaluated only one object at a time and rated the variables on 7 point Likert scale (itemized rating scale).

For this study, the questionnaire was formed having the options for both the consumers and non-consumers of ice cream to collect their different opinions towards ice-cream. The questions were formed on 7 point Likert scale and there were open ended questions for knowing the reasons for switching over different ice cream brands. Moreover consumers’ similarity judgment regarding ratings of all possible pairs of brands in terms of their similarity using Likert type scale was collected. In the later part of the questionnaire, there were demographic variables (age, sex, occupation) to understand which group of people eat ice cream more or less.

In this study, simple random sampling, a probability sampling technique has been used to select respondent where each element in the population has a known and equal probability of selection.

Survey was conducted with both male and female consumers (age range 15 to 65) who consume ice-cream. The sample size is 120 and the respondents were selected from Dhaka regions. To be more specific, the areas were Dhanmondi, Mirpur, Mohammadpur, Dhaka University campus, BUET campus.

In this study, consumer’s choice of ice-cream was used as dependent variable while Psychological factors, economic factors, situational factors, demographics, social factors, product attributes were used as independent variables. For the data analysis purpose, researchers used advanced statistical procedures like Multiple regression (to determine the strength of relationship between the dependent variable and one or more independent variables), Multi-dimensional scaling (to better understand the consumers’ perception of different ice-cream brands. A spatial map was developed by using consumers’ similarity judgment of eight ice-cream brands including Igloo, Polar, Kwality, Savoy, Milk Vita, Baskin Robbins, MövenPick and Rainbow).

For these purposes, Statistical Package for Social Science (SPSS) was used to process the data.

**FINDINGS AND ANALYSIS**

**Regression Analysis**

In this study, multiple regression has been used to determine the strength of relationship between the dependent variable, choice of ice-cream, and more than one independent variables.
**Model summary.** The model summary of the regression analysis is shown in the table 1. Here, the predictors are: situational factor, economic factor, product attributes (taste of ice-cream, flavor, packaging, quality, price, size, availability, fat, creaminess). The dependent variable is consumers’ choice of ice-cream.

**Table 1: Regression Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.835 (a)</td>
<td>.697</td>
<td>.666</td>
<td>.664</td>
</tr>
</tbody>
</table>

(a) Predictors: (Constant), Economic Factor, Situational Factor, Taste, Flavor, Packaging, Quality, Price, Size, Creaminess, Fat, Availability.

Here, the R square is 0.697, which is close to 1, indicates that there is strong relationship between the consumers’ choice for ice-cream (dependent variable) and the situational factor, economic factor, taste of ice-cream, flavor, packaging, quality, price, size, availability, fat, creaminess (multiple independent variables).

The value of adjusted R square (R square is adjusted for the number of independent variables and the sample size to account for diminishing return) is 0.666 which is close to R square (and also close to 1). It suggests that each of the additional independent variables after adding the first independent variable makes a significant contribution in explaining the variation in the dependent variable. The value of adjusted R square indicates that situational factor, economic factor, taste of ice-cream, flavor, packaging, quality, price, size, availability, fat, creaminess (independent variables) accounted for 66.6% of the variation in the consumers’ choice of ice-cream.

**Significance Testing.** In this study, a test has been conducted to test the significance of the overall regression equation and specific partial regression coefficients. Table 2 shows the level of significance of the overall regression equation:

**Table 2: Significance Testing for Overall Regression Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>109.223</td>
<td>11</td>
<td>9.929</td>
<td>22.540</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>47.577</td>
<td>108</td>
<td>.441</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>156.800</td>
<td>119</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From the above table it is found that the significance level of the F value (0.000) is below $\alpha = 0.05$ with an F distribution. The calculated value of F is 22.540, at 11 and 108 degrees of freedom, is also greater than the table value. These indicate that the independent variables have significant relationship with the dependent variables. So, the null hypothesis ($H_0$) that the coefficient of multiple determination in the population ($H_0$: $R^2_{pop} = 0$) is rejected.

Therefore, it indicates that the regression equation is significant and the independent variables: (Constant), situational factor, economic factor, taste of ice-cream, flavor, packaging, quality, price, size, availability, fat, creaminess have significant relationship with the dependent variable: consumers’ choice of ice-cream.

As the null hypothesis has been rejected, one or more population partial regression coefficients have a value other than zero. Partial regression coefficients are also tested in order to determine which specific coefficients are nonzero.

