
CHAPTER-IV

OBJECTIVES AND RESEARCH METHODOLOGY

4.1 Introduction

To stay in the worldwide rivalry or to get the gigantic pieces of the pie every single organization needs to differentiate itself. Today in rivalry market there are different ways and technique to pull the customers even some of the organizations or companies have accomplished remarkable sales and benefit by adopting the various strategy. This distinctive procedure can improve the sale volume of the organizations for here and now yet it isn't viable technique to remain in the market for the long haul. To survival in the market for long-haul, the method can be utilized is brand equity. As it were, the brand equity is the system which is utilized by the different associations to support in the market for quite a while. The brand equity isn't an exclusive the best approach to get the additional premium as opposed to it upgrade their corporate fame, raise brand consciousness, increment customer devotion or loyalty, build sales, and enhance the healthy market share.

The primary objective of this chapter is to talk about the research methodology which is followed by a researcher for this study. The existing pieces of literature facilitated to develop the objectives and hypothesis. To complete this research the convenient sampling technique used. The primary data collected through a structured questionnaire and dispersed online and also offline to various respondents at a separate area of Uttarakhand. The sample size of 402 respondents collected successfully. The various statistical tools such as Percentage analysis, Descriptive statistics, Factor Analysis, ANOVA, t-Test, Regression analysis, Crosstab, and Chi-square usage discussed. In this chapter, an endeavor made, to sum up, the objective of the study, research hypothesis, research methodology, and design, pilot study, sampling design, sample size, data collection and limitations of the study.

4.2 Rationale of the Study

This study is led to gauge the brand equity in the consumer durable segment with specific reference to the washing machine. The brand equity alludes to intangible value to an organization which occurs because of its fruitful endeavors to set up a reliable brand. The consumer durable segment has been the witness of significant growth in recent years; it estimated India is going to become 5th prime consumer durable market by 2025. In durable segment the washing machine having the popularity in the Indian market.

Washing machines have delicately and gradually discovered their way into Indian households, and have now turned into a need in the day to day lives of individuals. Demand has been changing, like other home apparatuses in the nation, by the accessibility of inventive models from domestic as well as global brands, rising disposable incomes, and a changing family course of action. In India, the washing machine segment is considerably under- penetration. In the coming years, with the change in disposable incomes, expanded urbanization, rising affordability, improving electrification in a rural area, a move toward the nuclear family show, this industry can look upward. The washing machine market operated by crucial MNC and local players such as Videocon, Voltas, LG, Samsung, Blue Star, Whirlpool, etc. The washing machine market structure is the type of oligopoly market where the market is shared by very few or small firms and having dominance in the market. There are few players in the washing machine brand, but still having high competition in the market. The washing machine had little existence in the mid 90's in the Indian market. Today, the circumstance is extraordinary, and in the last 20 years, the washing machine is a most common appliance in Indian houses and market after the TV and Refrigerators. As per India's consumer Economy' (ICE 360 °survey), most of the Indian household have TV and Refrigerator and after this washing machine is becoming the demanded product in an Indian household. Therefore washing machine is getting prevalent in today market that's why it is very much essential to know, how to create the brand value and what are the parameters to build it. This study focused on the Uttarakhand market, and it has enormous geographical diversification it comprises both urban and rural market, and geographically it can be divided into three zones, like upper hills, middle hills, and foothills. The Uttarakhand demographics characteristics is changing rapidly, as per the Census of India(2011), the Uttarakhand populace has come to roughly 1.01 Crore with an expansion of 19.17 percent from the previous decade out of that 5,154,178 and 4,962,574 are males and females respectively has increased from

84,89,349, further Census 2011, disclosed that Uttarakhand has literacy rate of 79.63%, total 6,997,433 people were found literate in Uttarakhand out of the whole literate population, 3,930,174 were males with a percentage of 88.33 while remaining 3,067,259 were female with 70.70 percent. These averages of literacy in overall and among male and female have increased since Census 2001, where the male and female literacy rates were recorded as 81.02% and 63.36% respectively. (*ukhfw.org*). Therefore this significant change in the Uttarakhand demographics arises a set of questions, how the state market is developing? Do demographic characteristics have a substantial impact on the consumer perception of brand equity in the washing machine? What are the significant sources of information of washing machine brands? What is the role of marketing media to build the brand equity in the washing machine?

