CHAPTER – 4

RESEARCH METHODOLOGY

4.1 Introduction

The methodology is the guiding principle for the creation of knowledge (Yeganeh, Su and Chrysostome 2004). The cross cultural research poses great challenges than studies done within a single culture or country (Sivakumar and Nakata 2001). Cross-cultural research is difficult and it consumes time and resources (Sekaran 1983).

The lack of sufficient attention to methodology in cross-cultural research is a hindrance in concluding the effect of culture on managerial actions (Cavusgil and Das 1997). Recognizing the importance of methodological issues in cross-cultural research have been the subject of study of many researchers across several disciplines (Green and white 1976; Sheth and Sethi 1977; Sekaran 1983; Parmeswaram and Yapral 1987; Durvasula, Lysonski and Andrews 1993; Malhotra, Aggarwal and Peterson 1996; Cavusgil and Das 1997; Lenartowicz and Roth 1999; Salzberger, Sinkovics and Schlegelmilch 1999; Luna and Gupta 2001; Sinkovics, Penz and Ghauri 2004; Yeganeh, Su and Chrysostome 2004; Ewing, Salzberger and Sinkovics 2005).

This chapter deals with the methodology adopted in undertaking this research. It begins with a brief description of cross-cultural research, followed by the research methods adopted in this study. The issues in cross-cultural research methodology are elaborated and accordingly the chapter follows the five step sequence: problem definition, approach development, research design, fieldwork, and data analysis.

4.2 Cross-Cultural Research

The research design that includes culture is referred to as cross-cultural research. Nasif et al. (1991) define cross-cultural research "as the study that has culture as its main dependent or independent variable" (Yeganeh, Su and
Research conducted between different nations representing different cultures (Hofstede 1980; Roth 1995; Steenkamp 2001) and every other study which involves culture as independent variable (Merritt 1998; Lee and Peterson 2000; House et al. 2002; Pheng and Yuquan 2002; Chiang 2005; Dwyer, Mesak and Hsu 2005; Lam and Lee 2005; Sigala 2006) is a cross-cultural research. So any research conducted with culture as one of the variables whether in international arena, in different organizations or within national boundaries, can be grouped under the rubric of cross-cultural research.

Most of the cross-cultural research is based on the realistic perspective and adopts a positivistic/analytical research strategy, which insists on methodological unity in natural and social sciences. The hermeneutics hold that natural science methods are unsuitable in social sciences and the extent to which a positivistic approach can examine a complex concept like culture has been questioned by many scholars (Yeganeh, Su and Chrysostome 2004). The proponents of positivistic approach argue that the problems encountered in positivistic research are due to underdeveloped methods and as advanced methods are developed the quality of research will improve (ibid.). Hofstede (2001) believes that like forces in physics we use constructs but constructs contain an element of subjectivity on the part of the researcher. The models are used as simplified designs for understanding and visualizing something too complex like culture, which helps us to turn our subjectivity into process (ibid.). The constructive perspective along with realistic perspective helps to understand culture and its impact in a better way (Yeganeh, Su and Chrysostome 2004).

The epistemological and methodological issues are matters of concern in cross-cultural research. Cross-cultural research is still in infant stage as culture has not been specifically defined and the field is bereft of sound theories (Sekaran 1983). Malhotra, Agarwal and Peterson (1996) have organized the methodological issues around the six-step marketing research process: problem definition, approach development, research design formulation, field work, data analysis, and report preparation and presentation.
4.3 Problem Definition

Defining a problem in cross-cultural research is more complex than in domestic research (Malhotra, Agarwal and Peterson 1996). The formulation of the research problem is the single most important step in the research process (Green, Tull and Albaum 2004). The understanding of the cross-cultural environment is a basic necessity for research objective formulation, so research objectives in different cultural contexts are different than for single culture (Usunier 2000, p.211).

Epistemology or the theory of knowledge provides us with the guidelines for the methodologies to be employed and so they affect the research process (Yeganeh, Su and Chrysostome 2004). Methodology cannot be studied in a vacuum and it has to be linked to the knowledge domain (Venkatesh and Dholakia 1986).

