Chapter-III

Research Methodology

After revisualizing the literature corresponding to the consumer analyzed brand loyalty and habitual behaviour construction, certain research gaps were highlighted in Chapter 2. The methodology deployed in the current study scenario is put forth in this particular chapter. The chapter initiates with a philosophical debate focusing on the fundamentals- choice of methodology and research design. The later section elaborates the topic of data collection method and research samples. Thereafter, the discussion leads towards the topic that puts forth the measure development process which is followed by a conclusion comprising of the summary of the whole chapter.

3.1 Research Paradigm

Numerous competing and unique philosophical assumptions prevail in the field of social science. However, according to the predominant, primary ideology there exists two categories namely-positivism and interpretivism (Hudson and Ozanne 1988; Saunders et.al. 2000). The research frame of reference and the aspects of Ontology, and hence the epistemology, constitute the major differentiating factors between the above mentioned two ideologies i.e. positivism and interpretive. In addition the two discussed ideologies also differ in their assumptions corresponding to the research procedure that further relates with the essence of research, the methodology in which it is operated along with the act of researcher in the scientific examination process.

Historically, the marketing and consumer behavior researchers had more inclination towards the approach utilizing the positivist belief system. The ideology of research relies on various concepts like Ontology (the traits of reality), epistemology
(significant relationship observed between the researcher and the reality examined in the extensive research) and methodology (the practice of discerning the observed reality) (Carson et al 2001). For instance, the profound stance of a marketing researcher who practices positivist approach will be dependent on the information prior to the ontology of the world, which is both external and objective. Hence, when dealing with epistemology the fundamental task of the researcher corresponds to the independent examination or inspection of the perceived reality, in other words the researcher is supposed to analyze the observed reality from a rank that is free of judgment. In the above scenario the target of research of the positivist inclines towards, for instance, scrutinizing the significant relationship between the independent and dependent variables with procedures employed being run by quantitative techniques Elliott (1994).

Within the continuance of the two ideologies positivistic and interpretivistic, the research study inclines towards the positivist methodology as a major proportion of it comprises of deductive and quantitative approaches, which corresponds to an assertive scenario in this field. After giving an insight to the philosophical methodology being utilized in the research study, the chapter further elaborates the techniques and approaches being practiced keeping in view the measurement issues and the questionnaire development. Since the necessary data for the research study is accumulated by the use of questionnaires hence it is vital to make sure that the instrument deployed to collect the information holds the capacity to gather reliable and appropriate data in order to test the corresponding hypotheses and to render the research objectives (Carson et al. 2001; Levy, 2003).
3.2 Research Design

The preliminary decision to be made is to construct a priority sequence which illustrates the parameters that are to be considered first and which approaches-inductive or deductive that can be utilized to bring about the conclusions (Gill and Johnson, 1991). Deductive approach corresponds to a set of certain hypotheses or theories which are compiled and confirmed with the real world. The above step gives a clear insight about the study procedure to be carried out and the input that the researcher should go for in order to conduct the research. The sequence of steps involves in the entire procedure are as follows:

Formulating a Theory  ➔  Forming Hypothesis  ➔  Data Accumulation  ➔  Data Analysis & Examination  ➔  Observation & Findings  ➔  Hypothesis confirmed or rejected  ➔  Review of Theory.

Though the above discussed study procedure is performed in a quick manner together with efficiency and effectiveness still the result is observed to be superficial at times. However, in comparison to the deductive approach, inductive approach functions in a quite different manner since the later depends on the apprehension of the research analyst (Glaser and Strauss, 1967). The observations resulting from a particular research procedure are injected into the respective theory and then absorbed for a specific set of investigation. Various research analysts, like Burrell and Morgan, 1979; Daft and Wiginton, 1979, are of the viewpoint that the above discussed two approaches- inductive and deductive form the fundamental basis for the groundwork of research (Gill and Johnson, 1991). The above statement holds true to a great extent since the two discussed approaches constitute two considerate sets of methodological research (Morgan, 1986).
Thus, it can be concluded that the inductive methodology is extracted from the viewpoint of the people, however deductive methodology is described as a research approach taken up in practice which further leads to positivism dominated study methodology. Keeping in view the existing scenario the deductive approach is more practiced in comparison to the inductive research approach. When talking of marketing, the research design is referred to as a blueprint or an abstract structure of a plan which elaborates the procedure of collection and examination of data for the research and the process to be used to carry forward the work in order to accomplish the research objectives (Churchill, 1991). The research design plays a vital role as it highlights and focuses on the objectives of the research study (Churchill, 1991; Frankfort-Nachmias and Nachmias, 1992). On the basis of the marketing processes and behavioral perspectives of the research study, it is majorly categorized into three main divisions which are-descriptive, casual and exploratory. The paradigm of research design used further in the article points to casual research design since it relies majorly on hypothesis testing (Malhotra and Birks, 2000).