Hence this study analyzes the brand equity in the durable segment with special reference to the washing machine and finds out the parameters which help to create the value of product/brand. The study is noteworthy in both management application and academic perspective. From academicians perspective, this research or study will provide more knowledge into the measurements of brand equity in the washing machine. It will also help the marketer to explore a different area of customers and consumer durable segment in the washing machine which also facilitate to understand their purchasing choice, needs, awareness level, association and various constituents of brand equity.

4.3 Objectives of the Study

In the phase of worldwide rivalry and to hold tight the market, it is essential to assemble brand equity. Global brands building and enhancing brand equity is one of the most creative parts of the business. Notably, with regards to some other segment brand equity components are brand awareness, loyalty, satisfaction, knowledge, perceived quality, association and personality related to the shopper perspective. (Aaker, 2000; Ahmad, 2014; Farquhar; 1989) Proposed that customer-based brand equity or value can make through the more brand loyalty, product image, product awareness, as well as perceived quality and brand association. Farquhar (1989) the critical sources of brand equity are brand awareness & positive brand image. The existing literature discussed the factors that are responsible for brand equity but not cover the vital parts of brand equity on the washing machine in the durable sector. According to the existing pieces of literature, the researcher found some gap and formulated the following objectives:

1. To study the consumer perception towards the brand image, brand personality, brand loyalty, and brand equity of Washing machine.
2. To identify the factors of effective brand and its role in building brand equity of Washing Machine.
3. To study the brand equity and its various constituents of the washing machine
4. To study the role of marketing media and the promotional activities in building the brand equity of Washing Machine

4.4 Research Hypothesis

The prime purpose of the research is to examine the brand equity in the washing machine. According to the existing literature, following hypothesis is assumed for the study.

Hypotheses 1

Ioan (2009) Demographic characteristics age, gender, education, and income have influenced the brand loyalty. Dubois & Laurent, (1994), Tidwell & Dubois, (1996), recommend that demographics influences the perception of the luxury brand. Nyengerai & Manjoro (2014) As the number of people increases in the family, in the same way, their perception toward brand has been changed. Kaswengi (2012) brand equity differs with the demographic characteristics. Therefore, researcher formulates the hypothesis:

***H0:** Consumer perception towards the brand image, brand personality, brand loyalty, and brand equity of washing machine does not differ significantly across their demographic characteristics.*

Hypotheses 2

Simon and Sullivan (1993) marketing activities brand age, public relation, and advertising play a role in brand equity (Farquhar (1989) branding strategy and advertising create substantial brand equity, and sales promotion has no role to build brand equity. Gupta (1988) sales promotion has short-term functions to increase the sales. (Aaker, 2000; Kaswengi; 2012, Ahmad, 2014; Farquhar; 1989) Marketing activities (celebrity endorsement, web advertising, event marketing, sponsorship, non-price promotions) have a decisive role in branding equity formation. Zarantonello, & Schmitt (2013) event marketing (trade and street events, sponsored events) contribute to brand equity. Mongkol (2014) marketing communication (direct marketing, personal selling) directly linked to

brand equity. Montaner, &Pina (2008) price promotions activities have no contribution toward the brand equity. Therefore, researcher formulates the hypothesis:

H0: There is no association between the role of marketing media and perceived brand equity of washing machine.

