Chapter 4

RESEARCH METHODOLOGY AND DESIGN
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4.1. Overview

This chapter describes in detail the methodology that is used in this study. The main approach of the study is quantitative however it also includes qualitative analysis and the results have been drawn on the interpretation of both quantitative and qualitative data. The steps for the research instrument development have been given. Here the Dynamics of Brand Personality Congruence and Its Influence on Trust, Consumer Satisfaction and Loyalty in the Banking Sector is studied using classical statistics and second generation statistical tools like Structural Equation Modeling (SEM) using PLS.

4.2 Research Framework

The approach of research for this study is partly qualitative and quantitative up to a large extent. It could be considered qualitative as it would involve meta-analysis of the existing literature, as a thorough review of literature pertaining to models for BPC and measurement of Brand Personality is conducted. The research becomes quantitative as it involves testing of hypothesis mainly through statistical procedures. The overall objective of this research study is establishing a relationship between BPC and post-purchase evaluations which include Satisfaction, Trust and Loyalty. The study is divided in two main phases: The Phase I would primarily involve the development of the BPC scale which will be based on Aaker’s Brand Personality Scale (1997) and would be in specific relation to the Banking Industry. This phase will also include testing the scale for reliability and uni-dimensionality. The Phase II would include testing the relationship between BPC and the post-purchase evaluation (Trust, Loyalty and Satisfaction). The series of steps followed sequentially to conduct the research is given in the figure 4.1.
4.3 Types of research and the variables

This is primarily a causal analysis, from the study results of which, inferences are drawn and implications are made. There are 3 types of variables used in this research, that is, endogenous, exogenous and extraneous variables. The dimensions of these variables are also mentioned in the previous chapter. A conceptual framework with these variables is framed and the hypothesis is represented.
4.3.1 Exogenous Variables

Exogenous variable in this research is Brand Personality Congruence (BPC): BPC has five dimensions identified as Excitement (BPC1), Competence (BPC2), Ruggedness (BPC3), Sincerity (BPC4) and Sophistication (BPC5).

\[ \text{BPC} = f (\text{BPC1, BPC2, BPC3, BPC4, BPC5}). \]

Other independent variables identified in this research investigation are demographic variables such as Gender, Income bracket, Age Group, Years of Experience, Number of Account, Nature of Account and Location of Bank.

4.3.2 Endogenous variables

Dependent variables identified in this research investigation are Satisfaction, Brand Loyalty and Trust.

**Satisfaction (SAT):** SAT has four dimensions identified as Pleasant (SAT1), Satisfactory (SAT2), Favorable (SAT3), and Overall (SAT4)

\[ \text{SAT} = f (\text{SAT1, SAT2, SAT3, SAT4}). \]

**Brand Loyalty (BRL):** BRL has two dimensions identified as Affective (BRL1) and Action (BRL2) Loyalty.

\[ \text{BRL} = f (\text{BRL1, BRL2}). \]

**Trust (TRS):** TRS has two dimensions identified as Credibility (TRS1) and Benevolence (TRS2).

\[ \text{TRS} = f (\text{TRS1, TRS2}). \]
4.3.3 Extraneous variables

In this research investigation the following variables were considered to be extraneous to the study: Interest rates, Inflation, Exchange rates, GDP Growth. During the course of this research, measures were taken such that these variables do not affect dependent variables.

4.4 The research methods and the tools

The study is conceptual, qualitative and quantitative. Setting a research design requires researchers not only to consider philosophical assumptions, perspectives, or underlying epistemologies but the type of research, the general research method, the data collection technique, and the data-analysis approach in relation to the research questions (Matzler et al., 2006). As explained in chapter 1, this is basically an “Ex post facto” kind of research where a researcher has no control over the variables, he can only report what has happened and what is happening (Kothari, 2008).

**Conceptual:** The study is conceptual as a new model of Brand Personality Congruence is being developed for the banking industry.

**Quantitative:** The study is quantitative as it is analyzing the relationship between various exogenous and endogenous variables under the realm of Brand Personality congruence for banking industry through several statistical tools. The study is also analytical and empirical in nature.