3.3 Instrumentation

The pre primary decision with regard to the building of an instrument which is required to record the reliability and loyalty of the brand in terms of attitude and behavior comes from the discussion conducted in the previous chapters. The process of instrumentation was developed to make, instead of recognizing the measurements for the loyalty, the pre determined measurements (from the previously conducted research process) shall be utilized and induced into the research, thereby validating it through SEM i.e. Structure Equation Modeling.
In terms of SEM it is pivotal and significant that every latent construct (a variable that is indirectly measured) be portrayed by the use of a specific scale or certain measurement variables (MVs; variables that are directly measured) (MacCallum 1995). The selected scale or measurement variables originally act as proximate indicators of latent constructs observed. In simple words, the latent constructs constitute the effects of what their corresponding indicators have in common with each other. In SEM the situation becomes puzzling if the construct is represented only by a single construct because in that case the estimates go biased due to the impact of the measurement error. As observed by MacCallum (1995), without the use of multiple indicators, the situation depends on the single error discomposed measurement variables to represent the specific constructs of interest. The existence of four or more indicators for performing the measurement of constructs is covetable in the view of Garson (2009), however existence of two or three indicators comes under casual practice. According to Kenny (1998), two indicators comprise the minimum number of indicators permitted in the SEM Model.

The occurrence of multiple indicators also allows the errors to be molded and patterned. This elevates the level of reliability, depreciates the measurement error and also thins down the specificity corresponding to each indicator in the situation when multiple indicators are turned into composites (Churchill, 1979). A scenario in which a model possesses only two indicators may lead to unreliable error estimates and also correspond to a model that is under-recognized or fall flat to converge (Garson, 2009). On the other side, as per the views of research analysts Anderson and Gerbing (1988), a model comprising of constructs having only two indicators may require a comparatively larger sample to extract a converged and suitable solution in SEM.
The analysis of the previous literature on consumer behavioral intensions, loyalty and habit formation lays down the required groundwork for the pertinent scale item development. All scales that are used in various research strategies consist of reflective items (Diamantopoulos and Siguaw 2000; Diamantopoulos and Winklhofer 2001). This is in relation with the main prevailing scenario in this area, with covariance dependent SEM, as opposed to variance dependent SEM (e.g. Partial Least Squares), being deployed as the primary methodology. Certain items are negatively framed as far this issue has been argued so as to lower down the possible effects of the response pattern biases (Hinkin 1995). However, according to the views of Weems and Onwuegbuzie (2001), by the use of mixed stems (combination of positively and negatively framed words), the issues of score reliability and unidimensionality can be possibly reduced (Herche and Engelland 1996). Regardless of all this, various measurement theorists recommend the employment of reverse-framed statements while using a multi-item scale so as to lower down the rates of systematic response bias (Baumgartner and Steenkamp 2001; Churchill 1979; Nunnally 1978).

In the later stage which is supposed to be the analysis stage of the research strategy, the above discussed reverse-framed statements are re-compiled or re-coded so as to accomplish flexibility and consistency across the measurement scale.

As per the current situation, the present study structure exercises similar scale formats and anchors which offer hand to respondents to achieve the goal of completing a comparatively longer questionnaire swiftly and smoothly because of lesser cognitive processing requirement. The respondents were asked to reveal and mark their level of consent on a 5-point Likert-type scale (1-greatly disagree, 5-greatly agree) so as to record their feedback for majority of the construct measurement items. Thus, recording the levels
of agreements of various respondents permits greater discrimination as it opens up a
greater scope for a range of responses (Wilson 2010). In addition certain questions were
built on categorical scale on the issues relevant with the research topics like *pricing, marketing, repurchasing, switching and influencing factors*.

### 3.4 Pilot Study

It is of utmost importance to pre-test a research instrument in order to secure the
development of a satisfactory questionnaire before the application of data collection
(Dillman 1991). The primary reason for conducting a pre-test is based on the identification
of those specific questions to which respondents face difficulty in understanding or
interpreting distinctively from the researcher’s actual intentions, such as inaccurate
delusive questions, uncertain abbreviations, ambiguous and double-barreled questions
(Dillman 2000; Polit et al., 2001; Baker, 1994).

In this research scenario, the task of pre-testing was organized in two phases. The
initial pre-test was implemented to achieve the objective of face and content validation of
the questions and measurement items. Numerous drafts of questionnaire were diagnosed
by the researcher’s two supervisors. Along with this, the satisfaction and the loyalty items
were also perceived checked by the two eminent research experts in management studies
of the region.

Fifteen subjects comprising of fellow research students and colleague staff, were
requested to be a part of the first phase pilot and interviews, the number of participants
being selected as per the instruction of the researcher Fink (1995).

Thereafter, personal interviews were conducted by utilizing the ‘de-briefing
method’, in which the interviewees were ‘asked to answer the set of questionnaire being
put forth while the interviewers observed and scrutinized the process and the candidates carefully during the process’ (Hunt, Sparkman and Wilcox 1982).

