A
SYNOPSIS OF THE PhD. THESIS
ON
A STUDY OF THE ATTENTIONAL EFFECTS OF PACKAGING CUES OF READY TO EAT FOOD PRODUCTS ON THE BUYING BEHAVIOR OF CONSUMERS OF SELECTED CITIES OF GUJARAT

Submitted to:-
Gujarat Technological University
Ahmedabad

Prepared by:-
SHETH JAYDEEP HARESHKUMAR
Ph.d Registration No.: 3110
Enrollment No. 129990992031
Branch :- Management

Under the guidance of
Dr. Sandip Solanki

PhD. Batch - 2012
January - 2016
Abstract (Brief Description of Research Topic):

India is the world’s second largest producer of food next to China and has potential of being the biggest with food and agriculture sector. The Food Processing industry is the 5th largest industry in India in terms of production, consumption, export and expected growth. Among the various sectors of Food Processing industry, ready to eat food product industry is growing at the fastest pace of 30% p.a. There are nearly 100 international, national and local players already operating in industry and equal numbers of players are likely to enter in the market in coming years due to its huge growth potential. Ready to eat food products being product of low involvement category, a little differentiation exists among the products produced by various players of the industry so to differentiate their products companies make use of various marketing tools. One of the most prominent tools used in the industry is packaging. The companies make use of various packaging elements to differentiate their products. This study was undertaken to analyze the influence of various packaging elements of ready to eat food products on the product evaluation, perceptions, preferences & buying behavior of consumers of selected cities of Gujarat. In the study impact of eight different packaging elements was analyzed. The various different packaging elements whose impact was analyzed are: (a) Front of Package Nutritional labels like Cholesterol free label & Sugar free label (b) Package colors like Sparkling color & ordinary color (c) Package shapes like Round shape, rectangular shape, angular shapes etc. (d) Position of Visual & verbal elements at different places on the Package (e) Number of Product units displayed on the package like package with picture of More no / Less no. of Product units on the package (f) Packaging material like plastic container, paper box, film Packaging etc (g) Packages with Swachh Bharat Cause Endorsement & without endorsement and (h) Pictures of Animated cartoon characters like Tom & Jerry & animated Game characters like Angry Birds. The Main study mainly involves two sub studies. In the first study impact of seven different packaging elements mentioned above was evaluated and the study was done for adult consumers. In the second study, undertaken for children, the impact of animated Cartoon & game characters was analyzed. The products selected for 1st study were Biscuits & Ice cream. The products selected for 2nd Study were Biscuits & Wafers. Both the studies were undertaken in four major & fastest growing cities of Gujarat namely Ahmedabad, Surat, Baroda & Rajkot. The findings of the study revealed that all the package elements if used scientifically & appropriately in tandem as suggested by the outcomes of the present study then it will lead to package that would 1) stand out on the store shelves among all the packages available in the market in the same category 2) will able to grab consumers’ attention in brink of eye 3) will definitely stimulate the consumers to try or purchase that product & 4) will produce a long lasting image of the product in the consumers’ memory which would encourage them for repeat purchases & thereby keep them loyal to the brand for long period of time.
Research Background:-

Today various market trends suggest a growing role for product packaging as a brand communication vehicle. These include a reduction in spending on traditional brand building mass media advertising, an increase in product buying decisions made at the store shelf and growing management recognition of the capacity of packaging to create differentiation and identity for relatively homogenous consumer products. It has been found from the recent research that approximately 73% of the products are sold on the self service bases at point of sale (Silayoi & Speece, 2007). This shows that important cues need to be provided to the consumers at the point of sale so that companies could differentiate their products from the competitors on one hand and could attract and persuade the consumers to buy their products on the other hand. Under these circumstances the packaging would be the most useful tool that may be available for attracting the consumers’ attention. This because unlike other forms of communication which tend to be fleeting, packaging plays a crucial role not only at the point of sale, but also after the actual purchase of the product. The first moment of truth is about obtaining the customers attention and communicating the benefits of the offer. The second moment of truth is about providing the tools the customer needs to experience the benefits when using the product (Lofgren, 2005). The packaging is even more important for packaged and ready to eat food products this is because they belong to low involvement category. Low involvement products are basically low priced products with little importance. E.g. impulse purchase categories like nankeens and ice-creams. In these categories, consumers tend to be driven by in-store factors and extrinsic cues (e.g. brand name, packaging etc) to help them to make their decisions as they have neither the desire nor the need or time to comprehensively investigate and assess all the offerings available to them. Hence to take advantage of the situation companies often make innovative use of various packaging elements like shape, size, color, labels, position of visual and verbal elements etc to differentiate their products from competitors and to attract consumers to their products