**Qualitative:** The study is qualitative as focus group discussions and interviews with banking customers and bank employees is being analyzed to understand the Brand personality congruence with respect to various factors.
The study requires the data from banking customers on their perception of brand personality congruence and various factors affecting it like Trust, Satisfaction and Brand loyalty. The data is collected mainly through primary sources using a questionnaire and interview. The statistical methods applied on the data collected are both inferential statistics and descriptive statistics. While inferential statistics is used to draw inferences and form conclusions based on them descriptive statistics on the other hand is used describe and trends and the pattern of the data collected.

Descriptive statistics comprise using of tools like mean, demographic distribution of respondents, standard deviation, overall perceptions of the respondents Skewness and Kurtosis, and reliability and validity tests. The inferential statistics in this study include statistical tests such as t-test and the second generation statistical technique – structural equation modeling (SEM) to test the hypotheses which have been formulated to answer the research questions.

4.5 Data Collection

This research is oriented towards Brand Personality Congruence and various other factors influencing BPC and the data is collected mainly through primary sources using a questionnaire, interview and focus group discussion. The data was primarily sourced through a web-based survey questionnaire using simple random sampling method. The Questionnaire was built focusing on banking domain which includes Private Sector Bank, Public Sector Bank, Cooperative Bank. The respondents chosen for the research were having a bank account.
4.6 The Measurement instrument

A self-administered questionnaire was used as a measurement instrument in this research. The questionnaire used as a metric in this research was framed in standard form. The questionnaire covers the data both in qualitative and quantitative form and was able to convert the qualitative data into quantitative form. The questionnaire as a metric for this research was chosen since it was economic and convenient way to do this research where the questionnaire were filled either directly or through electronic means covering the entire tier 1 and tier 2 cities of India.

4.6.1 Development of Questionnaire

The questionnaire was developed focusing on the banking domain (Annexure I & II). The questionnaire was developed by meta-analysis of the literature on the variables. The questions were framed covering the objectives mentioned in the previous chapter. The problem areas were categorized, simplified and redundancy was eliminated to develop a set of questions in a standard form for the research questionnaire. The questionnaire was designed covering the demographic details and also had questions related to the constructs – Brand personality Congruence (BPC), Satisfaction (SAT), Loyalty (BRL) and Trust (TRS). The data was collected in the form of open ended questions, opinions, suggestions, mutual exclusive, multiple choice, Likert scale of 5 point degree (1 to 5) with 1 being “Strongly Agree” and 5 being “Strongly Disagree”. The respondent’s identity was not revealed in this research to maintain confidentiality.

4.6.1.1 Brand Personality Congruence (BPC)

Brand Personality Congruence in this research is the gap between the self-evaluation of the consumer’s own personality and the brand personality of the bank as
based on the perception of the customer. It was used as one of the major construct in this research. BPC has five dimensions which are Sincerity, Excitement, Competence, Sophistication and Ruggedness. The effect of Brand Personality Congruence on other endogenous variables Satisfaction, Trust and Loyalty was studied in this research.

4.6.1.2 Satisfaction (SAT)

Satisfaction is identified as one of the next major construct in this research. Satisfaction defines and measures the post usage state of one time or repeated use of the bank’s service in the minds of the respondents. There are 5 dimensions of Satisfaction identified in this research. The dimensions of construct Satisfaction are Commitment, Value for Money, Dependability, Diligence and Service Orientation. The effect of Satisfaction on other constructs such as Brand Personality Congruence, Trust and Loyalty was studied in this research and hypothesis were framed on it.

4.6.1.3 Brand Loyalty

Brand Loyalty of the Bank is a deep commitment or opt for the service of the same bank consistently in the future despite of any influential marketing of others to switch over. Brand loyalty is one of the important construct used in this study. There are 2 dimensions of Brand Loyalty identified in this research. The dimensions of this construct are Affective, Action and Overall Brand Loyalty. The effect of Brand Loyalty on other constructs such as Brand Personality Congruence, Trust and Satisfaction was studied in this research and hypothesis were framed on it.

4.6.1.4 Trust

Trust is identified as one of the important construct in this study. Trust is a confidence of the customers in exchange of the bank’s Brand reliability and integrity.
There are 2 dimensions of Trust identified in this research. The dimensions of this construct are identified as Credibility, Benevolence and Overall Trust. The effect of Brand Trust on other constructs such as Brand Personality Congruence, Brand Loyalty and Satisfaction was studied in this research and hypothesis were framed on it.