The above step was performed so as to extract the potential problem causing questions that need further explanation, literature and statements that were puzzling and questions that were put in an uncertain and ineffective manner (Krosnick 1999). Worthwhile feedback referring to item suitability, statement ambiguity, question-item organized arrangement, scale editing and length of questionnaire was provided. Along with, certain suggestions were executed in the primary data collection like elimination of recurring items or ambiguous items, organizes sequences and questionnaire length. The second phase of the pre-test consisted of 50 consumers from the routine society and the objective of the experiment was the same to carefully observe the questionnaire, build as much as possible and in accordance with the research objectives.

3.5 Data Collection

The crowd of the study comprises of the buyers or consumers from every possible socio-economic grade. It is observed majority of the times buyers are the decision takers but however in certain cases the decision to buy a commodity is also influenced by the decisions of the other family members of the buyer, therefore in such cases the other individuals involved in the buying process are unable to construe the questionnaire and respond to it correctly. Basically, a buyer is considered to be a family who takes the primary decisions of purchasing a specific brand.

3.6 Survey Method

In order to inspect the customer behavior loyalty, a survey was conducted to collect and analyze the required information related to customers’ attitude, intensions and
behavior in correspondence with their experience. Since a predominant dimension is employed in this field hence this approach is much oriented with the positivist methodology. The approach of the survey was to construct a sample of respondents from a specific population for analysis, from which further observation was done to elicit inferences about the behavior of the population (Collis and Hussey 2003). A comparatively developed level of research in this particular area within the interior of consumer behavior field confirms the utilization of the approach used in the survey. The positive impact of exploiting the questionnaires has been hogged up to limelight in methodology literature.

3.7 Sample Size

A comparatively larger sample size is required for three vital reasons- initially due to the quantitative nature of the research study, secondly to make sure that the matter of cross of validation is paid attention to, which implies towards the skill of the measurement instrument to be reproduced across various independent samples gathered from the same population (Byrne 2010); thirdly because of the urgency to inspect the issues of interaction in the framework.

This research study made use of SEM (Structural Equation Modeling) as a one of the main tools in the process of data analysis. Since SEM is primarily related with the tests which are based majorly on sample size, a primary focus on sample sizes is of utmost importance. To determine the appropriate sample size, specific guidelines have been described in the literature.

As per Garson (2009), sample size should effectively range from 200-400 cases for SEM models with approximately 10 to 15 indicators. The other research analysts
Loehlin (2004) and Hoyle (1995) point and recommend for a sample size of at least 100-200 observations and Kline (2005) is assertive of the view that a sample size of less than 100 observations is not credible to test the SEM models. Further Kline (2005) observed that model complexity must also be studied in the process of identifying the accurate and the suitable sample size. Schumacker and Lomax (2004) investigated the SEM literature and witnessed that the sample sizes varying from 250 to 500 observations were used in the studies. They made a conclusion that a sample size comprising of lesser than 150 cases would come under the minimum (Garson 2009). Hence, a sample size of about 300 to 500 cases was considered for this research study.

3.8 Data Collection Technique

The procedure behind the collection of data comprised of a self-supervised paper based questionnaire, because of this reason the population interest included specifically the purchaser of the consumer goods. Personal communication was made to all the potential respondents and they were given the option to either fill the online questionnaire or the paper based questionnaire.

However, past literature in the field of research methodology observed that response rates to all mediums of survey research have been depressing over the years (de Leeuw, Hox and Dillman 2008; Dillman, Smyth, et al. 2009). Therefore, it was pre decided that for the accumulation of the complete questionnaire data sample, it is necessary to double the number of subjects communicated to get the required response, which is originally a process in the social sciences, were inculcated to elevate the level response rate and motive quality participation (de Leeuw et al. 2008; Malhotra 2003).
3.9 Cluster Sampling

This process of sampling requires disintegrating the population into a number of groups referred to as Clusters, each of them comprising of a range of characteristic features. These groups are referred as clusters because of the reason that all the individual members of the highlighted clusters are included in the sample. Further, the mechanism of selecting specific clusters is employed using a simple random method (Walliman, 2005). In general, cluster sampling is basically used for widely distributed and majestic population. However, it also has certain limitations in relation to representation of the total population because of the reason that it describes the population inadequately in comparison to the sampling approach.

According to the Human Development Report, published by the Govt. of Punjab, three districts were selected depending on their Human Development Index amongst the top, middle and least socio-economically developed districts of Punjab were selected. The selected districts were Patiala, Sangrur and Fatehgarh Sahib were selected. Further, each elected district was divided into two parts namely- Urban and Rural.