According to the report of City Mayor’s Foundation, Gujarat has many world’s fastest growing cities like Surat, Rajkot, Ahmedabad and Baroda. They are ranked as the World’s 4th, 22nd, 73rd, and 86th Fastest Growing Cities. The population is heterogeneous with diverse cultural, religious and economic background. Because of the existence of various linguistic, religious and ethnic groups it has been a very good marketing centre for ready to eat food products. In this context, a study of impacts of different packaging cues like color, size, shape, packaging material etc on the consumer buying behavior and consumption pattern is of paramount importance. Keeping in view this importance, the study was undertaken with the following overall & specific research objectives.
**Broad Research Objective (Core aim of Research / Statement of the Problem):**

“The main goal or purpose of this research study is to determine and analyze the effects of different packaging cues like package color, package shape, visual product imagery (i.e. product units picture, picture of spokes character), package material, front of Package nutritional labels, position of visual and verbal elements on the perception, product evaluation and purchase considerations of consumers of Selected cities of Gujarat namely Ahmedabad, Baroda, Surat and Rajkot. The study is done especially for the ready to eat food products namely Wafers, Ice-creams & Biscuits.”

**Central Research Objectives:**

- To examine the impact of labels like sugar free and cholesterol free provided on the packages of ready to eat food products like ice cream & biscuits on the purchase behavior of consumers.
- To identify the package shape (dimension) usually preferred by the consumers while purchasing ready to eat food products like ice-cream and biscuits.
- To determine whether the sparkling color package or simple color package usually preferred by consumers while purchasing ready to eat food products like ice cream & biscuits.
- To determine whether the position of visual information and verbal information on the package has influence on the product evaluation and purchase consideration of the consumers.
- To determine the influence of picture of number of product units displayed on the package of the product on the perception and purchase behavior of the consumers.
- To identify the type of package material usually preferred by consumers.
- To examine the impact of cause endorsed packaging on consumers perception about the company and overall purchase attitude for the product.
- To determine the influence of inclusion of picture of spokes character or game character on a package of product on the product liking of children.

**Literature Review:** Several research studies served as source of Inspiration for present study. Some of them are given below:

<table>
<thead>
<tr>
<th>Author (Year)</th>
<th>Findings of the study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strahilevitz &amp; Meyers (1998)</td>
<td>The study revealed that charity incentives work better for frivolous products like chocolate truffles than for practical products like pocket dictionaries.</td>
</tr>
<tr>
<td>Garber, Buke &amp; Jones (2000)</td>
<td>In small &amp; stable categories like raisins, flour &amp; spaghetti, colors like orange, light blue, white &amp; Black has significant influence on Consumers’ buying behavior.</td>
</tr>
<tr>
<td>Rettie &amp; Brewer (2000)</td>
<td>To maximize the recall the verbal elements such brand name or flavor description should be placed on the right side of package while the visual</td>
</tr>
</tbody>
</table>
elements such as product picture should be placed on the left side of package.

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Study Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underwood, Klein &amp; Burke, (2001)</td>
<td>The study revealed that for low involvement products like candy, Bacon &amp; Margarine of low familiarity brands (i.e. Private label brands) product picture on the package significantly increases the shoppers’ attention to the brand &amp; improves the consumers’ perception of the brand.</td>
</tr>
<tr>
<td>Kozup, Creyer &amp; Burton (2003)</td>
<td>When health claim such as healthy heart symbol is provided on the packages of Packaged foods &amp; restaurant menus then due to that consumers tend to have more favorable attitude towards the product and higher purchase intentions and tend to perceive that risks of heart attack would be low.</td>
</tr>
<tr>
<td>Hamlin &amp; Wilson (2004)</td>
<td>For low involvement products like milk, the presence of cause endorsement on the product had impact on consumers’ assessment &amp; decision making related to purchase.</td>
</tr>
<tr>
<td>Yang &amp; Raghbir (2005)</td>
<td>Package shape has impact on purchase quantity. The research was done for bottles and it was found that more elongated the container, lower is its purchase quantity.</td>
</tr>
<tr>
<td>Robinson et.al (2007)</td>
<td>When foods are packed in branded packaging like McDonald’s packaging then children considered those foods as more tasty as compared to same foods packed in unbranded packaging.</td>
</tr>
<tr>
<td>Silayoi &amp; Speece (2007)</td>
<td>The study found that high priced products targeted to upper class often use cold &amp; dark colors on their packaging whereas low priced products aimed at price sensitive consumers often use light color such as white.</td>
</tr>
<tr>
<td>Hawang &amp; Lorenzen(2008)</td>
<td>When precise nutrition information is provided for items of restaurant menus then those items were considered healthy &amp; good by consumers and they were ready to pay more to purchase those items.</td>
</tr>
<tr>
<td>Sabbe et.al (2009)</td>
<td>When Health claims are provided on packages of fruit juices then due to such claims the consumers tend to develop favorable product liking, consider the juices as more healthy. Older consumers &amp; women were more likely to get influenced by such claims.</td>
</tr>
<tr>
<td>Sohier (2009)</td>
<td>The study was done for coffee &amp; Mineral water. For mineral water, tall elongated bottles were perceived as more sophisticated &amp; expensive. The coffee from rectangular tin was perceived to be strong in flavor, having powerful aroma &amp; more sophisticated.</td>
</tr>
<tr>
<td>Roberto et.al (2010)</td>
<td>When pictures of Licensed cartoon characters are provided on packages of snacks then children considered those snacks as more tasty &amp; yummy.</td>
</tr>
<tr>
<td>Muhammad &amp; Kamran (2014)</td>
<td>The study revealed that most preferred packaging material for milk was tetra pack followed by glass &amp; then plastic bottles. Consumers were ready to pay more for purchasing the milk in tetra pack.</td>
</tr>
</tbody>
</table>
Original Contribution of the Thesis i.e. Present Study:-