Hypotheses 3

Grover and Srinivasan (1992) Brand loyal customers buy a brand regularly and refuse to go along with another brand. Therefore, when consumer become loyal, it increases brand equity. Helsen and Schmittlein (1994) when consumers become loyal they always ready to pay a premium price for their preferred brand. Shocker and Weitz (1988) brand image and brand loyalty are the functions that build brand equity. Ahmad & Thyagaraj (2014) brand personality connect to brand trust that helps to make brand equity. Hence, hypothesized that:

H0: Brand image, brand personality, brand loyalty, has no significant impact on brand equity of washing machine

4.5 Research Methodology and Design

Research methodology may be understood as the science of study how research is done significantly and scientifically. The following research has been done to know the consumer perception towards the brand image, brand personality, brand loyalty, and brand equity of washing machine and various constituents of brand equity of washing machine in Uttarakhand. For this research, research methodology incorporated is described in the following subsections: the research design, questionnaire design, the source of data, sampling design followed by sampling techniques used and data collection instruments.

4.5.1 Research Design

The research design defined as a blueprint or detailed plan for how a research study is to be completed- operationalizing variables so they can be measured, selecting a sample of interest to study, collecting data to be used as a basis for testing hypotheses and analyzing the result. The essential requirement of design is to provide a framework and direction for the investigation efficiently and effectively. The researchers have defined some research design for investigating the objectives. The different research design is categorized under Exploratory research study and Descriptive research design. Descriptive as well as exploratory research used in present research. The exploratory research design is the most straightforward research structure. The fundamental objective of the study is to explore

and obtain clarity about the problem situation. It is flexible in its approach, and it is mostly involved in the qualitative investigation. The sample size is not included, and at times it might only cover unstructured interviews with a couple of subject experts. For this study published materials collected from different sources such as business magazines, newspapers, websites, and research papers of brand equity. These released documents were used by the researcher to explore the subject with the aim to understand brand equity in the washing machine. The descriptive research design is concerned with describing the characteristics of a particular individual or group. It also determines the frequency with which something occurs. The investigation directed by using questionnaire method. An organized questionnaire outlined to covering a different part of brand equity. The questionnaire was dispersed online and also offline to various respondents at a separate area of Uttarakhand to look for their conclusion about washing machine brand equity and their different constituents. The results are reported descriptively along with statistical inferences.

4.5.2 Pilot Survey

After the designing the questionnaire for the survey it was imperative to test the questionnaire. Reliability of the scale items was tested by Cronbach's alpha test, and the value was .759 that shows construct fulfill the minimum requirement of 0.70. A sample size of 43 taken for a pilot study. A pilot study conducted by using questionnaire and the questionnaire was distributed in Dehradun and Haridwar.

4.5.3 Final Survey Questionnaire

Based on the experience and reliability of the questionnaire during the pilot survey and on the completion of the data analysis of the data obtained from the pilot study, it was found that questionnaire needed correction. Therefore some changes have been made and the improved or corrected questionnaire used for the final data collection.

Table No –4.1 Reliability & KMO Test

Cronbach's Alpha	.940
KMO	.834

The results of the test revealed that the data collected from the respondents were reliable, it depicts Cronbach's alpha is .940. Furthermore the KMO value indicates .834, therefore, it means data collected from the respondents were satisfactory for testing.

4.5.4 Sampling Design

Sampling design refers to the process of selecting samples from a population. According to Kothari (2004), the ultimate test of a sample design is how well it represents the characteristics of the population. The reason for the sampling in this study is to lower cost, increase accessibility to study the population and increase the speed of data collection. To complete this research the convenient sampling technique used and the sample size of 402 respondents of the various framework from unique places to ponder the issue under examination. As per the sample size determination, 330 sample was decided, although bigger sample may result in lesser sampling error thus 500 structured questionnaires were administered to collect primary data. The responses so received were 422, and only 402 responses are found complete and utilized for the study of concern.