In the initial stage to gain insight into the issues involved in cross-cultural research and consumer behavior detail literature review was undertaken. The literature was investigated to explore the issues in culture and consumer behavior in the Indian perspective. The detailed literature review has been presented in chapters 2 and 3. There was convincing literature, which suggested that culture influenced behaviors (Henry 1976; Sheth and Sethi 1977; Hofstede 1980; Raju 1995; Roth 1995; Applbaum and Jordt 1996; Aaker and Williams 1998; Steenkamp, Hofstede and Wedel 1999; Aaker 2000; Briley, Morris and Simonson 2000; Mesdag 2000; Usunier 2000; Luna and Gupta 2001; Steenkamp 2001; Moijj and Hofstede 2002; Kau and Jung 2004; Moijj 2004; Ogden, Ogden and Schau 2004; Salciuvien, Auraskeviciene and Lydeka 2005; Chiang 2005). The literature review reveals that there is preponderance of studies delimiting culture at the national level. Though countries are convenient and most popular unit of analysis but they may not be the most appropriate units from marketing viewpoint (Craig and Douglas 2003). Though there is sufficient literature on cross-cultural research at the level of nations but there is a gap in research literature at the sub cultural level and this gap “handicaps marketers when making tactical decisions related to ethnic or subcultural marketing”
(Ogden, Ogden and Schau 2004). In the Indian perspective the gap seems to be
much more pronounced, as the literature is bereft of cross-cultural consumer
research at the sub group level. The existing literature generally regards India as
a single culture having universal cultural values all over the nation
(Mandelabaum 1972; Hofstede 1980; 2001; Mehta and Belk 1991; Venkatesh
1995; Mathur, Zhang and Neelankavil 2001; Kakkar et al. 2002; Chhokar 2007). It
would be fallible to use nation as a surrogate for culture in case of multicultural
India (Malhotra, Peterson and Agarwal 1996). Large countries like India regions
can be divided on the basis of geographic, climatic, economic, linguistic and
ethnic lines which are different culturally (Hofstede et al. 2007). There was need
felt to address two research questions which emerged as a result of examination
of literature: Are there cultural differences between the different states in the
different regions of India? If the cultural differences existed how do they
influence the consumer behavior in these states? These two problems provided
foundations for the initiation of this project.

4.4 Research Objectives

In International research the operation of culture at the national level is widely
followed to understand the cross-cultural differences between the different
nationalities (Kale and Barnes 1992; Merritt 1998; Witkowski and Kellner 1998;
Keillor and Hult 1999; Naumov and Puffer 2000; Vishwanathan, Childers and
Moore 2000; Briley, Morris and Simonson 2000; Hofstede 2001; Pheng and
Yuquan 2002; Vliert 2003; Allick and McCrae 2004; Allik an Realo 2004;
Sternquist, Byun and Jin 2004; Carr and Harris 2004; Dwyer, Mesak and Hsu
2005; Malhotra et al. 2005). Although this has led to wide contribution to
understand the cultural differences and behaviors across various nations but it
has failed to recognize the differences between the various subgroups within the
nations (Ogden, Ogden and Jensen 2004). It has been seen in research that
“different ethnic and demographic niches did not always respond to favorably to
mass-market advertising” (Kotler et al. 2007). The understanding of sub-cultural
differences is essential for greater success in capitalizing on the differences
within a nation (Ogden, Ogden and Jensen 2004). These concerns have led to
emergence of little research on multicultural marketing in context of United States or Europe (Venkatesh 1998; Burton 2002; Thomson and Troester 2002; Jamal 2003).

For India different culture values have been calculated holistically for the whole of the nation (Hofstede 1980). These values can not explicitly explain the complexity of the diverse cultures within India and could lead to erroneous decisions. The literature on marketing considers India as a single culture with uniform cultural values and consumption patterns (Westfall and Boyd 1960; Mitra and Pingah 2000; Ramachandran 2000; Rao 2000; Webster 2000; Wessel 2004; Mukherji 2005). There exists a wide gap in literature and seeing the importance of Indian market in light of globalization it necessitates the research to unravel the complexities of Indian culture and consumer behavior. This research was undertaken to fill this gap with following objectives:

1. To explore and examine the cultural differences between four cultures representing four regions of India: Gujarati in West, Tamil in South, Bengali in East and Punjabi in North.
2. To examine the consumption pattern of selected commodities across these four states.
3. To investigate the impact of the five cultural dimensions on the consumption pattern of different commodities.
4. To examine if there is a variation among different classes of respondents with regards to the consumption pattern.
5. To see whether there are differences among different classes of respondents in relation to the five cultural dimensions.