**Coefficients analysis.** Table 3 shows which independent variables (among situational factor, economic factor, taste of ice-cream, flavor, packaging, quality, price, size, availability, fat, creaminess), included in the model, have significant relationship with the dependent variable (choice for ice-cream).

**Table 3: Significance Testing for Coefficients/ Coefficient Analysis**

<table>
<thead>
<tr>
<th>Coefficients (a)</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>.738</td>
<td>.767</td>
<td>.962</td>
<td>.338</td>
</tr>
<tr>
<td>Situational Factor</td>
<td>.128</td>
<td>.052</td>
<td>.134</td>
<td>2.447</td>
</tr>
<tr>
<td>Economic Factor</td>
<td>.160</td>
<td>.060</td>
<td>.180</td>
<td>2.644</td>
</tr>
<tr>
<td>Taste</td>
<td>.205</td>
<td>.100</td>
<td>.181</td>
<td>2.059</td>
</tr>
<tr>
<td>Flavor</td>
<td>.139</td>
<td>.058</td>
<td>.183</td>
<td>2.385</td>
</tr>
<tr>
<td>Packaging</td>
<td>.128</td>
<td>.052</td>
<td>.163</td>
<td>2.446</td>
</tr>
<tr>
<td>Quality</td>
<td>.153</td>
<td>.066</td>
<td>.169</td>
<td>2.313</td>
</tr>
</tbody>
</table>
The table 3 indicates that the significance levels for situational factors (0.016) economic factor (0.009), taste of ice-cream (0.042), flavor of ice-cream (0.019), packaging of ice-cream (0.016) quality (0.023) available sizes (0.006) creaminess of ice-cream (0.006), and availability at convenient places(0.017) have significant relationship with the consumers’ choice of ice-cream.

On the other hand, product attributes like low fat (0.057) and price (0.484) have not any or less significant relationship with the consumers’ choice of ice-cream.

From the table 3, the estimated regression model can be drawn.

**Consumers’ choice of ice-cream, \( \hat{Y} = 0.738 + 0.128 * X_1 + 0.160 * X_2 + 0.205 * X_3 + 0.139 * X_4 + 0.128 * X_5 + 0.153 * X_6 + (-.031) * X_7 + 0.170 * X_8 + 0.253 * X_9 + 0.124 * X_{10} + 0.114 * X_{11} \)**

Or,

**Consumers’ choice of ice-cream \( = 0.738 + 0.128 * (\text{Situational Factor}) + 0.160 * (\text{Economic Factor}) + 0.205 * (\text{Taste}) + 0.139 * (\text{Flavor}) + 0.128 * (\text{Packaging}) + 0.153 * (\text{Quality}) + (-.031) * (\text{Price}) + 0.170 * (\text{Size}) + 0.253 * (\text{Creaminess}) + 0.124 * (\text{Fat}) + 0.114 * (\text{Availability}) \)**

Therefore, these results of partial regression coefficients suggests that-

1. Product attributes like taste, flavor, quality, creaminess of ice-cream, different sizes, availability at convenient location, packaging are important to influence the consumers’ choice of ice-cream.
2. Product attributes like price and fat level are less or not significant at all to the choice of ice-cream consumption.
3. Situational factor like temperature is important to influence the consumption of ice-cream.
4. Economic factor like extra amount of money in pocket influence the consumers to eat ice-cream.
5. All these factors (situational factor, economic factor, product attributes like taste, flavor, quality, creaminess of ice-cream, different sizes, availability at convenient location, packaging of ice-cream) accounted for 66.6% of the variation in the consumers’ choice of ice-cream.

**Correlation among product attributes.** This study checked the correlations among the product attributes. High interrelation among the independent variables may result in multicollinearity problem that may cause difficulty in assessing the relative importance of independent variables in explaining variation in the dependent variable. Table 4 shows the correlation matrix of the product attributes of the ice-cream.