4.5.5 Sample Size

Sample size assurance is the act of picking the quantity of observation or imitates to incorporate into a factual sample. The sample size is a vital element of any empirical investigation in which the objective is to make inductions about a populace from a sample. Respondents of 402 from various class and category chose to study the problem under research.

Determination of sample size:

To complete this research the sample size of four hundred and two (402) respondents has taken conveniently. The three hundred and thirty (330) respondents as a sample size were determined, which is utilized by the state of large universe size. The sample size determined that:

$$n = \left(\frac{Z(\sigma)}{(\bar{x} - \mu)} \right)^2$$

Z = confidence level 95%

σ = Standard Deviation of the pilot study sample

\bar{x} = Mean of the pilot study sample

μ = 5% of the mean of the pilot

$$\text{In this condition } n = \left(\frac{1.96 * 1.37150}{2.9577 - 2.809815} \right)^2$$

By solving this equation, we get n=330

Using the distribution of the demographic characteristics in the pilot study data, due to high variance in the occupation level of the respondents, this is used for sample size

determination. As per the formula the recommended minimum size of the sample is 330. Although bigger sample may result in lesser sampling error thus, the researcher has tried to collect the bigger sample.

4.5.6 Data Collection Method

Both secondary and primary information used to examine the issue underthought. Auxiliary information gathered from different sources like consumer durable industry websites, books, various journals and research paper, other site or significant source. The essential or primary data gathered from different respondents by using survey. A study organized composed covering all the measurement of the issues under examination.

Primary data collection

Here, researcher gathers data himself by utilizing technique as surveys. The preferred standpoint is that the collected information is extraordinary, so it gives all its significance to the work. Primary data is being used in the data analysis part. The method picked is a survey with the assistance of questionnaire (instrument). The motivation behind the review is to check if the hypothesis is adjusting to the research outcomes (reality).

Secondary data collection

The information that has just been found by another person, for an alternate reason from you is secondary data. Auxiliary information was utilized in the first part as well as second part, concerning the consumer behavior and brand management, and furthermore when building up the hypothesis about brand equity. Together the secondary information, many sources were utilized. Firstly, a few books on brand management and consumer behavior were taken at the library keeping in mind the end goal to discuss the brand equity and marketing in general. Likewise, many genuinely fascinating articles from the Internet were found, about for consumer durable segment, consumer behavior and brand equity in statistical data points.

4.5.7 Questionnaire Design

A very much organized and pre-trying questionnaire was built and administered to get the required data from the respondents. Questionnaire configuration or design for inspiring precise answers from respondents and makes it conceivable to break down the responses to be utilized as decision making. Being the primary method or essential instrument of information gathering, it is indispensably vital to the helpfulness of the research.

While outlining a questionnaire the researcher has remembered the dialect utilized for asking inquiries from the response given the statistic conditions (questions confined in

English yet the researcher through his perception flipped amongst English and Hindi) The researcher figured the questionnaire in exceptionally straightforward words that can be comprehended efficiently or deciphered. The researcher has endeavored to maintain a strategic distance from superfluous questions with the goal that it doesn't tire and take less time to the respondents. The questionnaire designed to the point that it draws in full co-operation and attention from the respondents. It was a blend of questions identified with individual details of respondent and also questions related towards the brand image, brand personality, brand loyalty, brand equity and marketing media. The primary thought process of the researcher is to accumulate data regarding demographic profile of consumers belonging to Uttarakhand.

Validity of Questionnaire

The validity indicates the degree to which an instrument measure what it is supposed to measure. The content validity is the extent to which the measuring instrument represents the factor under study. The content of the questionnaire was designed with theoretical inputs taken from the printed, published materials, and further, it was validated with experts and peer group.