4.5 Approach Development

Different approaches can be employed for conducting cross-cultural research including anthropological, sociological and psychological (Malhotra, Agarwal and Peterson 1996). The anthropological approach tries to make a direct assessment of culture and behavior. There are two anthropological thought
schools (ibid.). The ‘culture realists’ think that culture is an independent phenomenon, which predetermines behavior. ‘Cultural nominalists’ the second school of thought view culture as a system of meaning and it can be inferred or measured indirectly from behavior. The sociological perspective views that behavior is an outcome of interaction of the social forces. Psychological approach focuses on the “processes through which people personalize social influences in their own cognitive organization”. There are two psychological schools of thought: Postmodernists and cognitive. Postmodernists rely on the actual interpretation of behavior or the elements of the culture while the cognitive school attempts to study cultural influences on the cognitive processes. The anthropological and sociological approaches are at the group level while the psychological approaches are usually operational at the group level. In marketing research the cognitive psychological approach is more appropriate (Malhotra, Agarwal and Peterson 1996). This research follows the cognitive psychological approach. There are basically two cross cultural approaches to understand culture: emic and etic (Usunier 2000 p.212; Hofstede 2001 p.23; Mooij 2004 p.27).

4.6 Research Justification

The research on Indian culture has been mostly following the emic approach. Most of the research on any aspect of Indian culture or society considers holistic India as a single cultural unit and has used the emic approach (Srinivas 1995; Rajagopal 1999; Sharma 2000; Stern 2003; Wessel 2004; Gupta 2004; Sinha and Kumar 2004; Taeube 2005). This trend of considering India as a single cultural unit is even followed in the management and marketing literature (Westfall and Boyd 1960; Dixit 2000; Ramachandran 2000; Mathur, Zhang and Neelankavil 2001; Chatterjee and Pearson 2002; Kakar et al. 2002; Kumar 2004; Mukherji 2005; Chhokar 2007). But India is a multicultural, multilingual and multiethnic society. The usage of nation as a surrogate for culture is inappropriate for countries like India with heterogeneous cultures (Malhotra, Agarwal and Peterson 2001). So using India as a single culture unit could lead to wrong comprehension of the phenomenon and lead to erroneous decisions.
Many large countries like India "can be divided into regions differing along geographic, climatic, economic, linguistic and/or ethnic lines and generally assumed to differ culturally" (Hofstede et al. 2007). The regions within many countries differ from each other substantially with regards to income, mobility, media access, employment and socioeconomic characteristics (Roth 1995). Chatterjee (1998) suggests “that in a country like India, the importance of negotiating national and sub national contradictions increases rather than diminishes with globalization. He argues that these contradictions center around the resiliency of community as a locus of affiliation and action, as means of resistance to the homogenizing impetus of capital, as a site of historic memory, and as a resource for alternative futures” (Rajagopal1999). So it becomes imperative to understand the differences between the various cultural communities within India. There is the possibility of making wrong conclusions about cultural effects if the subcultures are not taken into consideration (Lenartowicz and Roth 2001). In the regional societies children are integrated from birth onwards, absorb the values of the society and are assumed to differ culturally (Hofstede et al. 2007). There exists wide gap in literature as there is no research which etically delineates the cultural differences within the various regions of India which could facilitate marketing decisions. In this research an attempt is made to compare the cultural values within the four regions of India using an etic approach and its effect on the consumer behavior in these regions.

The comparative study of culture “presupposes an etic point of departure” (Hofstede et al.1997). This research follows an etic approach, to find and compare the cultural differences in four regional states: Gujarat, Tamil Nadu, West Bengal and Punjab. It employs the Hofstede's cultural dimensions which are based on the four fundamental and universal problems which exist in every society:

1. The relationship between the individual and group;
2. Social inequality;
3. Social implications;
4. Handling of uncertain and unknown future, inherent in economic and social process;

5. Choice of focus of people’s efforts: future or the present.

The societies try to cope with these universal problems but the solutions to these problems vary from society to society which results in different behaviors in societies (Hofstede 2001).