4.7 Statistical Methods and the Instruments

4.7.1 Identification of the sample and rationale for its selection

Simple Random Sampling is adopted for the estimation of sample size. The survey has been based on the customer base from 6 banks. The estimate of customers in these banks rounds to 120 million. The below mentioned formula was used to calculate the sample size (Kothari, 2008):

\[ N = \left( \frac{Z^2 \cdot p \cdot q \cdot N_p}{e^2 \cdot (N_p - 1) + Z^2 \cdot p} \right) \]

Where,
\[ N = \text{Sample size} \]
\[ p = \text{Proportion of defectives in the universe (Based on the pilot study, a 2\% defect is assumed).} \]
\[ q = (1 - p). \]
\[ z = 1.96 \text{ (as per table of scores in a normal distribution within a selected range of z for a confidence level of 95%).} \]
\[ e = \text{Acceptable Error (an error of 2\% of the true value is assumed).} \]
\[ N_p = \text{Size of population} = 400,000,000 \quad n=189 \]

The mathematics of probability proves the size of the population is irrelevant unless the size of the sample exceeds a few percent of the total population you are examining. This means that a sample of 400 people is equally useful in examining the opinions of a state
of 15,000,000 as it would a city of 100,000. For this reason, The Survey System ignores the population size when it is "large" or unknown. Hence as a totality the sample size of 400 is chosen for this study.

4.7.2 Validity and Reliability of the Instrument

The instruments used in this research have a proven “content and criterion related” validity. Also, the language of the questionnaire was revised wherever necessary to make the questionnaire more precise and understandable.

4.7.2.1 Content Validity

Content validity refers to “the degree to which items in an instrument reflect the content universe to which the instrument will be generalized” (Straub et al., 2004). Generally, content validity is not easy to assess, since the commonly employed evaluation of this validity is judgmental and highly subjective (Straub et al., 2004). The content validity is further established through adoption of the instruments validated by other researchers.

4.7.2.2 Construct Validity

“Construct validity” assesses whether the scales were measuring what they were designed to measure. Studies by a number of researchers (Wu & Wang, 2006; Thomas, 2006) validated the use of these scales. The questionnaire was mailed to a group of 43 respondents during pilot study to assess the understandability, readability and suitability of the instrument.

Convergent and Discriminant Validity

To construct validity of the questionnaire was assessed through the measurement model analysis of the SEM model which helps in determining the convergent and
discriminant validity of individual constructs. The AVE values for all reflective constructs were greater than the minimum recommended value of 0.50 indicating good convergent validity. The square root of Average Variance Extracted for each construct in the model, as reported in the diagonal of the correlation of constructs matrix is larger than the corresponding off-diagonal correlations of the construct to their latent variables, confirming discriminant validity.

4.7.2.3 Reliability

Cronbach’s alpha values are greater than 0.70 demonstrating that all constructs have adequate reliability assessment scores for internal consistency and scale reliability (Gefen et al., 2000). Additionally, the composite reliability values for all the constructs in the research model are greater than 0.75 indicating good reliability score for the constructs.

4.7.2.4 Practicality of the Instrument

“Practicality” of a measuring instrument is judged in terms of economy, convenience and interpretability, as mentioned before. This is one of the reasons for retaining as minimum questions as possible in the questionnaire, at the same time, taking care to give a maximum coverage of the study topic. “Convenience” forms another key factor of practicality. The questionnaire was designed to be self-administrative in nature and clear guidelines were given in the instrument itself, so that there would be minimum number of queries regarding how it has to be filled. As BPC is relatively new in banking sector some key definitions were included at the end of the questionnaire so that the respondents would have adequate understanding of the subject before they attempt to answer.
The Likert scale scoring keys were stated in the beginning and separate columns were provided for clicking on the responses, under each category. Interpretability of the items was given enough importance to see that each question gives only one meaning and is free from ambiguity.

4.7.2.5 Pilot study

A pilot study was conducted on about 43 respondents and test of reliability was conducted using Cronbach alpha on all the constructs of the study. The acceptable value of Cronbach alpha should be above 0.70 and less than it is questionable. Since Cronbach’s Alpha for all the parameters were >0.70 (acceptable value) it showed that there is internal consistency within the parameters and all the parameter pass the test of reliability.