- Previous studies were undertaken mainly for products such as Cereals and Juices, while the present study involved the products such as Biscuits, Ice-creams and Wafers.
- Previous studies evaluated the impact of pictures of Cartoon characters only but the present study evaluated the impact of both pictures of Cartoon characters as well as the impact of pictures of Game characters like Angry birds on the overall product liking by the children.
- In previous studies the impact of health claims like Healthy heart symbol and other symbols were analyzed but in the present study the impact of Front of package Nutritional labels like Sugar Free labels and Cholesterol Free labels have been analyzed.
- Previous studies evaluated impact of various colors of package on overall buying behavior but in the present study the impact of simple finish package and sparkling finish package of the same color on the overall Consumer buying behavior has been evaluated.
- Previous studies evaluated the impact of picture of product but in the present study the impact of picture of no. of units displayed on the package for the products like Biscuits (like package with 5 biscuits (units) picture and package with 10 biscuits (units) picture) & Ice Cream has been evaluated.
- Previous studies evaluated the impact of square and round shaped packages but in the present study impact of square, rectangular and other shaped packages has been evaluated.
- Most of the previous studies were undertaken using artificially lab created 3-dimensional product packages or only using the product pictures but in present study both artificially created as well as real world 3-dimensional product packages has been utilized.
- Previous studies evaluated the impact of causes related mainly to the health and education but in the present study impact of still more important cause related to cleanliness like Swachh Bharat Mission has been evaluated.
- This is likely to be the first study that evaluated the impact of most important National cause of India i.e Swachh Bharat Mission.
- Most of the previous studies were undertaken in International context but this is likely to be the 1st Study which had evaluated the impact of multiple packaging cues in Indian and especially in Gujarat context.

Research Methodology:

1. Target Population: - Consumers of Selected Cities of Gujarat
2. Research Technique:- The research technique utilized for the present study is the descriptive research technique. The reason for this is that the purpose of research was to analyze the buying
characteristics, perceptions and preferences of consumers of selected cities of Gujarat especially with respect to ready to eat food products category.

3. Research Hypothesis: Based on the central research objectives there were several Research hypothesis developed & tested in the study. They are discussed in detail in Result section.

4. Sampling Design: -

4.1 Products Selected for Study: The main categories selected for study are as under:

(1) Namkeens / Snacks: Wafers
(3) Milk Based Products: Ice Creams
(2) Cereal Based Products: Biscuits

4.2 Sample Size: The sample size used for each of the studies are as under:

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Description of the Study</th>
<th>Name of City</th>
<th>Total no. Respondents selected for the study</th>
<th>Total no. of Respondents who replied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Study 1: It was undertaken for Adult consumers. The impact of seven different packaging elements have been analyzed.</td>
<td>Ahmedabad</td>
<td>172</td>
<td>152</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Surat</td>
<td>136</td>
<td>114</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Baroda</td>
<td>52</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rajkot</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>400</strong></td>
<td><strong>344</strong></td>
</tr>
<tr>
<td>2.</td>
<td>Study 2: It was undertaken for Children. The impact of picture of cartoon characters &amp; game characters have been analyzed.</td>
<td>Ahmedabad</td>
<td>168</td>
<td>136</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Surat</td>
<td>148</td>
<td>118</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Baroda</td>
<td>44</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rajkot</td>
<td>40</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>400</strong></td>
<td><strong>322</strong></td>
</tr>
</tbody>
</table>

4.3 Sampling Technique: Quota Sampling method has been used in the present study. In the 1st stage quota was decided on the basis of variable like population and in the 2nd stage samples were selected on the basis on the convenience or judgment of researcher.

5. Research Instruments: Questionnaires with open & close ended questions were used in study.

6. Sources of Data: The research study employed both primary & secondary sources of Data as under:

(a) Primary Sources of Data: Personal Interviews, Mall Intercept, Observations.

(b) Secondary Sources of Data: Leading magazines & Newspapers, company reports, research papers, books, Gujarat related websites, Reports of Business Association like Ahmedabad Management Associations etc.

7. Analytical tools used in the study: Relevant statistical tests, SPSS software, Tabular analysis.
8. **Scope of the study:-** The present study has been done especially for the packages of ready to eat food products. The products included were Wafers, Ice cream, Biscuits. The study was done mainly in selected cities of Gujarat namely Ahmedabad, Baroda, Surat and Rajkot. In the study the impact of eight different packaging elements have been analyzed.