Hofstede’s (1980; 2001) framework of culture is the most influential cultural framework (Steenkamp 2001). Hofstede has been cited 1,101 times on the Social Citations Index from 1987 to 1997 (Sivakumar and Nakata 2001). Till the publication of Hofstede’s book most of the research was “atheoretical”, simply comparing a managerial phenomenon in different countries and it was only after Hofstede’s work that measured dimensions of culture began to be linked to every aspect of management (Triandis 2001a). Bond (1994) regards Hofstede’s work as “godsend, providing the integration of cultural differences that was so desperately needed” (Allick and Realo 2004). Hofstede (1980) defines culture as “the collective programming of the mind that distinguishes the members of one group or category of people from others”. Hofstede conducted research between 1967 and 1973 using 116,000 questionnaires on IBM employees from 72 countries (Hofstede 2001, p.41). The items of the questionnaire on the basis of their correlations were divided into four groups that pointed to the four basic problems that every society has to deal with and represented the four dimensions of national cultures (Hofstede et al. 2007). The fifth dimension was added on the basis of research by Michael Harris Bond (Hofstede 2001, p.351). The dimensions normally have a value between 0 and 100 (Hofstede 1994).

As there is lack of “reflective methodology or vocabulary to address the multiple dimensions of Indian culture(s)” (Bharucha 2000), this project employs the Hofstede’s framework to operationalise culture. This framework is a “classic work” (Malhotra, Agarwal and Peterson 1996), the most influential (Steenkamp 2001) and widely adopted in marketing (Sivakumar and Nakata 2001). The Values Survey Module 1994 (Hofstede 1994) is use to gather information from
State Bank of India employees in four cultures. The four regions are cross-culturally compared using these five dimensions. The cultural values for each region are used as independent variables and the consumer behavior is deduced for each region using various products and consumptions as dependent variables.

4.7 Research Design

The research design is the blueprint for conducting the marketing research project (Malhotra 2004). The research design in a multicultural and multi-linguistic environment is increasingly complex and the problems may increase, when differences in the sociocultural and psychographic variables imply different behavior when using a particular product (Usunier 2000). While preparing a research design close attention should be paid to theory and equivalence (Cavusgil and Das 1997). The research design should ensure equivalence and comparability of secondary and primary data from different cultures (Malhotra, Agarwal and Peterson 1995). For primary data collection qualitative research, survey methods, scaling techniques, questionnaire design and sampling are important (ibid).

4.7.1 Primary Data collection

During research design formulation considerable attention needs to be paid to the equivalence and comparability of data from different culture groupings. There is a variety of secondary data involved but the accuracy and the measurement approaches are different thus causing problems of comparability and equivalence (Malhotra, Agarwal and Peterson 1996). For comparison of two cultures they must have some features in common, and should also differ in some features (Malhotra, Agarwal and Peterson 1996). Comparability can be attained by identifying and adopting universals from other disciplines or by demonstrating equivalence of psychological concepts and data across various cultures (ibid). The four cultures under study have common nationality, political system, caste system and religions. They differ to a considerable extent on language customs, kinship, marriage and daily rituals (Karve 1993). The
consumption patterns are also different in these regions. The consumption of rice is much more in south and East India as compared to other regions while North dominates in wheat consumption (Chatterjee, Rae and Ray 2007).

4.7.2 Survey Methods

Survey methods like telephone interview, personal interview or mail interview can be employed for conducting a survey. Telephonic interviews are appropriate for upscale respondents who are accustomed to telephonic business transactions. Even though it is cost effective it requires interviewers with proficiency in relevant languages (Malhotra, Agarwal and Peterson 1996). Personal interview involves cost while mail interview is economical. The response rate is quite low in mail interview. The internet surveys don’t seem practical as it generates whopping number of junk emails (Yeganeh, Su and Chrysostome 2004). Observation is a method of choice for sensitive topics and causal research may be undertaken. The employing of multiple methods would prove helpful for collecting primary data rather than just single method (Malhotra, Agarwal and Peterson 1996). When secondary data doesn’t provide adequate information primary data is required (Craig and Douglas 2003, p.39).

