

## CHAPTER 4

### RESEARCH METHODOLOGY

#### 4.1 Purpose of Research:

The purpose of this research is to evaluate consumer knowledge, beliefs, norms, motivations and attitudes on purchase intention and behavior for decorative eco-friendly paints. Specifically, the study will examine the impact of consumer knowledge of green industry initiatives and green paints and paint brands, consumer beliefs related to the general environment, subjective norms influencing green paints purchasing, the motivation to purchase eco-friendly paints, consumer attitudes towards green products on the intention to purchase green paints and actual purchase behavior. This research was performed on a stratified sample of consumers from four major populated cities of Gujarat State.

#### 4.2 Sample Plan:

Stratified Random Sampling method is used in order to study the consumer buying behavior in the four selected cities of Gujarat state.

The sample size of this study is 800 random persons of the four selected cities of Gujarat, i.e. Vadodara, Ahmedabad, Rajkot and Surat. The respondents are divided on the basis of occupation into three strata (categories), namely

- Service class (Strata 1)
- Business class (Strata 2)
- Professional class (Strata 3)

Out of the total sample size, 40% samples were selected from service class and 30% each were selected from business and professional class. Hence, 80 service class people, 60 business class people and 60 professionals from each city were surveyed during this study. Overall, 320 service class people, 240 business class and 240 professionals were surveyed.

### 4.2.1 Data Source

In order to analyse the consumer buying behavior, both sources i.e. primary source as well as secondary source have been used.

#### *Primary Source*

Data was collected from 200 respondents from each of the four cities, namely Vadodara, Ahmedabad, Rajkot and Surat.

#### *Secondary Source*

Data will also be presented in this study from various journals and books on Marketing as mentioned in literature review.

### 4.2.2 Research Approach

The research could have been conducted in several ways, involving surveys. Surveys are a good way to obtain information in a systematic way about variables that are not easy to observe, such as attitudes and intentions (Hair et al., 2008)<sup>245</sup>. Surveys are accepted as a popular method of obtaining descriptive data, and careful design of the survey instrument reduced these sources of bias (Hustvedt, 2006)<sup>246</sup>. Surveys were conducted in Vadodara, Rajkot, Ahmedabad and Surat to achieve total of 800 samples, 200 samples from each city. To accomplish this, data was collected in the form of structured questionnaire through survey and personal interviews to test the hypothesis.

**Table 4.2.1: Questionnaire response rate**

City	Questionnaire Distributed	Questionnaire Returned	Questionnaire Accepted	Correct response rate (%)
Vadodara	341	300	200	66.67%
Ahmedabad	330	305	200	65.57%
Surat	298	290	200	68.96%
Rajkot	345	309	200	64.72%
Total (Gujarat)	1314	1204	800	66.44%

As shown in table 4.2.1, total 1314 questionnaire were distributed randomly, taking care of three strata defined before. Overall, 1204 respondents replied to the survey out of which 800 correct and

<sup>245</sup>Hair J. F., Black W. C., Babin, B. J., Anderson, R. E., (2008). Multivariate Data Analysis: A Global Perspective, 6/e, Prentice hall, Nj, USA, pp. 928.

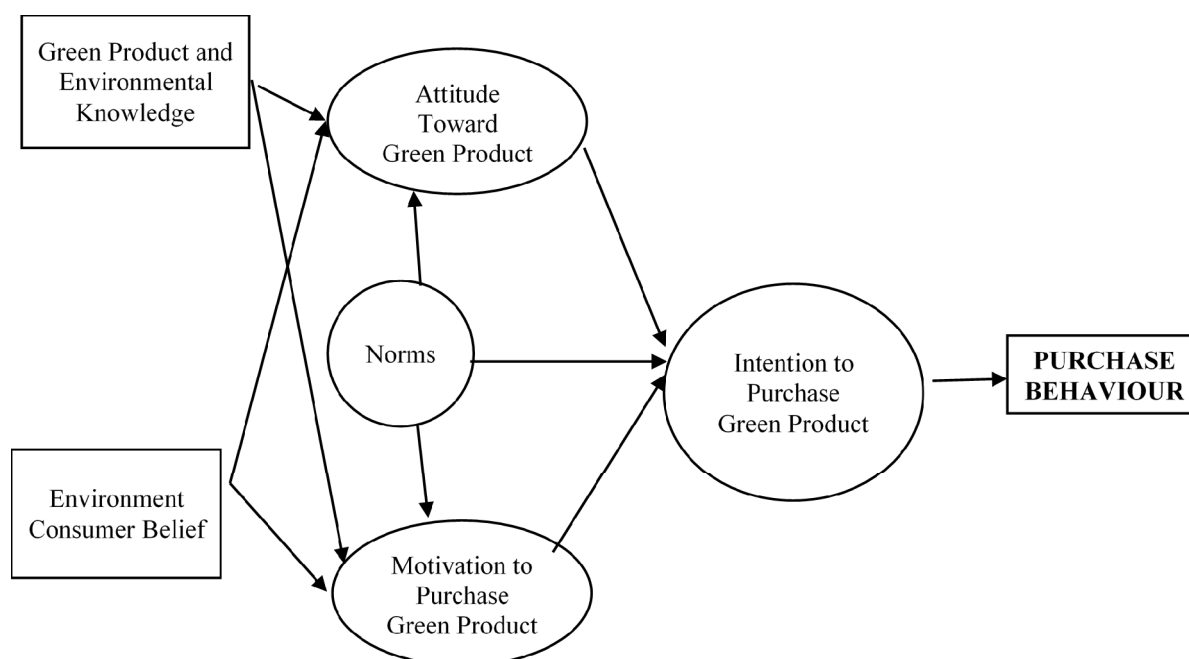
<sup>246</sup>Hustvedt, G. (2006) "Consumer Preferences in Blended Organic Cotton Apparel." PhD Dissertation, Kansas State University.