For the examining of Urban Markets, respondents from the Municipal Corporations and the Municipal Council limits were taken and for the Rural Markets from the villages panchayats. A total of 600 respondents were elected on the basis of cluster sampling so as to make sure that the respondents from various significant backgrounds like education, income, service/business occupation are enveloped in the process of sample collection from urban and rural markets.
3.10 Scope

This study pertains to the state of Punjab and to all the socio-economic strata therein. The Personal Care Products Category of the Fast Moving Consumer Goods has been the focus of the study. In further classification, four product categories namely **Tooth Paste, Toilet Soap, Hair Oil and Hair Shampoo** were taken in hand, for the research. All the brands of Tooth Paste, Toilet Soap, Hair Oil and Hair Shampoo used by the sample, automatically become part of the scope of the study.

According to the Human Development Report — 2004, published by the Govt. of Punjab, three districts were selected randomly amongst the ranking of top, middle and least socio-economically developed districts of Punjab on the basis of Human Development Index. From the top ranked districts, Fatehgarh Sahib, from middle ranked districts Patiala and from least ranked districts Sangrur was selected on the basis of random sampling from the list of districts ranked on the basis of Human Development Index. Further, each elected district was divided into two parts namely—Urban and Rural.

For the examining of Urban Markets, respondents from the Municipal Corporations and the Municipal Council limits and for the Rural Markets from the village panchayats were selected on random basis. A total of 600 respondents were selected on the basis of cluster sampling so as to make sure that the respondents from various significant backgrounds like education, income, service/business occupation were enveloped in the process of sample collection from urban and rural markets.

3.11 Population of the study

Population of the study was the buyers of the products from every type of socio-economic strata. The buyers were the unit of analysis. Most of the time, the buyer are the decision makers in certain matters and of course, the purchasing decisions are also
influenced by the others in the family but they would not be able to understand the questionnaire and respond to it properly. A buyer was taken as a family member and who take the decision to buy a particular brand. Only adult male and female buyers having minimum qualification of Plus Two were considered as respondents.

3.12 Definition of ‘Urban’ and ‘Rural’ Area

Regarding the definition of Urban and Rural areas, same definition that was used in census of India, 2001 has been used during 2011 census also. An urban area, according to the Census definition, consists of:

1) all statutory towns: All places with a Municipality, Corporation, Cantonment Board or notified town area committee, etc. so declared by state law. And

2) Census towns: Places which satisfy following criteria:

   a. a minimum population of 5000 ;

   b. at least 75 percent of male working population engaged in non-agricultural pursuits; and

   c. a density of population of at least 400 persons per sq km.

In addition, some areas falling in the vicinity of city or town are also considered as urban area if they are treated as the out growths (OGs) of the main urban unit. Such OGs are shown as urban agglomerations. As per the census definition, Urban Agglomeration is a continuous urban spread constituting a town and its adjoining urban outgrowths (OGs) or two or more physical contiguous town together and any adjoining urban out growths of such towns.

All areas which are not categorized as Urban area are considered as Rural Areas.
3.13 Significance of the study

Brand loyalty lies at the heart of marketing management. Though the research on brand loyalty is almost a century old (Copeland, 1923) it is still a contemporary research topic. The concept of loyalty has been derived from Consumer Behaviour (Chegini, 2010). Such is the complexity of the construct that it has led to appearance of numerous definitions e.g. Copeland 1923, Brown 1952, Sirgy and Samli 1985, Fournier 1998, Oliver 1999, Pritchard, Havitz & Howard 1999, Riechheld 2003. Brand Loyalty has been one of most the widely defined words in the marketing lexicon. It has been interpreted in different ways and often be approached with highly differing definitions by various researchers (Morgan, 1999)

With the passage of time, the number of players in the market has increased and they are competing with each other with similar products and services (Tripathi, 2009). It has become imperative for the players to protect the long-term interest of their cutomers to enhance and sustain their own profitability for longer time (Dick and Basu, 1994; Garbarino & Johnson, 1999; Grossman, 1998). Long lasting relations between the customers and the organisation have been favoured by many researchers for generating increased sales, continuous profits, lower costs and other tangible benefits (Reichheld & Sasser, 1990; Berry, 1995; Bolton, 1998). This forces the firms to consider customer loyalty as a source of competitive advantage (Bhartwaj et al., 1993).

From the point of view of many marketers, loyalty to the brand — in terms of consumer usage — is a key factor. Most important of all, in this context, is usually the ‘rate’ of usage, to which the Pareto 80:20 rule applies. Kotler et al.’s ‘heavy users’ are likely to be disproportionately important to the brand. As a result, suppliers often segment
Brand loyalty has been a major focus of strategic marketing planning and offers an important basis for developing a sustainable competitive advantage—an advantage that can be realized through marketing efforts (Dick and Basu, 1994). It is reported that academic research on loyalty has largely focused on measurement issues (Kahn et al., 1986) and correlation of loyalty with consumer property in a segmentation context.