<table>
<thead>
<tr>
<th></th>
<th>Taste</th>
<th>Flavor</th>
<th>Packaging</th>
<th>Quality</th>
<th>Price</th>
<th>Size</th>
<th>Creaminess</th>
<th>Fat</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taste</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flavor</td>
<td>.669</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packaging</td>
<td>.350</td>
<td>.373</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td>.567</td>
<td>.547</td>
<td>.440</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price</td>
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<td>.116</td>
<td>.129</td>
<td>.076</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>.239</td>
<td>.159</td>
<td>.172</td>
<td>.226</td>
<td>.164</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creaminess</td>
<td>.706</td>
<td>.613</td>
<td>.446</td>
<td>.619</td>
<td>.059</td>
<td>.144</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fat</td>
<td>.529</td>
<td>.468</td>
<td>.416</td>
<td>.426</td>
<td>.097</td>
<td>.131</td>
<td>.563</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Availability</td>
<td>-.270</td>
<td>-.263</td>
<td>-.476</td>
<td>-.280</td>
<td>-.051</td>
<td>-.133</td>
<td>-.362</td>
<td>-.441</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4 shows that there are relatively few attributes that have high interrelation. Most of the attributes found not to have high correlations between them.

**Multidimensional Scaling (MDS)**

As ice-cream is a novelty product, different people have different perception in choosing ice-cream brands. In order to understand the consumers’ perception of different brands of ice-creams, this study has also developed a spatial map. Consumers’ perception data collected by direct approach to MDS was used to develop the spatial map. Respondents were asked to rate possible pairs of selected ice-cream brands using their own criteria. The spatial map obtained from the consumers’ similarity ratings is shown in the figure 5. The spatial map was developed at the aggregate level assuming that all the respondents use the same dimensions to evaluate the ice-cream brands, but that they weight these dimensions differently.

**Goodness-of-fit measure.** The population of variance of the optimally scaled data that can be accounted for by the MDS procedure was measured by R-
square index. The measure of goodness for the multidimensional scaling used in this study is shown in table 5.

**Table 5: Measures of Fit for MDS**

<table>
<thead>
<tr>
<th>Lack-of-fit measure (Kruskal’s stress formula 1)</th>
<th>SPSS Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td>.096 (Fair)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goodness-of-fit measure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R square (R²)</td>
<td>0.95</td>
</tr>
</tbody>
</table>

From the above table, it can be concluded that according to kruskal’s stress formula 1, stress is 0.096 which is fair in measuring goodness of fit. R-square index is 0.95 (0.60 or better are acceptable) which suggests that the MDS model fit is good for the data obtained.

**Decide on the number of dimensions.** The number of dimensions in the spatial map has been determined based on the scree plot of stress versus dimensionality. In order to develop the scree plot, researchers used Young’s S-stress Formula-1 to determine the values of stress and iterations. Table-6 shows the values of stress at different dimensions.

**Table 6: Stress and Dimensionality**

<table>
<thead>
<tr>
<th>Iteration</th>
<th>S-stress</th>
<th>Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.11538</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.10705</td>
<td>.00833</td>
</tr>
<tr>
<td>3</td>
<td>.10679</td>
<td>.00025</td>
</tr>
</tbody>
</table>

Iterations stopped because S-stress improvement is less than 0.001000

Using the values of stress and dimensions of the above table, scree plot has been developed to determine the appropriate number of the dimensions for the spatial map. The scree plot is shown in figure 4:

**Figure 4: Scree plot for MDS.**
From the scree plot, it has been decided to use two dimensions in the spatial map as the elbow sharply bends at this point.

**Spatial map.** In this study, consumers’ perception of different ice-cream brands has been examined by using multidimensional scaling. A spatial map has been developed by using consumers’ similarity judgment of eight ice-cream brands including three ice-cream boutiques (Igloo, Polar, Kwality, Savoy, Milk Vita, Baskin Robbins, MövenPick and Rainbow). Respondents were asked to rate pairs of selected brands using their own criteria. To obtain the spatial map each respondent’s responses were summed to conduct aggregate level analysis. Figure 5 shows the spatial map.

**Figure 5: Spatial Map of Different Ice-cream Brands**

In the spatial map, two dimensions have been derived. The vertical axes have been labeled as frequency of ice-cream consumptions that the consumer more often buy and eat. The horizontal axes have been labeled as expensive brands of ice-cream.

The spatial map developed by multidimensional scaling can help ice-cream marketer better understand how consumers perceive different ice-cream brands. The coordinates or the positioning of the brands in the spatial map can be examined to understand consumers’ perception of similarity as well as dissimilarity. It can be concluded from the spatial map that consumers view the ice-cream brands as similar that are located very close to each other. These brands also compete fiercely in the market.

It can be concluded from the spatial map-

1. The closer two brands in the map, are perceived to be more similar by the consumers. Therefore, it is clear that consumers perceive Igloo and Polar ice-cream as very much similar and they often eat these brands of ice-cream.
2. Consumers may perceive Igloo and Polar to be similar but their preference for ice-cream may different.