As the researcher has not come across any research and data on the topic in the Indian context primary data was collected for this project. After reviewing the merits of each method and taking into account the constraints, personal interview was selected as the method of choice for collecting the primary data. The observation of the different cultures was done during the period of data collection and some peculiar practices to each culture were observed which would be elaborated upon in the chapter 5 of data analysis.

4.7.3 Measurement and Equivalence

Equivalence is an issue of importance in most of the literature on cross-culture research (Green and White1976; Sekaran 1983; Parmeswaram and Yaprak 1987; Malhotra, Aggarwal and Peterson1996; Cavusgil and Das 1997; Salzberger, Sinkovics and Schlegelmilch 1999; Usunier 2000; Sinkovics, Penz and Ghauri 2004; Yeganeh, Su and Chrysostome 2004; Salciuviene,
Auruskeviciene and Lydeka 2005). Adequate attention should be paid to construct equivalence, so that the construct and its dimensions are equivalent and have the same meaning in different cultural and national settings (Malhotra, Agarwal and Peterson 1996; Sinkovics, Penz and Gauri 2004). The construct equivalence necessitates the functional, conceptual, instrument and measurement equivalence (Malhotra, Agarwal and Peterson 1996).

Functional equivalence examines to see if the research constructs or concepts serve the same meaning in different cultures (Cavusgil and Das 1997).

Conceptual equivalence: Concepts and constructs may have different meanings and may be expressed differently in different cultures. Many concepts are cultural bound and may not be appropriate universally across cultures (Green and White 1976).

Instrument equivalence examines if “the scale items, response categories, and questionnaire stimuli such as brands, products, consumer behavior, and marketing effort are interpreted identically across cultures” (Malhotra, Agarwal and Peterson 1996).

Measurement equivalence deals with examining whether scale items measure the underlying constructs equivalently in various cultures. The construction of single testing items in cross-cultural research is one of the major hurdles in equivalence, which can be tackled by altering the instruments in certain cultures or by following etic or emic approaches depending on the cultures investigated (Green and White 1976). The measurement equivalence includes calibration equivalence, translational/linguistic equivalence, and scalar equivalence (Malhotra, Agarwal and Peterson 1996).

Translational/linguistic equivalence deals with the language used in the scales, questionnaires and interviews. The instrument developed is usually translated into languages of the cultures in which the instrument is to be used.

The organizations which have similarly structured subsidiaries in many societies and provide matched settings in which many factors are equal except the nationality of the people, thus having a clear functional equivalence (Hofstede
The employees of State Bank of India are chosen in all the four states so as to ensure functional equivalence and to match the samples on the basis of their profession. The respondents belonged to an organization in which English was the main language for business and office work. Selecting the English version of Values Survey Module 1994 (VSM 94) questionnaire for all the four cultural settings provided for linguistic equivalency as English is the main language in which business is conducted in State Bank of India. The VSM 94 questionnaire has been adopted for this study to compute comparative scores on five dimensions of culture. Hofstede (1980) conducted study on IBM employees across more than fifty countries including India. The VSM 94 has been developed from the questions in the Hofstede’s (1980) study and can be replicated on non-IBM respondents (Hofstede et al. 2007). VSM has been used for twelve years and the experience has shown that the questionnaire when applied to well-matched samples, the dimension scores computed for the countries correlate significantly with Hofstede’s scores. The questionnaire and its dimensions “are suitable for the comparison of regions within a country” (ibid).

The scales employed for measurements of culture values have been widely accepted and “business researchers have applied Hofstede’s work in dramatically increasing numbers, making it the dominant culture paradigm” (Sivakumar and Nakata 2001). The questionnaire has been already been used on IBM employees in India by Hofstede (1980). This questionnaire ensures conceptual, instrumental, measurement and scalar equivalence to a considerable extent.