In the era of post-economic reforms in India, the waves of liberalization, privatization and globalization have changed the business dimensions. A fresh peep into the market scenario of today is required to get new insights and discovery of new ideas. According to the report of the Mckinsey Global Institute (2007), businesses that can meet the needs of India's aspiring middle class, keep price points low to reflect the realities of Indian incomes, build brand loyalty in new consumers, and adapt to a fast changing market environment will find substantial rewards in India's rapidly growing consumer market. Likewise, India's policymakers have been challenged to keep India on the path of economic reforms which are now leading to substantial progress in poverty reduction and a rising standard of living for much of India's population. Therefore, it looks to be evident that firms in order to reap the dividends of emerging India, must focus on building brand loyalty among new consumers.

3.14 Data Analysis Techniques

This section gives a wide view about the tools that are used in the process of data analysis. The study applies the usage of statistical software packages namely- SPSS 16 and AMOS 18. The further step of research after the sample collection includes the
process of measurement refinement and purification. It is noted in the process that the items that executed weakly in the item-to-total correlations are inspected carefully and if required and eliminated or discarded. Also, the item/s that appear to disobey/s or violate/s the predicted factor structures are also advised to be discarded or eliminated.

The main statistical techniques to be utilized in the process of analysis and examination:

*Frequency Distribution Table*

This table is the most common tabulation form to summarize the information collected in terms of numeric and non-numeric data sets. The common components of frequency distribution table are Frequencies and percentage distribution of each category. In the next chapter, frequency distribution tables were generated for each demographic variable, to analyze the distribution pattern of the subjects in each category.

*Chi Square Test of Homogeneity*

The test is applied to a single categorical variable where we do however, quite often need to test whether the proportions for each category are equal across all populations of the variable and whether this is true for each class. If this proves to be the case, we say the populations are homogeneous with respect to the variable of classification. It is used to determine whether frequency counts are distributed identically across different populations. The test used for this purpose is the Chi-Squared Test of Homogeneity, with hypotheses:

\( H_0: \) The populations are homogeneous with respect to the variable of classification,
Let $O_i$ represent the observed counts of category $i$; $E_i$ represent the expected counts of category $i$; $k$ represent the number of categories; and $n$ represent the number of independent trials of an experiment. Then the formula,

$$
\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i} \quad i = 1, 2, 3 \ldots \ldots \ldots K
$$

approximately follows the chi-square distribution with $k-1$ degrees of freedom.

**Chi Square Test of Association**

The Chi-Squared Test of Association allows the comparison of two attributes in a sample of data to determine if there is any relationship between them. The idea behind this test is to compare the observed frequencies with the frequencies that would be expected if the null hypothesis of no association / statistical independence were true. By assuming the variables are independent, we can also predict an expected frequency for each cell in the contingency table.

The *chi-square test* provides a method for testing the association between the row and column variables in a two-way table.

The null hypothesis $H_0$ assumes that there is no association between the variables

Let $O_i$ represent the observed counts of category $i$; $E_i$ represent the expected counts of category $i$; $k$ represent the number of categories; and $n$ represent the number of independent trials of an experiment. Then the formula,

$$
\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i} \quad i = 1, 2, 3 \ldots \ldots \ldots K
$$
approximately follows the chi-square distribution with k-1 degrees of freedom and $E_i$ is,

$$
E_{i} = \frac{(\text{Row Total})(\text{Column Total})}{\text{Total Frequency}}
$$

**Paired T-Test and Repeated ANOVA Analysis**

Repeated measures ANOVA is the equivalent of the one-way ANOVA, but for related, not independent groups, and is the extension of the dependent t-test. A repeated measures ANOVA is also referred to as a within-subjects ANOVA or ANOVA for correlated samples. All these names imply the nature of the repeated measures ANOVA, that of a test to detect any overall differences between related means. The paired t-test is the means comparison between the two dependent groups while repeated ANOVA is used in the situation of three or more dependent groups comparison.

**Run Test**

The runs test (Bradley, 1968) can be used to decide if a data set is from a random process. A run is defined as a series of increasing values or a series of decreasing values. The number of increasing, or decreasing, values is the length of the run. In a random data set, the probability that the $(I+1)^{th}$ value is larger or smaller than the $I^{th}$ value follows a binomial distribution, which forms the basis of the runs test. The first step in the runs test is to count the number of runs in the data sequence. There are several ways to define runs in the literature, however, in all cases the formulation must produce a dichotomous sequence of values.

**General Linear Modeling**

The General Linear Model (GLM) is mathematically identical to a multiple regression analysis but stresses its suitability for both multiple qualitative and multiple...
quantitative variables. The GLM is suited to implement any parametric statistical test with one dependent variable, including any factorial ANOVA design as well as designs with a mixture of qualitative and quantitative variables (covariance analysis, ANCOVA). Because of its flexibility to incorporate multiple quantitative and qualitative independent variables, the GLM has become the core tool for data analysis.

Reliability Analysis

The Croanbach alpha reliability test was conducted for the data collected on overall questionnaire and it was evaluated to be 0.769. The desirable or satisfactory reliability coefficient should fall between 0.8 and 0.9 if important decision has to be made about an individual (Anastasi & Urbina, 1997). The minimum acceptable level of reliability is 0.700 for measures that are difficult to concretely define (Schutte & Malouff, 1999). Thus in this sense the reliability coefficient obtained in our situation is perfect.