The administration of the questionnaires

Before to collect the final data, it was vital to pre-test the questionnaire, so it tested on forty-three peoples to keeping in mind the end goal to check whether the results are accurate or not, and for this situation, on the off chance that it will be imperative to alter a few questions. The questionnaires administrated by two strategies: By heading off to the distinctive customers and requesting that straightforwardly completes the survey. In any case, the issue was that occasionally, the respondents did not have time. Since time was short, thus it has been chosen to finish the study by new advancements the questionnaires have sent to customers through e-mails, Google Docs. With these methods, the four hundred two questionnaires collected efficiently.

4.5.8 Data Analysis Tools Used

After gathering the data through questionnaire it was methodically organized, arranged and proper analysis has done. The techniques used in this research for data analysis are Univariate and Bivariate. The various statistical methods used to complete this research are following:

Percentage analysis

Percentage analysis is the point at which you advise your outcomes to demonstrate or refute your unique figure or theory. Percentage analysis helps to clarify why your findings turned out along these ranks. In other words, the percentage analysis is the part of 100 percent which allows representing the raw data or information into the percentage for better comprehension of gathered information. The percentage analysis used in the demographic profile to know the percentage of respondents concerning their age, income, education, occupation, gender and family size, etc.

Factor Analysis

Factor analysis is a valuable and a prevalent method used for the data reduction. When research has some variables that are correlated, then factor analysis is used to reduce all variables into fewer. Factor analysis is the technique of cutting a large number of variables into some meaningful. Factor analysis is a technique that requires a big sample size. Factor analysis based on the correlation matrix of the variables involved and correlations usually need a large sample size before they stabilize. The purpose of factor analysis is to discover simple patterns of relationships among the variables. In particular, it seeks to discover if the observed variables can be explained mostly or entirely regarding a much smaller number of variables called factors. Factor analysis incorporates both common factor analysis and component analysis. The different types of factor analysis are exploratory factor analysis, confirmatory factor analysis, and structural equation modeling. The basic terms used in the factor analysis are:

Basic Terms in the Factor Analysis

Bartlett Test Of Sphericity It alludes to the statistics for deciding relationship between's variable.

Communality shows how much every factor represented by the unknown element taken together. The total variance or amount of variation shared by a single variable with the various components being considered.

Correlation matrix it is the lower triangle Matrix which indicates the primary correlation or connection between all the conceivable pairs variable incorporated into the analysis.

The eigenvalue is the entirety of squared value of the variable, and it indicates total variance clarified by each factor. It shows relative significance of each element in representing the specific arrangement of a variable being investigated.

The factor is a direct combination of factors and a construct which can see through the load variable

Factor loading factor loading is relationship amongst variable and elements. Otherwise called factor variable correlation these values clarify how intently the variables are identified with every single one of the found factor.

KMO (Kaiser Meyer Olkin) is utilized for measuring the fitness of factor analysis.

Factor Matrix factor matrix is including the factor loadings of all factors on all the removed components.

The exploratory factor analysis used in this research. In this study, different variables related to brand equity in washing machine asked the question. The twenty-two variables were made to cover the brand equity aspect in the washing machine, and with the help of factor analysis a large number of variables reduces to some meaningful data

Analysis of Variance (ANOVA) Test

ANOVA (analysis of variance) developed by the professor R.A. Fisher the concept of Analysis of variance gives a statistical test of whether the means for a few groups are on the whole equivalent and in this way summed up t test more than two groups. ANOVA is valuable in looking at two, three or more means. ANOVA compare at least two populace of interval data it particularly decides if a variance exists between the populace means. Analysis of variance is a valid method that can be utilized to assess whether there are contrasts between the average value or mean, over a few populace groups. According to Harnett and Murphy 1975, the pith of ANOVA is the aggregate sum of variation the arrangement of data separated into to sort the amount which can be a credit to risk and that sum which can be ascribed to indicate causes. The ANOVA is used to determine whether there are any significant differences between the means of two or more independent groups. It is used to test the hypothesis that the means of two or more populations are equal at a given level of significance. If the calculated value of F is higher than the critical or tabulated value, then the null hypothesis is rejected. But if the computed value of F is smaller than the critical or tabulated value, then the null hypothesis is accepted.

