[Research Methodology]

[3.1 Introduction]

3.2 Objectives and scope of the studies

3.3 Research Question

3.4 List of hypothesis

3.5 Research Design

3.6 Sampling Technique

3.6.1 Sampling technique

3.6.2 Sampling unit

3.6.3 Sample size

3.6.4 Reliability test

3.6.5 Survey Method]
3.1 Introduction

This chapter gives particulars of methods used to gather the data and analyse the data collect. It gives understanding on to the objective, sampling technique used, methodology, sample size derived, hypothesis framed, research questions analyzed, variables selected for the study. The hypothesis has been framed to understand the relationship between the demographical variables of teenagers and perception variable, further demographical variables and brand building variables. The hypotheses derived are in context with the gap identified in chapter no 2 based on the review of literature. The data analysed and interpreted are well represented in chapter no 4 in detail.

3.2 Objective and the scope of the study

Main Objective:

1. To study Teenagers Perception towards Celebrity Endorsement
2. To study Celebrity endorsements impact on brand building for teenagers.

Sub-objective:

1. To study association between demographic variables and perception
2. To study association between demographic variables and presence of celebrity leading to brand building
3. To study whether celebrity’s impact differs based on demographic variables.

3.3 Research Questions

1. Is there any linkage between teenager’s perception toward celebrity endorsement and Course they attain?
2. Is there any linkage between teenager’s perception toward celebrity endorsement and their age?
3. Is there any linkage between teenager’s perception toward celebrity endorsement and their location?
4. Is there any linkage between teenager’s perception toward celebrity endorsement and their gender?
5. Is there any linkage between teenager’s perception toward celebrity endorsement and number of family members earning in their family?
6. Whether there exist any connection between teenagers’s Course and presence of celebrity leading to brand building?
7. Whether there exist any connection between teenagers’s age and presence of celebrity leading to brand building?
8. Whether there exist any connection between teenagers’s gender and presence of celebrity leading to brand building?
9. Whether there exist any connection between teenager’s location from where the teens are and the Celebrities impact on brand building?
10. Whether there exist any connection between no of income earners in teenagers’s family and the Celebrities impact on brand building?
11. Whether the impact of celebrity at Salience stage of brand building on Teenagers is notably different with respect to Location?
12. Whether the impact of celebrity at Imagery stage of brand building on Teenagers is notably different with respect to Location?
13. Whether the impact of celebrity at Performance stage of brand building on Teenagers is notably different with respect to Location?
14. Whether the impact of celebrity at feelings stage of brand building on Teenagers is notably different with respect to Location?
15. Whether the impact of celebrity at Judgement of brand building on Teenagers is notably different with respect to Location?
16. Whether the impact of celebrity at Resonance stage of brand building on Teenagers is notably different with respect to Location?
17. Whether there is a considerably differential impact of celebrity at Salience stage of brand building on Teenagers with respect to gender?
18. Whether there is a considerably differential impact of celebrity at Imagery stage of brand building on Teenagers with respect to gender?
19. Whether there is a considerably differential impact of celebrity at Performance stage of brand building on Teenagers with respect to gender?
20. Whether there is a considerably differential impact of celebrity at feelings stage of brand building on Teenagers with respect to gender?
21. Whether there is a considerably differential impact of celebrity at Judgement of brand building on Teenagers with respect to gender?
22. Whether there is a considerably differential impact of celebrity at Resonance of brand building on Teenagers with respect to gender?

3.4 List of Hypothesis

1. To study association between demographical variable and perception

\[ H_0: \text{There is no association between what they study and their perception towards celebrity endorsement} \]
\[ H_1: \text{There is an association between what they study and their perception towards celebrity endorsement} \]

\[ H_0: \text{There is no association between Gender and their perception towards celebrity endorsement} \]
\[ H_1: \text{There is an association between Gender and their perception towards celebrity endorsement} \]

\[ H_0: \text{There is no association between Age and their perception towards celebrity endorsement} \]
\[ H_1: \text{There is an association between Age and their perception towards celebrity endorsement} \]

\[ H_0: \text{There is no association between Location and their perception towards celebrity endorsement} \]
\[ H_1: \text{There is an association between Location and their perception towards celebrity endorsement} \]
H0: There is no association between No. of Income sources in family and their perception towards celebrity endorsement

H1: There is an association between No. of Income sources in family and their perception towards celebrity endorsement

2. To study association between demographical variable and presence of celebrity leading to brand building.

H0: There is no association between course and presence of celebrity leading to brand building

H1: There is an association between course and presence of celebrity leading to brand building

H0: There is no association between Gender and presence of celebrity leading to brand building

H1: There is an association between Gender and presence of celebrity leading to brand building