Cronbach's alpha can be written as a function of the number of test items and the average inter-correlation among the items. Below, for conceptual purposes, we show the formula for the standardized Cronbach's alpha:

\[
\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}}
\]

Here \( N \) is equal to the number of items, \( \bar{c} \) is the average inter-item covariance among the items and \( \bar{v} \) equals the average variance.

One can see from this formula that if you increase the number of items, you increase Cronbach's alpha. Additionally, if the average inter-item correlation is low, alpha will be low. As the average inter-item correlation increases, Cronbach's alpha increases as well (holding the number of items constant).
Correspondence Analysis

Correspondence analysis is a descriptive/exploratory technique designed to analyze simple two-way and multi-way tables containing some measure of correspondence between the rows and columns. Correspondence analysis is a statistical technique that provides a graphical representation of cross tabulations (which are also known as cross tabs, or contingency tables). Cross tabulations arise whenever it is possible to place events into two or more different sets of categories. Correspondence analysis has several features that distinguish it from other techniques of data analysis. An important feature of correspondence analysis is the multivariate treatment of the data through simultaneous consideration of multiple categorical variables. The multivariate nature of correspondence analysis can reveal relationships that would not be detected in a series of pair wise comparisons of variable. Another important feature is the graphical display of row and column points in biplots, which can help in detecting structural relationships among the variable categories and objects.

Kendall Tau Correlation

Kendall-tau is a non-parametric correlation coefficient that can be used to assess and test correlations between non-interval scaled ordinal variables. Frequently the Greek letter τ (tau), is set to abbreviate the Kendall tau correlation coefficient. The Kendall tau correlation coefficient is considered to be equivalent to the Spearman rank correlation coefficient. While Spearman rank correlation coefficient is like the Pearson correlation coefficient but computed from ranks, the Kendall tau correlation rather represents a probability. The correlation in Kendall tau is known as the Kendall’s tau-b coefficient and is more effective in determining whether two non-parametric data samples with ties are correlated.
**Exploratory Factor Analysis (EFA)**

The above analysis process is a two step technique determined by Anderson and Gerbing (1988), in which the research analyst initially inspects on the basis of past literature, whether the items correspond to the predicted structures by utilizing the process of Exploratory Factor Analysis (EFA). This step is performed prior to a more confirmatory assessment, in order to determine the initial evidence of Unidimensionality and Discriminant validity (Farrell, 2010). It is recommended that the item-total correlations and the EFA process should be executed prior to CFA as the primary analysis procedures for the scale development. Thereafter, CFA should be deployed to further filter and refine the scales developed.

**Confirmatory Factor Analysis (CFA)**

The second most step in the process is the implementation of the CFA approach. CFA is also referred to as a ‘measurement model’ as it pays attention distinctively on the links between the latent constructs and their corresponding individual items (Byrne 2010). The process analysis approach SEM is recurrently utilized by the research analysts so as to estimate and calculate the validity and reliability of the research instrument measures (Martínez-López et al., 2012). These statistical tools are of utmost usage in the situations involving confirmatory investigations which seek to test the existing theoretical models. Since the ground nature of this research study was directed towards the development of a new model as it was not conceived to be a confirmatory investigation study. However, the confirmatory study performed and conducted in this research study was done majorly to test the research model.

In this research study, in order to assure the validity of the scales utilized, content validity and construct validity are observed and analysed (Malhotra 2003).
Validity often referred to as face validity, assures that the items portraying a specific construct actually tap the concept (Rubio et al, 2003). Thus, the process involves a researcher and a group of individuals who assess if the items are appropriate enough to measure the respective latent construct. This procedure is performed prior to the process of data collection. Now, Construct Validity denotes the extent to which the measured items/indicators (or the operational scale) can accurately represent and calculate the theoretical measure constructs, that they are structured to measure (Hair et al, 2010). Significant set of criteria are supposed to be fulfilled in order to achieve construct validity, that is, unidimensionality, reliability, convergent validity, discriminant validity and nomological validity.

3.15 Unidimensionality

A one dimension measure implies to the extent to which items portray only one basic latent construct. In the current research study, this is attained by examining the overall CFA model fit (Garver and Mentzer 1999). There may be the possibility that the model is re-specified if certain noticeable errors or problems are encountered, on the condition that the measurement model illustrates unidimensionality, then scale reliability and validity can be examined.

3.16 Reliability

Reliability of a scale signifies the degree to which a scale is stable in measuring and examining a latent construct (Churchill and Peter 1984). Also, if numerous measurements are taken, the reliable items will all lead to consistent statistical values.

In this research study, the diagnostic tool utilized is the coefficient alpha of Cronbach’s (1951) alpha score. This measure corresponds to the measurement stability
of the complete scale. This accounts to be the most famous and reported estimation of reliability. 0.7 corresponds to the suggested minimum value, a lower limit of 0.6 is supposed to be minimum for the purpose of exploratory research (Nunnally and Bernstein 1994).