In this study, one way ANOVA is applied to know whether there are significant differences in the mean of different factors of brand equity of washing machine across the demographics of respondents of Uttarakhand.

Crosstab analysis

A cross-tabulation analysis allows comparing two or more groups. The categories of a variable define these groups. Comparison of these groups performed regarding their respective frequency distributions across the categories of another variable. By comparing differences in these frequency distributions, one can assess whether a relationship exists between the two variables or not. In this study, the crosstab analysis used to know whether there is significant relationship exists between the demographic characteristics and brand image, personality, loyalty and brand equity. Further, crosstab analysis used to tell whether there is significant relationship exists between marketing factors and brand equity.

Chi-Square Test

Chi-square (χ^2) is the statistical tool generally used to contrast observed data and information that is expected to get as per particular hypothesis. In the simple words, the chi-square (χ^2) test is used to know the degree of association between two variables and to test whether a significant difference exists between the observed number of responses and an expected number of responses based on the null hypothesis in each category or class. Chi-square is the sum of the squared difference between observed (O) and the expected (E) data divided by the expected data in all possible categories. The formula of chi-square is $\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$. In this study, the chi-test is applied to know the consumer perception of the brand image, brand personality, brand loyalty and brand equity across the demographic characteristics and to know the degree of association between the marketing media and brand equity of washing machine.

T-Test

A t-test is used to verify whether the mean of a population significantly differs from a specific value (called the *hypothesized mean*) or from the mean of another population. T-test helps to evaluate the means of two variables or different groups and provides information to check whether the means of the two populations significantly differ. It is used to test the hypothesis at a given level of significance (α). To determine whether the difference is statistically significant, the t-test calculates a t-value. The formula to calculate the value of t is

$$t = \frac{\bar{x} - \mu_0}{s/\sqrt{n}}$$

If the computed value of t is higher than the critical or tabulated value, then the null hypothesis is rejected. But if the calculated value of t is smaller than the critical or tabulated value, then the null hypothesis is accepted. In this study, the t-test is applied to know the very important and important brand attributes to selecting the washing machine brand in Uttarakhand.

Regression Analysis

The regression analysis is used to verify the relationship between two or more variables. In the simple words, regression analysis is a technique that used to check the nature of relationships among dependent variable and (one or more) independent variables. The regression technique helps to clarify or understand how the value of (one or more) independent variables closely related to the dependent variable. Regression also helps to know when one or more variables (independent variables) vary how they significantly impact on the dependent variable. Therefore regression analysis helps to explore the relationship between variables. It is imperative to know that regression analysis is fundamentally distinguished from the correlations amongst different variables. Correlation depicts the strength of the relationship among variables, although regression analysis tries to portray that relationship among these variables in additionally.

In this study, the regression analysis has been used to verify the relationship between various independent variables such as consciousness creating ability, value-creating ability, and association inviting quality, Need Satisfying capacity, Uniqueness and dependent variable brand equity of washing machine. Further, regression analysis is used to know the relationship between various marketing factors and their effect on brand equity.

4.5.9 Limitations of the study

This study suffered from a few limitations that may provide an opportunity for researchers to carry out further research. Firstly, the study was limited in Uttarakhand state, and less sample size has taken, therefore; outcomes may not be generalizable to other parts of the country. Secondly, for this study researchers collected the data for different districts of the entire state, while this whole state has a lot of geographical diversification. Therefore, it may happen that purchasing pattern, attitude, and perception, personalities, advertising

media and market knowledge of the hill areas customers are different from other customers. Thirdly this study examined that how to make brand equity in the washing machine and not covered the services area. Furthermore, the other variables such as availability, acceptability electrification or continuous power supply, water scarcity may be the significant reasons that impact the brand equity or brand creation in washing machine not covered.