H0: There is no association between Age and presence of celebrity leading to brand building

H1: There is an association between Age and presence of celebrity leading to brand building

H0: There is no association between Location and presence of celebrity leading to brand building
**H1:** There is an association between Location and presence of celebrity leading to brand building

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**H0:** There is no association between no of sources of family income and presence of celebrity leading to brand building

**H1:** There is an association between no of sources of family income and presence of celebrity leading to brand building

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4. **To study whether celebrity’s impact differs based on demographic variables.**

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**H0:** There is no significant difference between location from where the teens are and the Celebrities impact on brand building

**H1:** There is significant difference between location from where the teens are and the Celebrities impact on brand building

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**H0:** M1 = M2, In the population there is no difference between Male and Female with respect to the celebrity’s impact on brand building

**H1:** M1 = M2, In the population there is a difference between Male and Female with respect to the celebrity’s impact on brand building

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**H0:** There is no significant difference between Male and Female with respect to the celebrity’s impact on salience level of brand building

**H1:** There is significant difference between Male and Female with respect to the celebrity’s impact on salience level of brand building
H0: There is no significant difference between Male and Female with respect to the celebrity’s impact on **imagery** level of brand building

H1: There is significant difference between Male and Female with respect to the celebrity’s impact on **imagery** level of brand building

H0: There is no significant difference between Male and Female with respect to the celebrity’s impact on **Performance** level of brand building

H1: There is significant difference between Male and Female with respect to the celebrity’s impact on **Performance** level of brand building

H0: There is no significant difference between Male and Female with respect to the celebrity’s impact on **judgement** level of brand building

H1: There is significant difference between Male and Female with respect to the celebrity’s impact on **judgement** level of brand building

H0: There is no significant difference between Male and Female with respect to the celebrity’s impact on **Feelings** level of brand building

H1: There is significant difference between Male and Female with respect to the celebrity’s impact on **Feelings** level of brand building

H0: There is no significant difference between Male and Female with respect to the celebrity’s impact on **Resonance** level of brand building

H1: There is significant difference between Male and Female with respect to the celebrity’s impact on **Resonance** level of brand building
3.5 Research Design:

Descriptive Research is a scientific method used to understand and describe the behaviour of a subject by keeping it stable without influencing. This design method is been widely used in social sciences and psychological studies. Mostly this design method is used to describe characteristics or behaviour of sample population. In this study this type of research design is apt and widely being used to, since here the study aims to describe sample population’s perception towards celebrity endorsement and the impact of this on brand building.

Data is collected through a quantitative method through a sample survey. The tool used for data collection is structured questionnaire. The questionnaire is filled up by the respondents ranging between 13-19 years of age group including school goers and college goers of the select cities as below. The questionnaire was in English, the technical details were pre-explained to the respondents before they filled it up.

3.6 Sample Design:

Sampling methods consign to rules and process through which a sample gets selected out of the entire population.
3.6.1 Sampling Technique:

Non Probability, Convenience Sampling is used in this study. The teenagers from the four cities of Gujarat are selected based on non probability convenience sampling technique, considering the sample thus taken is the right representation of the units of universe.

3.6.2 Sampling Unit:

Teenagers from select cities of Gujarat. The select cities were Vadodara, Surat, Rajkot and Ahmedabad. Selection of the city was done based on the Census Report, 2011, of Gujarat state, from which the four metropolitan city of the state was chosen for the study. The reason being these cities have shown growth and development in every angle from the population density to the spending capability. Also the affluent group growing have gone in for the demand of too many brands that is the reason why the cities like Vadodara, Ahmedabad, Rajkot and Surat qualify for the study.

3.6.3 Sample Size: 332 teenagers

- Out of 500 total respondents, Only completely filled up questionnaires qualified for the analysis purpose.

- The data was collected of 500 teenagers from select cities of Gujarat state, out of which Sample of 332 qualified the rest were rejected due to incomplete filling. Therefore the following table describes the sample size from each location.

- From each of the location, 125 teenagers were surveyed.

- From the city Vadodara, out of 125 respondents 79 respondents qualified further for the analysis purpose.

- From Ahmedabad, out of 125 respondents 81 of them further qualified.

- From Rajkot, 99 respondents qualified out of 125.

- And from Surat 73 respondents qualified for further analysis.
The teenagers from Vadodara city are 79 in numbers, from Ahmedabad 81 total teenagers were surveyed, from city Rajkot total 99 teenagers were studied, and the remaining of 73 teenagers are from Surat City. From each of the cities mentioned above 125 respondent were surveyed of which the above mentioned numbers qualified further.