3.17 Convergent Validity

Convergent Validity refers that the items or indicators calculating a theoretical construct must share a high percentage of variance or they must converge. More specifically, the items involved should command higher level of ‘communality’ with each other. The research study illustrates the concept of convergent validity by assessing the magnitude and implication of the standardized parameter estimates of the items.

3.18 Discriminant Validity

Discriminant Validity signifies the extent to which a construct is ‘truly distinguished from the rest of the other constructs’. A distinguished or distinctive construct is unique and innovative and tests certain phenomenon that the other measures fail to (Churchill 1979). At first, the correlation parameters between the CFA models of every individual pair of constructs are constrained to unity and thereafter, the chi-square different tests are conducted on the various constrained and unconstrained models (Joreskorg 1971). If the difference obtained in the chi-square value between the constrained and unconstrained models comes out to be insignificant or inappropriate then this implies that those particular latent constructs are not appropriately correlated and the discriminant validity is attained.
3.19 Nomological Validity

This validity points to the extent to which a scale makes specific predictions about other concepts or correlates with the other constructs in the model as per the concept of the theory. In this particular thesis, the mark and significance of nomological validity is supported if the correlations sought between the latent constructs are appropriate and are ‘theoretically adequate’ (Ping, 2004). In this research study, the examination of the structural model is referred as the confirmatory assessment of nomological validity.

3.20 Objectives

The thesis of this research study as discussed in the above topics concentrates on the factors that influence the consumers’ brand loyalty towards a specific brand. Keeping in view the factors that influence the brand loyalty, the following objectives have been formulated:

1. To study the existing extent of Brand Loyalty amongst the consumers.
2. To analyze the relationship between the Brand Loyalty and the elements of marketing techniques of numerous FMCG organizations.
3. To seek the differences that exist, in the extent of Brand Loyalty, with respect to Urban and Rural Markets.
4. To scrutinize the relationship existing between the extent of Brand Loyalty and Socio-economic background of buyers.
5. To seek the difference in the brand loyalty among the brands having distinguished competitive strategic approach.
3.21 Hypothesis

In the light of the objectives, the following hypotheses were developed. Objective wise hypothesis are given below.

3.21.1 First Objective

The first objective was to study the existing extent of Brand Loyalty amongst the consumers. The hypothesis developed for this objective are as under:

$H_{01}$: There was no significant difference analyzed in buying behavior of the customers in their last six buying’s regarding particular brand of shampoo

$H_{02}$: There is no significant difference in purchasing behavior of the customer in two consecutive time frames of their favorite brand of shampoo

$H_{03}$: There was no significant difference analyzed in buying behavior of the customers in their last six buying’s regarding particular brand of toothpaste

$H_{04}$: There is no significant difference in purchasing behavior of the customer in two consecutive time frames of their favorite brand of toothpaste

$H_{05}$: There was no significant difference analyzed in buying behavior of the customers in their last six buying’s regarding particular brand of oil

$H_{06}$: There is no significant difference in purchasing behavior of the customer in two consecutive time frames of their favorite brand of oil

$H_{07}$: There is no significant difference in purchasing behavior of the customer in two consecutive time frames of their favorite brand of soap

$H_{08}$: There was no significant difference analyzed in buying behavior of the customers in their last six buying’s regarding particular brand of soap
3.21.2 Second Objective

The second objective was to analyze the relationship between the Brand Loyalty and the elements of marketing techniques of numerous FMCG organizations. The hypothesis developed for this objective are as under:

**H₀₉**: There was no association present between the behavioral loyalty of the customers and place of purchase of their favorite brand of shampoo

**H₁₀**: There was no association present between the behavioral loyalty of the customers and identification parameter of their favorite brand of shampoo

**H₁₁**: There was no association present between the behavioral loyalty of the customers and advertisement channel of their favorite brand of shampoo

**H₁₂**: There was no association present between the behavioral loyalty of the customers and product attributes of their favorite brand of shampoo

**H₁₃**: There was no association present between the behavioral loyalty of the customers and advertisement attributes of their favorite brand of shampoo

**H₁₄**: There was no association present between the behavioral loyalty of the customers and pricing strategy of their favorite brand of shampoo

**H₁₅**: There was no association present between the behavioral loyalty of the customers and place of purchase of their favorite brand of toothpaste

**H₁₆**: There was no association present between the behavioral loyalty of the customers and identification parameter of their favorite brand of toothpaste

**H₁₇**: There was no association present between the behavioral loyalty of the customers and advertisement channel of their favorite brand of toothpaste

**H₁₈**: There was no association present between the behavioral loyalty of the customers and product attributes of their favorite brand of toothpaste

**H₁₉**: There was no association present between the behavioral loyalty of the customers and advertisement attributes of their favorite brand of toothpaste
$H_{20}$: There was no association present between the behavioral loyalty of the customers and pricing strategy of their favorite brand of toothpaste