**Analysis & Results of the Study:-**

In the study 1 the impact each of the seven different packaging elements have been analyzed. The analysis has been specifically for each of the products namely biscuits & Ice cream. In the study 2 impact of pictures of cartoon character & Games character have been analyzed for the products namely Biscuits & wafers. For conducting the analysis & testing the hypothesis, several different statistical tests namely independent T-test, 1-way Anova between the group & Chi-square test of association / independence etc have been used as per the requirement.

The type of stimuli used for each packaging element have been given below in the table No.1 while the Hypothesis tested, mean values of each group, t / F / chi-square values, significance values and outcomes for each test have given below in the table no.2.

**Table No.1 : Type of Stimuli used for each of the study**

<table>
<thead>
<tr>
<th>Name of Packaging Element</th>
<th>Stimuli used for Biscuits ( no. of respondents in the respective group)</th>
<th>Stimuli used for Ice cream (no. of respondents in the respective group)</th>
</tr>
</thead>
</table>
| **1 Front of package Nutritional Labels** | 1. Cholesterol Free Biscuit (n₁=175)  
2. Ordinary Ice cream (n₂ = 169) | 1. Sugar Free Ice cream (n₁=175)  
2. Ordinary Ice cream (n₂=169) |
| **2 Package Shape** | 1. Box A (n₁=69)  
2. Box B (n₂=71)  
3. Box C (n₃=68)  
4. Box D (n₄=67)  
5. Box E (n₅=69) | 1. Round cup with more height (n₁=81)  
2. Round cup with less height (n₂=89)  
3. Rectangular shaped Cup (n₃=86)  
4. Mango shaped cup (n₄=88) |
| **3 Package Color** | 1. Sparkling color Box (n₁=179)  
2. Simple Color Box (n₂ = 165) | 1. Sparkling color Box (n₁=179)  
2. Simple Color Box (n₂ = 165) |
| **4 Position of Visual & Verbal elements on the package** | 1. Box of Biscuits with Visual elements on right side & verbal elements on left side of the box (n₁=173)  
2. Box of Biscuits with Visual elements on left side & verbal elements on right side of the box. (n₂=171) | 1. Box of Ice cream with Visual elements on right side & verbal elements on left side of the box (n₁=173)  
2. Box of Ice cream with Visual elements on left side & verbal elements on right side of the box (n₂=171) |
## Number of product units displayed on the package

1. Box of Biscuits with more no. of Biscuits displayed on the package. ($n_1=174$)
2. Box of Biscuits with less no. of Biscuits displayed on the package. ($n_2=170$)

## Packaging Material

1. Plastic Box ($n_1=111$)
2. Corrugated / paper Box ($n_2=117$)
3. Loose / Film packaging ($n_3=116$)

## Cause Endorsement on packaging

1. Box of Biscuits with Presence of Swachh Bharat Cause Endorsement ($n_1=166$)
2. Box of Biscuits with no Cause endorsement ($n_2=178$)

## Stimuli used for Study 2 (undertaken for Children)

<table>
<thead>
<tr>
<th>Name of Packaging Element</th>
<th>Stimuli used for Biscuits (no. of respondents in the respective group)</th>
<th>Stimuli used for Wafers (no. of respondents in the respective group)</th>
</tr>
</thead>
</table>
| Pictures of Cartoon / game characters | 1. Biscuits with Picture of Tom & Jerry ($n_1=163$).  
2. Biscuits without Picture of Tom & Jerry ($n_2=159$). | 1. Wafers with Picture of Angry Birds ($n_1=163$).  
2. Wafers without Picture of Angry Birds ($n_2=159$). |

See Table No. 2 on Page 9 i.e. next page.
### Table: Statement of Hypothesis tested in the study & corresponding outcomes