4.7.4 Questionnaire: Survey Instrument

The questionnaire is “formalized framework consisting of a set of questions and scales designed to generate primary raw data” (Hair, Bush and Ortinau 2003). This study uses Values Survey Module 1994 (VSM 94) questionnaire to operationalize culture and to assess the cultural values of the four Indian states. The questionnaire (Appendix I) consists of 36 items out of which the first 20 items (questions 1-20) have been adopted from VSM 94 to assess the cultural values of the four states and calculate the five Indexes for each state. These five
indexes are taken as independent variables which are used to analyze their effect on the consumption in each culture. The ten items (questions 21-30) deal with products and consumption pattern of various types of products which are taken as dependent variables. The products have been selected taking into account the changing consumption patterns in light of globalization of Indian market. The item 21-23 (liquor, fast food and frozen food respectively) deal with food consumption patterns in the four cultures. The item 24 deals with the type of clothes (tailor/readymade) preferred by the respondents in each culture. The item 25 (Do you own a car?) deals with ownership pattern of the car in the different cultures. Item 26 refers to type of car owned by the respondent. The item 27 deals with the method of medicine that the respondents thought was better. Item 28 deals with the tool which the respondent thought were the best for investment. The item 29 dealt with the cellular phone ownership and the item 30 assessed the things that the respondents considered while buying a cellular phone. The questions 20-30 used a five point scale to measure the preferences of the respondents in each culture. The questions 31-36 were related to the demographics which have been adopted from the VSM 94.

4.7.5 Sampling

The sampling issues in cross-cultural research include the “selection of cultures, individuals, stimuli and responses” (Malhotra, Agarwal and Peterson 1995). The first step is to define the unit of analysis (Malhotra, Agarwal and Peterson 1995; Craig and Douglas 2003, p.142). Malhotra, Agarwal and Peterson (1995) suggest that for country like India with heterogeneous cultures it would be appropriate to use the cultunit as the unit of analysis. They define cultunit as a group of domestic people who speak a distinct language and who belong to the same state or the same contact group. The sample in cross-cultural research should be comparable and true representative of the cultures under study which is difficult task (Green and White 1976; Sekaran 1983; Malhotra, Agarwal and Peterson 1996; Yeganeh, Su and Chrysostome 2004). It is difficult to exercise the controls on regional and other environmental differences so selection of matched samples is suggested by many researchers (Sekaran 1983, Hofstede
The samples should match on demographic, linguistic, profession, background (Yeganeh, Su and Chrysostome 2004), socioeconomic, organizational characteristics (Malhotra, Agarwal and Peterson 1995), social class and urban-rural residence (Green and White 1976). There are enormous practical problems in obtaining the matched samples in different cultures and so the researchers have to accept compromises in order to obtain data (Hofstede 2001, p.23).

The sampling frame may be selected on basis of different geographic units within a country by region or city (Craig and Douglas 2003). In this study the country was divided into four zones: North, South, East and West. The target population was the population in these four zones. The "cultunits" were selected taking into account the vast geographical distance between the states, their difference in practices, rituals, languages and their other differences. In this study cluster sampling was used taking into account the four clusters or the four regions. Four states were selected which were regarded as representative of each cluster or zone: Punjab in North; Tamil Nadu in South; West Bengal in East; Gujarat in the West. The sample from Punjab included the respondents from the present states of Punjab, Haryana and Himachal Pradesh which were the constituents of Punjab state prior to the reorganization of Punjab in 1966. The states were clubbed together taking into account the geographic continuity, common history, languages and practices within these states. So in this study the Punjab state includes the present states of Punjab, Haryana and Himachal Pradesh. The units of analysis were the employees of State Bank of India born and belonged to the state from which data was collected. The problems of matching are reduced for organizations that exist in different societies (Hofstede 2001, p.24). These organizations have similarly structured subsidiaries in many societies and provide matched settings in which many factors are equal except the nationality of the people, thus having a clear functional equivalence (ibid.). The samples in cultures being studied should be equivalent in terms of basic socioeconomic, organizational and other salient characteristics (Malhotra, Agarwal and Peterson 1995). The employees of State Bank of India have been
chosen in all the four states so as to ensure functional equivalence and to match the samples on the basis of their profession and organization.

4.8 Field Work

Field work involves data collection in research. In cross-cultural research the quality of field is affected by many factors (Malhotra, Agarwal and Peterson 1995). Sekaran (1983) highlights the importance of response equivalence, timing of data collection, status and other psychological issues. Response equivalence can be gained by adopting uniform and identical data collection methods in all cultures being studied. To minimize variance due to data collection identical methods of introduction of the study, the researcher instructions, closing remarks and so on by the administrators of the survey should be ensured. Timing of data collection is important for collecting data from different countries. Data if possible must be collected at the same time from different countries or too much time must not elapse between the data collected from the different countries. Status and other psychological issues must be taken into account while collecting data. Longitudinal versus cross-sectional data: Usually data collected is cross-sectional, viewing that organization is static while longitudinal data which is usually ignored, should be preferred.