3. As the brands located near each other are perceived to be more similar, they compete fiercely in the marketplace targeting the same group of customers.

4. Vertical axes show the brands that are more often purchased by the consumers. The spatial map shows that consumers eat Polar and Igloo ice-cream more often.

5. Horizontal axes shows the expensive brands of ice-cream in which MövenPick and baskin Robbins are perceived as the most expensive ice-cream followed by Igloo, Polar, Kwallity, Savoy and Milk Vita.

6. Small distance between two brands (e.g., similarity) indicates more competition. That means Igloo and Polar compete more fiercely in the market place likewise MövenPick and Baskin Robbins in the ice-cream parlor market.

7. The further apart two brands are perceived to less similar by the consumers e.g., Igloo and Milk Vita have been plotted at a long distance in the map. That means consumers view Igloo and Milk Vita quite different.

8. From the spatial map, it has been found that Rainbow and Baskin Robbins located close to each other. In this case, Rainbow may be perceived similar to Baskin Robbins for some extent but it does not necessarily mean that Baskin Robbins is similar to Rainbow.

9. Spatial map shows that Igloo does not have fierce competition with the Ice-cream boutique shops (MövenPick, Rainbow and Baskin Robbins). But this ice-cream brands are considered as expensive brands and many consumers prefer to eat ice-cream going at the ice-cream boutique shop.

In this study, researchers also attempted to describe two categorical variables i.e. gender and frequency of consumption of ice-cream, and age and frequency of consumption of ice-cream simultaneously. For the first purpose, how often consumers purchase ice-cream has been categorized into three groups (light, moderate, and heavy). It was found that female consumers (58.2% of total female consumers) are heavy consumers of ice-cream compared to male consumers (49.1% of total male consumers). For the later purpose, researchers categorized consumers into different age group like- 15-25, 26-35, 36-45, 46-55, and above. It was observed that consumers of age group of 15-25 years, (67.7% of total respondents) frequently eat ice-cream followed by age group of 26-35 years (48.2% of total respondents). Thus it can be concluded that this age groups are vital market for ice-cream.

In this study, researchers also attempted to analyze psychological factors, social factors that influence to eat ice-cream and other factors that affect consumers to switch over other ice-cream brands. It was pointed out by researchers that many psychological factors like happiness, unhappiness, feeling of loneliness, boredom, excitement may have influence on consumers’ choice of ice-cream. Moreover, it was found that many social factors like hanging with friends, shopping, watching movies, at parties, after
special lunch, family outings (picnic) may influence consumers’ choice of ice-cream. Ice-cream marketers may benefit from these social factors by associating their products with these factors through TVC (Television commercial) advertisements and outdoor advertisement like billboard. They can make availability of ice creams at markets, movie theaters, parks, picnic spots, front of educational institutions etc. Finally, researchers attempted to observe consumers’ behavior of switching over other ice-cream brands. It was observed that among 120 respondents, 83 people may switch for higher price of ice-cream. 18 people may switch if other companies emerge with new better ice creams in the market. Others may switch because of less variety (9 people), decreasing quality (7 people), and high fat (3 people).

**RECOMMENDATIONS AND CONCLUSIONS**

**Recommendations**

1. Ice-cream is an impulse product and consumers may want sensory experience while eating ice-cream. Therefore, the marketers should focus more on the product attributes like taste, creaminess, and different flavors to provide the consumers’ better sensory experience.

2. Company should keep their eyes on consumers’ demand for quality of ice-cream to meet their expectation.

3. Company should increase variety to sustain its competitive advantage.

4. This study found that consumers of 15-25 years old tend to frequently eat ice-cream, marketers should pay more attention to increase sales to these consumer group. And also to increase sales to other age group.

5. Female consumers have been found as frequent ice-cream consumers. It is also found that consumers like to eat ice-cream more often when hanging with friends and at shopping. As the girls visit malls more often compared to boys, the company should target to sale more at shopping malls. Company should also target those groups of consumers who like hang out with friends.

Being an impulse product, consumption of ice-cream is influenced mostly by the attractiveness of the product attributes like taste, flavor, quality, creaminess of ice-cream, availability at convenient location, packaging etc. Other than the product attributes, demographic profile, situational, social, economic, complexity of decisions, psychological factors are influencing consumers’ impulse buying behavior for ice-cream.

**REFERENCES**


Factors Influencing Consumers’ Choice of Ice-Cream: A Study on Impulse Buying