<table>
<thead>
<tr>
<th>Statement of Hypothesis &amp; Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Consumers would rate the biscuits with cholesterol free label on the package as more healthy as compared to biscuits without cholesterol free on the package.</td>
</tr>
</tbody>
</table>
| **Decision:** Hypothesis Accepted;  
  \[
  t = 7.496; \ p-value = 0.00; \ \mu_1 = 3.327; \ \mu_2 = 2.480
  \]  
  [Independent t – test used] |
| 2. Consumers would rate the Ice cream with sugar free label on the package as more healthy as compared to Ice cream without sugar free on the package. |
| **Decision:** Hypothesis Accepted;  
  \[
  t = 8.347; \ p-value = 0.00; \ \mu_1 = 3.327; \ \mu_2 = 2.480
  \]  
  [Independent t – test used] |
| 3. Consumer would have higher purchase intention to buy the biscuits with cholesterol free label on package & the biscuits without cholesterol free on package. |
| **Decision:** Hypothesis Accepted;  
  \[
  t = 10.452; \ p-value = 0.00; \ \mu_1 = 3.267; \ \mu_2 = 2.370
  \]  
  [Independent t – test used] |
| 4. Consumer would have higher purchase intention to buy the Ice cream with sugar free label on the package and Ice cream without sugar free on the package. |
| **Decision:** Hypothesis Accepted;  
  \[
  t = 8.856; \ p-value = 0.00; \ \mu_1 = 3.520; \ \mu_2 = 2.740
  \]  
  [Independent t – test used] |
| 5. There is association between premium amount spent by consumers for buying the Biscuits with Cholesterol free label and the age of the consumer. |
| **Decision:** Hypothesis Rejected;  
  \[
  \chi^2 = 4.37; \ p-value = 0.827; \ \text{Cramer’s V} = 0.079
  \]  
  [\chi^2 test of association used] |
| 6. There is association between premium amount spent by consumers for buying the Ice cream with sugar free label and the age of the consumer. |
| **Decision:** Hypothesis Rejected;  
  \[
  \chi^2 = 2.07; \ p-value = 0.979; \ \text{Cramer’s V} = 0.055
  \]  
  [\chi^2 test of association used] |
| 7. Consumers weight related perceptions differ significantly between boxes of Biscuits of different shapes. |
| **Decision:** Hypothesis Accepted;  
  \[
  F = 281.22; \ p-value = 0.00; \ \mu_1 = 161.8; \ \mu_2 = 182.5; \ \mu_3 = 169.4; \ \mu_4 = 144.1; \ \mu_5 = 205.6
  \]  
  [1way Annova used] |
| 8. Consumers quantity related perceptions differ significantly between cups of Ice cream of different shapes. |
| **Decision:** Hypothesis Accepted;  
  \[
  F = 8.58; \ p-value = 0.00; \ \mu_1 = 131.5; \ \mu_2 = 126.8; \ \mu_3 = 138.1.4; \ \mu_4 = 132.5
  \]  
  [1way Annova used] |
| 9. Consumers product related perceptions differ significantly between boxes of Biscuits of different shapes. |
| **Decision:** Hypothesis Accepted;  
  \[
  F = 5.490; \ p-value = 0.00; \ \mu_1 = 3.00; \ \mu_2 = 3.49; \ \mu_3 = 3.20; \ \mu_4 = 2.63; \ \mu_5 = 3.34
  \]  
  [1way Annova used] |
| 10. Consumers product related perceptions differ significantly between cups of Ice cream of different shapes. |
| **Decision:** Hypothesis Accepted;  
  \[
  F = 18.48; \ p-value = 0.00; \ \mu_1 = 3.92; \ \mu_2 = 3.71; \ \mu_3 = 4.04; \ \mu_4 = 4.26
  \]  
  [1way Annova used] |
11. Consumers' price related perceptions differ significantly between boxes of Biscuits of different shapes.

**Decision:** Hypothesis Accepted; \[ F = 30.77; p\text{-value} = 0.00; \mu_1 = 2.15; \mu_2 = 2.89; \mu_3 = 3.13; \mu_4 = 2.10; \mu_5 = 3.52 \] [1way Annova used]

12. Consumers' price related perceptions differ significantly between cups of Ice cream of different shapes.

**Decision:** Hypothesis Accepted; \[ F = 12.004; p\text{-value} = 0.00; \mu_1 = 2.85; \mu_2 = 2.64; \mu_3 = 3.62; \mu_4 = 3.25 \] [1way Annova used]

13. Consumers purchase intentions differ significantly between boxes of Biscuits of different shapes.

**Decision:** Hypothesis Accepted; \[ F = 11.66; p\text{-value} = 0.00; \mu_1 = 2.61; \mu_2 = 3.61; \mu_3 = 2.66; \mu_4 = 2.43; \mu_5 = 2.94 \] [1way Annova used]

14. Consumers purchase intentions differ significantly between cups of Ice cream of different shapes.

**Decision:** Hypothesis Accepted; \[ F = 13.70; p\text{-value} = 0.00; \mu_1 = 3.18; \mu_2 = 2.75; \mu_3 = 3.56; \mu_4 = 3.59 \] [1way Annova used]

15. Biscuits with sparkling color package are perceived to have better shelf impact visibility as compared to the biscuits with ordinary package.

**Decision:** Hypothesis Accepted; \[ t = 9.640; p\text{-value} = 0.00; \mu_1 = 3.68; \mu_2 = 2.70 \] [Independent t-test used]

16. Ice cream with sparkling color package is perceived to have better shelf impact visibility as compared to the Ice cream with ordinary package.

**Decision:** Hypothesis Accepted; \[ t = 8.272; p\text{-value} = 0.00; \mu_1 = 3.48; \mu_2 = 2.50 \] [Independent t-test used]

17. Consumers would elicit more favorable attitude towards the Biscuits with sparkling color package as compared to the Biscuits with ordinary package.