Taking into account these guidelines uniform research procedures were followed in uniform research settings. The data collection took place in all the four states from October 2006 to March 2007. The data was collected from the State Bank of India employees in the cities of Ahmedabad city in Gujarat, Chennai in Tamil Nadu, Kolkata in West Bengal and Patiala in Punjab. The main branches of the bank were visited by the researcher across these cities and the respondents were administered the questionnaire. To make the sample more representative of each state the questionnaires were administered to the bank employees who attended the career advancement courses at the Staff Training Colleges of the bank as these employees came from the various parts of each state. The visits to the regional Staff Training Colleges at Ahmedabad, Chennai, Kolkata and Panchkula were made with the commencement of each new course within the period of data collection. The questionnaires were anonymous and the
respondents were assured that no attempt would be made to identify them. The option to pen down their contact phone number (which was optional) was given at the end of questionnaire and most of the respondents have provided their contact numbers.

The respondents from each culture were administered 200 questionnaires. The total number of questionnaires received from all over the four cultures was 387. The region wise questionnaires received were 108 from Gujarat, 110 from Tamil Nadu, 70 from West Bengal and 99 from Punjab. For analysis purposes only respondents who belonged and were born in the particular state from which data was collected were selected and rest were excluded. So this led to the large number of questionnaires being excluded. The number of questionnaires that qualified for analysis from each state were 65 from Gujarat (43 were excluded), 100 from Tamil Nadu (10 were excluded), 66 from West Bengal (4 were excluded) and 85 from Punjab (14 were excluded). Hofstede (1994) has prescribed the minimum number of respondents per region in comparison should be 20. The ideal number is 50. The numbers of qualified respondents in each of the states of study were above the ideal number of 50. Thus the sample size was adequate enough to use VSM 94 for comparison of the four states.

4.9 Data Preparation and Analysis

This stage entails data preparation which includes data editing, coding and data entry (Cooper and Schindler). The data preparation process involves the following stages: questionnaire checking, editing, coding, transcribing, data cleaning, adjusting the data statistically and selecting the data analysis strategy (Malhotra 2004).

In this study the questionnaires were collected and then edited. The complete questionnaires of respondents who belonged and were born in the states which were the subjects of study were selected. The total number of questionnaires that qualified this criteria were 316 and the number of questionnaires state wise were 65 from Gujarat (43 were excluded), 100 from Tamil Nadu (10 were excluded), 66 from West Bengal (4 were excluded) and 85 from Punjab (14 were excluded).
Salciuviene, Auruskeviciene and Lydeka (2005) have identified different analytical methods used by researchers—frequency tables (Kahle et al. 1999; Liefield et al. 1999), correlation (Rose et al. 1999; Lee et al. 1999), analysis of variance (Kropp et al. 1999; Donoho et al. 1999), factor analysis (Yu and Albaum 1999). T-tests are used if there is metric data, while chi-square analyses is used in case of non-metric data. Peng et al. (1991) are of view that multivariate techniques provide better understanding of cultural differences (Salciuviene, Auruskeviciene and Lydeka 2005).

Then Hofstede's five dimensions of culture were calculated using the first 20 items of the questionnaire. These 20 items are content questions which are scored on five-point scales (1-2-3-4-5). The mean scores of these indexes are derived from the mean scores on the questions for regional samples of respondents. The indexes are calculated using formulas provided by Hofstede (1994) in the instructions manual provided with VSM 94. The formulas used for the calculation of the five cultural indexes were:

1. Power Distance Index (PDI)= \[-35m(03)+35m(06)+25m(14)-20m(17)-20\]
   
   In which "m (03) is the mean score on question 3, coefficients vary from 20-35, and the constant is -20. The coefficients give every question an approximately equal share in the prediction of the indices (as answers on some questions tend to vary more between cultures). The constant serves to bring the item scores within a 0 -100 points range" (Hofstede et al. 2007). Similarly the other indexes are calculated by their respective formulas.