### 3.6.4 Survey Instrument: Questionnaire

The questionnaire used for the survey purpose included 21 questions. It carries a mixture of types of question, all questions are closed ended questions, it includes first 8 personal information based question. 5 questions are a ordinal questions, wherein the respondents need to rank the given options. Further 5 questions in the questionnaire are the statements for seeking the agreeableness of the respondents; therefore the questions are treated to be Quasi-Ordinal -interval type data (Reginald L. Bell, 2014) wherein 5-point likert-scale is treated to be ordinal (majorly) and interval (only once) both. The remaining 3 questions are Dichotomous and multiple choice questions. The last question is a question for a brand fit check, where to understand the level of recall the teens have for the brands as against the celebrities endorsing the brand.

### 3.6.5 Reliability test

The set of statement scale developed here for the objective to understand the consumer perception towards celebrity endorsement and also the statement scale developed to study the impact on brand building has been pre validated and the reliability test resulted to the Cronbach's Alpha score above 0.7. Cronbach’s alpha (or *coefficient alpha*), developed by Lee Cronbach in 1951, is a way to measure reliability, or internal consistency of a psychometric instrument. “Reliability” is how well a test consistently measures what it is supposed to measure. Cronbach is the most commonly used reliability test to check the likert scale based questions so as to maintains its consistency. Broadly the higher the alpha value on a higher side close to 0.9 or 1 means the questions have items that are repeatedly asking the same thing and the alpha value being lower i.e. below 0.6 or 0.7 means that adding more of alpha value would result to better alpha value that can be accepted.
The following are the individual cronbach alpha scores:

1. **Perception Stages selection organizing and interpretation** *(tick on the basis of agreeableness for each of the statements below)*

   **Reliability statistics**

<table>
<thead>
<tr>
<th>Cronbach’s alpha</th>
<th>No of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.703</td>
<td>24</td>
</tr>
</tbody>
</table>

   The alpha coefficient for the five items is .719, suggesting that the items have relatively high internal consistency. (Note that a reliability coefficient of .70 or higher is considered “acceptable” in most social science research situations.) Cronbach (1951).

2. **Presence of celebrity leads to the following Brand building stages** *(tick on the basis of agreeableness for each of the statements below).*

   **Reliability statistics**

<table>
<thead>
<tr>
<th>Cronbach’s alpha</th>
<th>No of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.614</td>
<td>7</td>
</tr>
</tbody>
</table>

   The alpha coefficient for the seven items is .614, suggesting that the items have relatively high internal consistency. A reliability coefficient of 0.5 or higher is considered “acceptable” (Perry .R. Hinton, charlotte,2004).

3.7 **Survey Methodology**

Survey methodology studies how does the sampling of individual units from a population is done and the associated survey data collection techniques. Here as mentioned above the questionnaire was the survey tool used for data collection and the cities were selected with the criteria of city to be a urban huge populated city, thus as mentioned census report ,2011 reveals the metropolitan cities of Gujarat state to be Vadodara, Surat, Rajkot and Ahmedabad.
Further research design hereby used is non-probabilistic convenience sampling. The teenagers from the various cities were approached through schools in the respective location. This was done for the ease of data collection and to make the cumbersome task smoother. Each respondent needed to be explained about the content in the questionnaire and a self administration on one to one basis was must. The reason for approaching the respondents through schools and colleges were also to select the students from English medium background only and to get a handful of students in one round so that a proper administration and explanation of the questions to these teenagers can be done.

Students from 8th to 12th standard were considered for the research purpose and in the case of college the first year students were approached as they fall in the age bracket of 13-19 yrs. The students were gathered in a group of 20-25 in one go, to be in constant flow with them to keep them explained about the things and thereby each school with varied age brackets on an average had a 5 rounds of survey, to cover the number of 125 from each of the locations as mentioned above. Each round took an average of 120 minutes. Likewise the four cities were covered in a proper planned systematic method, with prior approvals and appointment.

3.8 Statistical tool

3.8.1 Chi square test of association

Chi square test is been used further to statistically analyse the data. Chi square test has two type of tests, one being the chi square test for goodness of fit and the second being the test of independency. The goodness of fit allows research to examine the sample to be consistent with the hypothesized distribution of the whole population. And the second type of chi square test is the test which allows the research to examine whether the two variables are independent or not and if found visa versa then the research can claim the data to be in relationship with each other and has dependency on each other.