**Decision:** Hypothesis Accepted; \[ t = 8.352; p\text{-value} = 0.00; \mu_1 = 3.423; \mu_2 = 2.556 \] [Independent t-test used]

18. Consumers would elicit more favorable attitude towards the Ice cream with sparkling color package as compared to the Ice cream with ordinary package.

**Decision:** Hypothesis Accepted; \[ t = 10.91; p\text{-value} = 0.00; \mu_1 = 3.30; \mu_2 = 2.361 \] [Independent t-test used]

19. Biscuits with sparkling color package are perceived to be relatively more expensive as compared to the Biscuits with ordinary package.

**Decision:** Hypothesis Accepted; \[ t = 9.055; p\text{-value} = 0.00; \mu_1 = 3.553; \mu_2 = 2.440 \] [Independent t-test used]

20. Ice cream with sparkling color package is perceived to be relatively more expensive as compared to the Ice cream with ordinary package.

**Decision:** Hypothesis Accepted; \[ t = 7.863; p\text{-value} = 0.00; \mu_1 = 3.614; \mu_2 = 2.654 \] [Independent t-test used]

21. Consumer would have higher purchase intention to buy the Biscuits with sparkling color package as compared to the Biscuits with ordinary package.

**Decision:** Hypothesis Accepted; \[ t = 6.369; p\text{-value} = 0.00; \mu_1 = 3.655; \mu_2 = 3.113 \] [Independent t-test used]
22. Consumer would have higher purchase intention to buy the Ice cream with sparkling color package as compared to the Ice cream with ordinary package. **Decision: Hypothesis Accepted**; $[t = 9.915; \ p-value=0.00; \mu_1 = 3.454; \mu_2 = 2.644]$. [Independent t-test used]

23. Consumers ability to recall Visual & verbal elements would be better when Visual elements are on the left side of the package & verbal elements are on the right hand side of the package of Biscuits. **Decision: Hypothesis Accepted**; $[t = -7.78; \ p-value=0.00; \mu_1 = 4.27; \mu_2 = 6.24]$. [Independent t-test used]

24. Consumers ability to recall Visual & verbal elements would be better when Visual elements are on left hand side of the package & verbal elements are on the right hand side of the package of Ice cream. **Decision: Hypothesis Accepted**; $[t = -7.90; \ p-value=0.00; \mu_1 = 3.04; \mu_2 = 4.59]$. [Independent t-test used]

25. Consumers would elicit different liking for the Biscuits with Visual elements on left side & verbal elements on right side of box & Biscuits with visual elements on right side & verbal elements on the left side of box. **Decision: Hypothesis Rejected**; $[t = 1.26; \ p-value=0.207; \mu_1 = 3.60; \mu_2 = 3.57]$

26. Consumers would elicit different liking for the Ice cream with Visual elements on left side & verbal elements on right side of the package & Ice cream with visual elements on right side & verbal elements on the left side of box. **Decision: Hypothesis Rejected**; $[t = -0.582; \ p-value=0.561; \mu_1 = 2.72; \mu_2 = 2.78]$

27. The box of Biscuits with more number of product units displayed on the package will be perceived to contain more product quantity as compared to the box of Biscuits with fewer number of product units displayed on the package. **Decision: Hypothesis Accepted**; $[t = 10.62; \ p-value=0.00; \mu_1 = 25; \mu_2 = 20.36]$

28. The container of Ice cream with more number of scoops displayed on container will be perceived to contain more product quantity as compared to container of the Ice cream with fewer number of scoops displayed on package. **Decision: Hypothesis Accepted**; $[t = 9.28; \ p-value=0.00; \mu_1 = 8.8; \mu_2 = 7.12]$

29. Consumers would exhibit higher purchase intention to buy Biscuits with more number of product units displayed on the package as compared to biscuits with fewer number of product units displayed on the box of the Biscuits. **Decision: Hypothesis Accepted**; $[t = 10.65; \ p-value=0.00; \mu_1 = 3.46; \mu_2 = 2.53]$

30. Consumers would exhibit higher purchase intention to buy Ice cream with more number of scoops of Ice cream displayed on package as compared to Ice cream with fewer number of scoops of Ice cream displayed on package. **Decision: Hypothesis Accepted**; $[t = 10.42; \ p-value=0.00; \mu_1 = 3.39; \mu_2 = 2.45]$

31. Consumers Perceptions of shelf life of Biscuits differ significantly between boxes of Biscuits of different packaging materials. **Decision: Hypothesis Accepted**; $[F=23.14; \ p-value=0.00; \mu_1 = 3.68; \mu_2 = 3.05; \mu_3 = 2.65]$. [1way Annova used]

32. Consumers Perception of Shelf life of Ice cream would be higher for Ice cream packed in Plastic container as compared to Ice cream packed in corrugated box. **Decision: Hypothesis Accepted**; $[t = 8.86; \ p-value=0.00; \mu_1 = 3.55; \mu_2 = 2.47]$. [Independent t-test used]
33. Consumers product liking differ significantly between boxes of Biscuits of different packaging materials.