4.7.3 Statistical Analysis

Aaker scale and various other factors collected are analysed using descriptive statistics like mean, median, mode, standard deviation, skewness and kurtosis. Various tests are performed to test the dependency and validity of the data like t-test, Chi square test, ANOVA, Pearson and Spearman Correlation, and Factor Analysis.

4.7.3.1 Descriptive Statistics

Skewness and Kurtosis: Skewness is an indicator used in distribution analysis as a sign of asymmetry and deviation from a normal distribution, whereas, Kurtosis is the indicator used in distribution analysis as a sign of flattening or "peakedness" of a distribution. If Skewness is greater than zero it is a right skewed distribution, with most values are concentrated on left of the mean, with extreme values to the right. If the Skewness is less than zero it is a left skewed distribution and most values are concentrated on the right of
the mean, with extreme values to the left. If Skewness is equal to zero the mean equals median and the distribution is symmetrical around the mean and this refers to the ideal situation. In case of the Kurtosis, if the value is above 3, it is called Leptokurtic distribution, sharper than a normal distribution, with values concentrated around the mean and thicker tails. This means high probability for extreme values. If the Kurtosis is less than 3, it is called Platykurtic distribution, flatter than a normal distribution with a wider peak. The probability for extreme values is less than for a normal distribution, and the values are wider spread around the mean. If the Kurtosis equals 3, it is called Mesokurtic distribution and represents normal distribution. This analysis has been performed in this research as it is important to confirm the normality of distribution for applying the statistical techniques.

Overall Perceptions: To study the overall perception of the respondents about the four constructs, the response on the Likert 5-point scale was rated under five distinct categories. If the response was 1 it was rated as “Strongly Agree”, 2 was rated “Agree”, 3 was rated “Neutral”, 4 was rated as “Disagree” and 5 was rated as “Strongly Disagree”, based on the total responses received on the questionnaire on these categories for the individual constructs. Based on the total number of responses in each category, the percentage response was calculated in each category so as to obtain the overall perception on each of the constructs.

4.7.3.2 Inferential Statistics: Structural Equation Modeling (SEM)

Structural Equation Modelling is a technique which enables us to link several dimensions together and establish the relationships between the dimensions. It gives the inter-relationship between the exogenous and the endogenous variables of study.
Exogenous variables are independent variables. These variables do not vary when other associated variables vary. These are the governing variables which has the ability to change the value of other variables. Independent variables vary independently and in SEM they are called exogenous variables. Endogenous variables are dependent variables. The values of these variables are dependent on another set of variables are called independent variables. If the value of exogenous variables varies the value of endogenous variable also varies.

In this research second generation statistical analysis (SEM) was made. The software which was used in this research is SmartPLS (V2.0). The data was collected for the dimensions BPC, BRL, SAT and TRS using the survey instrument. The dimension BPC is measured by 5 indicators, the dimension BRL is measured by 4 indicators, the dimension SAT is measured by 4 indicators, the dimension TRS is measured by 4 indicators. In SmartPLS the nodes indicate the major constructs BPC, BRL, SAT and TRS. The nodes are linked to each other as per the hypothetical research model.

4.8 Limitations

The structural equation modeling approach using partial least square method (PLS) which is used in this research is not suitable for all kind of statistical analysis. Some of the limitations of this method are it requires high valued structural path coefficients if sample size is small, cannot model uni-directed correlation resulting in biased component estimation, loading and path co-efficient.
4.9 Summary

This chapter details about the methodology of study used in the research. A research framework was built and a detailed explanation of methods and tools used in the research are mentioned. Organizational profile, Metric and Statistical methods and instruments used were briefed out. The study was conducted on the banking sector in tier 1 and tier 2 cities of India. Questionnaire was used as a standard measurement tool for this research and the validation of the metric has justified its most appropriate use for the obtaining of the results which are reliable and practicable. The discussions of reliability, validity and practicality have guaranteed the precision and accuracy of the results. Statistics used for the data is identified as demographic statistics and inferential statistics. The demographic statistics include finding Mean, Median, Standard deviation, Kurtosis and Skewness. For inferential Statistics Structural Equation Modelling Techniques was used to find the inter-relationship between the exogenous and the endogenous variables of study.