$H_{21}$: There was no association present between the behavioral loyalty of the customers and place of purchase of their favorite brand of hair oil

$H_{22}$: There was no association present between the behavioral loyalty of the customers and identification parameter of their favorite brand of hair oil

$H_{23}$: There was no association present between the behavioral loyalty of the customers and advertisement channel of their favorite brand of hair oil

$H_{24}$: There was no association present between the behavioral loyalty of the customers and product attributes of their favorite brand of hair oil

$H_{25}$: There was no association present between the behavioral loyalty of the customers and advertisement attributes of their favorite brand of hair oil

$H_{26}$: There was no association present between the behavioral loyalty of the customers and pricing strategy of their favorite brand of hair oil

$H_{27}$: There was no association present between the behavioral loyalty of the customers and place of purchase of their favorite brand of soap

$H_{28}$: There was no association present between the behavioral loyalty of the customers and identification parameter of their favorite brand of soap

$H_{29}$: There was no association present between the behavioral loyalty of the customers and advertisement channel of their favorite brand of soap

$H_{30}$: There was no association present between the behavioral loyalty of the customers and product attributes of their favorite brand of soap

$H_{31}$: There was no association present between the behavioral loyalty of the customers and advertisement attributes of their favorite brand of soap

$H_{32}$: There was no association present between the behavioral loyalty of the customers and pricing strategy of their favorite brand of soap
3.21.3 Third Objective

The third objective was to seek the differences that exist, in the extent of Brand Loyalty, with respect to Urban and Rural Markets and the hypothesis developed in this context are as under:

$H_{33}$: There was no difference in behavioral loyalty of the customers towards their favorite brand of shampoo, categorized on the basis of their locality

$H_{34}$: There was no difference in behavioral loyalty of the customers towards their favorite brand of toothpaste, categorized on the basis of their locality

$H_{35}$: There was no difference in behavioral loyalty of the customers towards their favorite brand of oil, categorized on the basis of their locality

$H_{36}$: There was no difference in behavioral loyalty of the customers towards their favorite brand of soap, categorized on the basis of their locality

3.21.4 Fourth Objective

The fourth objective was to scrutinize the relationship existing between the extent of Brand Loyalty and Socio-economic background of buyers.

$H_{37}$: There was no relationship (interaction) between the behavioral loyalty of the customer towards their favorite brand of shampoo and their socio-economic background

$H_{38}$: There was no relationship (interaction) between the behavioral loyalty of the customer towards their favorite brand of toothpaste and their socio-economic background

$H_{39}$: There was no relationship (interaction) between the behavioral loyalties of the customer towards their favorite brand of oil and their socio-economic background

$H_{40}$: There was no relationship (interaction) between the behavioral loyalties of the customer towards their favorite brand of soap and their socio-economic background
3.21.5 Fifth Objective

The fifth objective was to seek the difference in the brand loyalty among the brands having distinguished competitive strategies.

\[ H_{41} \]: The brand loyalty of the customers towards their favorite brand of shampoo and the differentiation strategy of the brand producers are not associated

\[ H_{42} \]: The brand loyalty of the customers towards their favorite brand of shampoo and the low cost strategy of the brand producers are not associated

\[ H_{43} \]: The brand loyalty of the customers towards their favorite brand of shampoo and the focus strategy of the brand producers are not associated

\[ H_{44} \]: The brand loyalty of the customers towards their favorite brand of toothpaste and the differentiation strategy of the brand producers are not associated

\[ H_{45} \]: The brand loyalty of the customers towards their favorite brand of toothpaste and the low cost strategy of the brand producers are not associated

\[ H_{46} \]: The brand loyalty of the customers towards their favorite brand of toothpaste and the focus strategy of the brand producers are not associated

\[ H_{47} \]: The brand loyalty of the customers towards their favorite brand of oil and the differentiation strategy of the brand producers are not associated

\[ H_{48} \]: The brand loyalty of the customers towards their favorite brand of oil and the low cost strategy of the brand producers are not associated

\[ H_{49} \]: The brand loyalty of the customers towards their favorite brand of oil and the focus strategy of the brand producers are not associated

\[ H_{50} \]: The brand loyalty of the customers towards their favorite brand of soap and the differentiation strategy of the brand producers are not associated

\[ H_{51} \]: The brand loyalty of the customers towards their favorite brand of soap and the low cost strategy of the brand producers are not associated
The primary objective of this chapter had great inclination towards describing in
detail the research design and the quantitative-based empirical methodological approach
utilized in the research study. This chapter also focuses vividly on how the measures were
developed and the various approaches & strategies as suggested by Churchill (1979),
Anderson and Gerbing (1988) will be followed in the measurement purification and
validation stages. The next chapter showcases the noteworthy results of the descriptive
analysis of the research study.

$H_{52}$: The brand loyalty of the customers towards their favorite brand of soap and the
focus strategy of the brand producers are not associated