**Decision: Hypothesis Accepted ;**  
\[ F=12.90 \; ; \; p\text{-value}=0.00 \; ; \; \mu_1 = 3.43 \; ; \; \mu_2 = 2.98 \; ; \; \mu_3 = 2.63 \]  
[1way Annova used]

34. Consumers product liking would be higher for the Ice cream packed in Plastic container as compared to the Ice cream packed in corrugated box.

**Decision: Hypothesis Accepted ;**  
\[ t= 10.47 \; ; \; p\text{-value}=0.00 \; ; \; \mu_1 = 3.39 \; ; \; \mu_2 = 2.48 \]  
[ Independent t –test used]

35. Consumers price related perceptions differ significantly between boxes of Biscuits of different packaging materials.

**Decision: Hypothesis Accepted ;**  
\[ F=35.48 \; ; \; p\text{-value}=0.00 \; ; \; \mu_1 = 3.57 \; ; \; \mu_2 = 2.48 \; ; \; \mu_3 = 2.43 \]  
[1way Annova used]

36. Ice cream packed in Plastic container would be perceived as more expensive as compared to the Ice cream packed in Corrugated box.

**Decision: Hypothesis Accepted ;**  
\[ t= 15.90 \; ; \; p\text{-value}=0.00 \; ; \; \mu_1 = 3.78 \; ; \; \mu_2 = 2.18 \]  
[ Independent t –test used]

37. Consumers purchase intentions differ significantly between boxes of Biscuits of different packaging materials.

**Decision: Hypothesis Accepted ;**  
\[ F=17.99 \; ; \; p\text{-value}=0.00 \; ; \; \mu_1 = 3.61 \; ; \; \mu_2 = 3.22 \; ; \; \mu_3 = 2.81 \]  
[1way Annova used]

38. Consumers would have higher purchase intention to buy the Ice cream packed in Plastic container & the Ice cream packed in corrugated box.

**Decision: Hypothesis Accepted ;**  
\[ t= 9.52 \; ; \; p\text{-value}=0.00 \; ; \; \mu_1 = 3.67 \; ; \; \mu_2 = 2.90 \]  
[ Independent t –test used]

39. Consumers would have higher purchase intention to buy the Biscuits with presence of Swachh Bharat Cause endorsement on the box as compared to the Biscuits without Swachh Bharat cause endorsement on the packaging.

**Decision: Hypothesis Accepted ;**  
\[ t= 7.159 \; ; \; p\text{-value}=0.00 \; ; \; \mu_1 = 3.66 \; ; \; \mu_2 = 3.04 \]  
[ Independent t –test used]

40. Consumers would have higher purchase intention to buy the Ice cream with presence of Swachh Bharat Cause endorsement on the box as compared to the Ice cream without Swachh Bharat cause endorsement on the packaging.

**Decision: Hypothesis Accepted ;**  
\[ t= 8.985 \; ; \; p\text{-value}=0.00 \; ; \; \mu_1 = 3.45 \; ; \; \mu_2 = 2.545 \]  
[ Independent t –test used]

41. Presence of Swachh Bharat Cause endorsement on the packaging of the Biscuits will lead to consumers more positive attitude towards the cause endorsing company as compared to the company with Biscuits without cause endorsement on the packaging.

**Decision: Hypothesis Accepted ;**  
\[ t= 5.623 \; ; \; p\text{-value}=0.00 \; ; \; \mu_1 = 3.36 \; ; \; \mu_2 = 2.64 \]  
[ Independent t –test used]

42. Presence of Swachh Bharat Cause endorsement on the packaging of the Ice cream will lead to consumers more positive attitude towards the cause endorsing company as compared to the company with Ice cream without cause endorsement on the packaging.

**Decision: Hypothesis Accepted ;**  
\[ t= 9.472 \; ; \; p\text{-value}=0.00 \; ; \; \mu_1 = 3.54 \; ; \; \mu_2 = 2.545 \]  
[ Independent t –test used]

43. Young Children would elicit more liking for the biscuits with pictures of licensed spokes characters (Tom & Jerry) displayed on its package as compared to the biscuits with no characters on its package.
<table>
<thead>
<tr>
<th>Decision: Hypothesis Accepted ;</th>
<th>$ [t=10.082; p\text{-value}=0.00; \mu_1=3.490; \mu_2=2.270] $</th>
<th>[ Independent t–test used]</th>
</tr>
</thead>
</table>

44. Young Children would elicit more liking for the potato wafers with pictures of angry birds displayed on its package as compared to the potato wafers with no characters on its package.