Therefore here to fulfil the Research objective of teenager’s perception towards celebrity endorsement and to examine the dependency between the demographical variables like age, gender, location, course and no of members earning (variable 1) to that of the perception towards celebrity endorsement (variable 2) the chi square test of independency is used.
Here both the assumptions of Chi-square test for independence is taken in to consideration. **Assumption 1**, both the variables should be ordinal or nominal, here variable 1 being a nominal level, variable 2 which consists of perception set statements, measured under 5-point likert scale is treated to be an ordinal type of variable. One can use an ordinary Pearson chi-square, or the likelihood ratio chi-square, by treating the ordinal variable as nominal. With one dichotomous and one ordinal variable,(Bruce weaver, Lakehead University Thunder Bay Campus · Department of Health Sciences, Research gate)

**Assumption 2**, two variables should consist two or more categorical, like here in the study variable 1 all dependent variables like Age, Gender, Course they study and Location, have two or more groups.

The Likert scale can be treated as ordinal measurement,( Pett MA, Non-parametric Statistics for Health Care Research. London: SAGE Publications 1997.), assuming the response categories in Likert scales have a rank order, and the intervals between values presumed to be not equal.

Further many research is been done in the area of use of Ordinal methodology in analyzing the liket scale (CHRISTOPHER McCOLLIN & MARIA FERNANDA RAMALHOTO, for Applied Mathematics and Statistics, University of Wurzburg spinger 2007).

### 3.8.2 ANOVA test of homogeneity of variances

Analysis of variance (ANOVA) can determine whether the means of three or more groups are different (Jim Forst, Minitab, 2016). It is used to analyse the differences between and among the groups. The first underlying assumption for the test is that the population from where samples are drawn is normally distributed. The second is that the independence case, that is the sample cases are independent of each other and the third underlying assumption is for homogeneity of variance among the group should be equal.

Keeping all the assumptions in to consideration here to fulfil the next research objective of celebrity endorsements having a differential impact on brand building based on the changes in the demographical variables one-way annova test is been used. The level of measurement of the variables and assumptions of the test play an important role in ANOVA.
In ANOVA, the dependent variable must be a continuous (interval or ratio) level of measurement (brand building). Here the dependent variable is Brand building, which is been analysed using a likert-scale question type (validated), keeping the assumptions of practicality, likert-scale is considered to be an interval data set, instead of an ordinal data. (Blaikie N. Analysing Quantitative Data. London: Sage Publications 2003) & (Santina M, Perez J. Health professionals’ sex and attitudes of health science students to health claims. Med Educ 2003;37:509–13). This is been done considering the likert-scale opinion of five-point scale to be equidistance from each other, which means the variance between the opinions from 1-5 scale is 1, and there is no variations in the variances of opinion. Further (statistic solutions, 2013.) suggests that the considering the above mentioned alterations in the assumption if the sample size is large above the size of 100 is acceptable.

According to various researcher in Research gate Anova is best proven and widely used statistical tool for impact study / impact assessment. The independent variables (here the demographical variables of teenagers their location) in ANOVA must be categorical (nominal or ordinal) variables. If one is interested in showing that scores differ when considering different group of participants (gender, country or location.), one may treat scores of location as numeric values, provided they fulfill usual assumptions about variance (or shape) and sample size (Nunnally, J.C. and Bernstein, I.H. ,1994). Here the data so collected for independent variable location is nominal and the likert scale data collected for the dependent variable is considered to be an interval data. Technically Likert scales are the sum of Likert-type items and as such end up being a reasonable approximation (at least according to many psycho metricians in Psychology) of an interval data point (R pierce, July 2010).

Similarly where the demographic variables form the group of two student’s T-test is been used. In the case of gender where the independent variable is numeric data, (Nunnally, J.C. and Bernstein, I.H. ,1994). the t test determines a probability that two populations (male and female teenagers) are the same with respect to the variable tested. This test is used to examining the differential affect of male and female to that of celebrity endorsement’s impact on brand building.

3.8.3 Mann-Whitney U test of significance
Mann-Whitney U test is most commonly known as Wilcoxon Rank-sum test. It is a non-parametric test to test the null hypothesis that it is likely that randomly selected variables from two different samples are less than or greater than from each other.

The test here was used to check whether the rank by two groups of individuals one who like the ad and the other who doesn’t like an advertisement differ in ranking their preference to the model/celebrity content in an advertisement. The teenagers were to rank the following content in an advertisement based on their liking/preferences like Character or animation, model/celebrity, background, theme, punchline. Out of which the ranks assigned by the two groups to the model/celebrity content was taken further to conduct the study. Further also to check whether or not the above mentioned two groups have similar celebrity-brand match recall. The first question was a rank based data type, which fulfills the general assumptions of data type being ordinal.

Further Mann-Whitney U test was applied on two groups; the first group include people who feel the urge due to advertisements and the second group of people who don’t feel the urge based on advertisements. The test examined whether or not the above mentioned two groups have any similarity in preferences to the content of model/celebrity in an advertisement.