2. Individualism Index (IDV)= \[-50m(01)+30m(02)+20m(04)-25m(08)+130\]

3. Masculinity Index (MAS)= \[+60m(05)-20m(07)+20m(15)-70m(20)+100\]

4. Uncertainty Avoidance Index (UAI)= \[+25m(13)+20(16)-50m(18)-15m(19)+120\]
5. Long-term Orientation Index (LTO) = +45 m(09) - 30 m(10) - 35 m(11) + 15 m(12) + 67

After calculating the indexes for each of the states using the above formulas, the likely effects of the index values are interpreted for the states. The indexes are then correlated to find if they are correlated with each other or not. To test the reliability of the scale, Cronbach alpha was calculated for the twenty cultural variables altogether.

Factor analysis of the first 20 variables was done. Under this analysis, Principal component extraction has been used with the help of Varimax rotation. Kaiser-Meyer-Olkin (KMO) and Bartlett's test were employed to check the sampling adequacy.

Cross-tabulation is the appropriate technique for studying the relationships among the and between the variables and the chi-square statistic is employed in marketing research applications to study the test of independence or as goodness of fit (Aaker, Kumar and Day 2004). In order to examine the relationship between cultural dimensions and consumption pattern of different commodities, cross tabulations along with chi-square test has been performed. The four states are cross tabulated with the products and consumption.

Multiple linear regression analysis is "a statistical technique which analyzes the linear relationship between a dependent variable and multiple independent variables by estimating coefficients for the equation for a straight line" (Hair, Bush and Ortinau 2003). The stepwise multiple regression, which is useful if there are many independent variables (Burns and Bush 2003) is used. This analysis has been used to measure the impact of five cultural dimensions i.e. PDI, IDV, MAS, UAI and LTO on the consumption pattern of different types of commodities.

To examine whether there is a variation among different classes of respondents with regards to the consumption pattern, Mean and variance comparison has been made. Different classes of respondents have been formed on the basis of age, education and job profile. Mean difference has been analyzed through
descriptives. ANOVA (Analysis of Variance) has been applied to find whether there is a significant variation among different classes of respondents in relation to the consumption pattern of different commodities. Further Post Hoc test for multiple comparisons was employed using Tukey's HSD method to find which class is significantly different from other ones.

Similarly to examine if there is any significant variation among the different classes of respondents with regards to the five Indexes: PDI, IDV, MAS, UAI and LTO. The respondents were grouped into different classes on the basis of age, education and job profile. The mean and variance comparisons have been made. The mean difference has been applied through descriptives and ANOVA is applied to find if there is a significant variation among the different types of respondents. To find which class is significantly different from others Tukey's HSD method has been employed.

4.10 Conclusion

The consumer behavior is complex but the cross-cultural consumer behavior is even more complicated (Sheth and Sethi 1977). Despite the growth, expansion and growth of cross-cultural marketing research it is being restricted by the methodological problems (Malhotra, Agarwal and Peterson 1995). There are myriad of problems that haunt cross-cultural research. The plethora of problems and issues that haunt cross-cultural are reflected in the publications of this field (Green and White 1976; Sheth and Sethi 1977; Sekaran 1983; Parmeswaram and Yaprak 1987; Durvasula, Lyonski and Andrews 1993; Malhotra, Aggarwal and Peterson 1996; Cavusgil and Das 1997; Lenartowicz and Roth 1999; Salzberger, Sinkovics and Schlegelmilch 1999; Luna and Gupta 2001; Sinkovics, Penz and Ghauri 2004; Yeganeh, Su and Chrysostome 2004; Ewing, Salzberger and Sinkovics 2005). Further the cross-cultural research becomes far more complex and complicated in a multicultural, multilingual and pluralist India.

This research takes into account the various methodological concerns in cross-cultural research literature. Adequate caution has been taken to ensure
functional, conceptual, instrument, metric, and linguistic equivalence. The sample comparability has been ensured by collecting data from respondents of single organization across all the four cultures. The data has been collected from all the four cultures almost at the same time ensuring equivalence. The similar data analysis techniques have been selected to ensure equivalence in the research. There are enormous practical problems to get access to matched samples in different cultures, so to obtain data “researchers have to accept compromises” (Hofstede 2001, p.23).