<table>
<thead>
<tr>
<th>Decision: Hypothesis Accepted ;</th>
<th>$ [t=10.62; p\text{-value}=0.00; \mu_1=3.475; \mu_2=2.233] $</th>
<th>[ Independent t–test used]</th>
</tr>
</thead>
</table>

Note: (1) Each of the above hypothesis have been tested at significance level of 0.05 i.e p=0.05. (95% confidence Interval). (2) In above mentioned various hypothesis t-value refers to the t-value of the output tables of Independent t-test., F-value refers to the F-value of the output tables of 1-way Annova between the groups design & $\chi^2$ -value refers to pearson $\chi^2$ value in the output table of Chi-square test of Independence/association. (3) $\mu_1, \mu_2, \mu_3, \mu_4, \mu_5$ etc refers to means of group1, group2, group3, group4, group5 values respectively in the output tables of Group statics table of Independent t-test / Descriptive statics table of 1-way Annova between group design. (5) Detailed analysis with different tables has not been provided due to space constraint of 15 pages for synopsis as recommended in the guidelines of synopsis submission of Gujarat Technological University.
Achievement with respect to Objectives :-

- The Results of the study revealed that Nutritional labels like sugar free labels & cholesterol free label has significant impact on consumers’ overall health perception & purchase Intention.
- The findings of the study revealed that each of the package shape influences the consumer product perceptions, quantity perceptions & purchase intentions of consumers in its own way.
- The findings revealed that sparkling color packages of biscuits & ice creams has greater shelf impact visibility and are preferred more by the consumers.
- The results revealed that position of visual & verbal elements on the package can have significant impact on consumer recall and product liking.
- The findings of the study revealed that Number of product units displayed on the package significantly influences consumer perception of product quantity & their buying decisions.
- The outcomes of the study revealed that each of the packaging material has its own impact on consumers’ perception of shelf of product, product evaluation ,Price perception & purchase decision
- The findings of the study revealed presence of cause on the packaging of the product can affect consumers’ purchase decision & overall impression about the company.
- The results of the study revealed that pictures of cartoon Characters & game characters on the packaging of the product has powerful impact on the product liking of the children.

Conclusion :-

- Products with labels like cholesterol free & sugar free are perceived as nutritionally healthier & powerful in reducing the disease risks. If such labels are used on the front of packages of ready to eat products then the chances of such products being purchased by consumer would very high.
- In case of Biscuits, the most preferred package shape on all dimensions was angular shape while in case Ice cream the most preferred shape on all dimensions was mango shape. This implies that if companies try to sell their products in the above mentioned shapes then chances of such products being noticed in the supermarket & being purchased by consumers would be very high.
- In case of Package color, the study found that sparkling color boxes can result in higher shelf impact visibility, improved product attitude & higher desire to purchase the products. This implies that companies should use sparkling color boxes for selling their low involvement products.
- The study revealed that if visual elements like product picture are placed on the left hand side of the package & verbal elements like brand name are placed on the right hand side of boxes of products especially ice cream & biscuits then consumers’ ability to recall would significantly high. This implies that companies while designing their packages should keep in mind the above findings so as to improve the consumers’ recall ability which could then stimulate the purchase of those of products at the point of sale.
When more no. of product units are displayed on the packages then consumer tend to perceive that there is more product quantity inside the package & would be eager to purchase that specific product. This implies that companies should place reasonable no. of product units on the packages of food products especially biscuits & ice cream so as to improve the consumers’ product quantity perception which could then stimulate the purchases of those products.

In case of Biscuits, the most preferred packaging material on the dimensions like product shelf life perception, product attitude & purchase intention was plastic box / container as compared to Corrugated box & Film packaging. Similarly for ice cream the most preferred packaging material on above said dimensions was Plastic container. This implies that to improve sales & attract the consumers, the companies should to try to sell their products like biscuits & ice cream in Plastic boxes or containers until & unless it doesn’t result in the drastic increase in the selling price of the product & put burden on consumers’ pocket.

The findings revealed that When cause like Swachh Bharat Mission is placed on the boxes of Biscuits & ice cream then consumers perceive that cause endorsing company is socially responsible one & contributing for the welfare of the society and therefore would be ready to purchase the products with such cause endorsement. This implies that companies should become socially responsible & should contribute to society in the form of Cause endorsement this is because such steps of the companies not only improves the consumers’ impression about the company but it also motivates them to purchase those companies products & remain loyal to them.

The pictures of popular Cartoon characters /game characters on the packages of products like biscuits & wafers could have profound influence on the overall product liking of the children. This implies that if companies want to boost the sales for products targeted to children then they should make use of such pictures of spokes characters on their products but however the companies should not try to sell the low quality or bad products which could affect the health of children, by using the tactic of pictures of popular characters on the packages of the product.

The companies manufacturing & selling the ready to eat products especially Biscuits, wafers & Ice cream if takes the above recommendations & findings of the study into consideration & if implements them for their existing or upcoming products then it would have the first mover advantage of developing the package that would 1) stand out on the store shelves among all the packages available in the market in the same category 2) will able to grab consumers’ attention in brink of eye 3) will definitely stimulate the consumers to try or purchase that product & 4) will produce a long lasting image of the product in the consumers’ memory which would encourage them for repeat purchases & thereby keep them loyal to the brand for long period of time.
References


**List of Publications of Ph.D scholar**