complete questionnaire were accepted for the survey. From Vadodara, 66.67% respondents filled questionnaire accurately while from Ahmedabad, Surat and Rajkot, 65.57%, 68.96% and 64.72% respondents replied accurate questionnaires respectively.

### 4.2.3 Research Design

The following variables will be captured to evaluate the sample and its overall appropriateness for the research: gender, age, education, occupation, income, marital status, children, family type and family size. Linear regression will be used to address the research objectives as presented in the hypotheses. The continuously measured interval data for all independent and dependent variables will allow use of the general linear modeling approach. Statistics associated with each model will be interpreted within the context of the research and the Theory of Planned Behavior. The research design for this study is depicted in the operational model presented in the following figure.

**Figure 4.2.1: Operational model**



The study was analyzed, considering relationship that would be analyzed, on appropriate population, which was selected from Gujarat by taking into account the importance of the study in relevance to final goal of modeling the purchase intention, which was routed through the attitude, subjective norms and perceived behavioral control. The independent variables of this research are: decorative paint brand knowledge and knowledge of green initiatives, consumer beliefs related to

the general environment, subjective norms influence on eco-friendly paints purchasing, the motivation to purchase eco-friendly paints, and consumer attitudes towards green products. The two dependent variables include: consumer decorative paint purchase intention and decorative paint purchase behavior.

### 4.3 Questionnaire

The questionnaire will be given to consumers to measure the following variables: consumers' green purchase motivations, attitudes and their influence on intention and purchase behavior of environment friendly paints. Items to measure these variables were adapted from existing items used in literature. The questionnaire contains two sections:

- Part one contains demographic information of consumers, i.e., gender, age, occupation, income, education, marital status, number of children, family type and size and for further communication their address and contact information.
- Part two of the questionnaire was comprised of statements to check consumers' level of environmental knowledge, belief, social norms, motivation, attitude towards green initiatives, intent to purchase and purchase of eco-friendly paints. Statements regarding the respective areas were framed on a scale of 1 to 5. "1" was taken as "strongly disagree", while "5" was taken as "strongly agree". Based on the data obtained, mean values and significance were calculated to test the reliability. Moreover, to get general information regarding shopping situation, purchase frequency, brand preference and reason behind selection of a specific brand, information source regarding eco-friendly paints and other products and consistency of paint buying respective to different types of decorative paints.

#### 4.3.1 Demographic factors in Questionnaire

##### Region

Data are presented for four cities of Gujarat, namely Vadodara, Ahmedabad Rajkot and Surat. For this purpose, rural areas are not included. From each city a sample of 200 respondents were selected. As stratified random sampling will be used, samples will belong to service class, businessmen and professionals.

### Age Group

Age group indicates the age of the respondent in the four selected cities. In this research, age of respondents will be asked to provide their exact age. Overall, ages of the respondents were divided into three different age groups using percentile method.

Following age groups would be used to segregate respondents

- Age below or equal to 37 years
- Age from 38 to 46 years
- Age above 46 years.

### Occupation

**Service Class** - Salary earners, which includes government, semi government and private organizations' employees

**Business Class** - All the people involved in trading and manufacturing activities and having exposure and access to television and internet.

**Professional Class** – Technically qualified persons like doctors, chartered accountants, company secretaries, consultants, architects who are self-employed.

### Income

Respondent's income includes yearly income of all the members of his family and from all sources. The exact income will be asked to consumers through questionnaire. The following monthly income-groups were defined by percentile method by considering age of respondents from all four cities collectively. Monthly income of respondents is a total family income of the respondents.

- Income less or equal to Rs. 29166.67
- Income above Rs. 29166.67 to Rs. 46250.00
- Income above Rs. 46250.00

Per capita income was also divided into three different per capita income groups by calculation of per capita income. Low, Moderate and High per capita income groups were obtained by percentile method.

**Marital Status**

Marital status indicates the marriage condition of the respondents in the four selected cities. A person's **marital status** indicates whether the person is married. The category of "married" would also cover the situation of the person being "separated", widowed etc. Unmarried category would cover all who are neither joined by marriage nor a civil union.

**Family**

A family (from Latin: familia) is a group of people affiliated by consanguinity, affinity, or co-residence.

**Family Type**

This category is further divided in two parts. i) Nuclear Family ii) Joint Family.

**Nuclear Family** consist a mother, father and their children.

**Joint Family** consist all members of nuclear family co-reside with other members of one parent's family.

**Family Size**

Number of total family members living in one residence.

**4.3.2 Questionnaire Design (Psychographic Factors)**

This part of questionnaire consists of psychographic factors of consumers like, environmental knowledge, brand awareness, attitude, belief, motivation level, social norms and purchase intention etc. Other than above-mentioned factors, information source, their frequency of purchasing a product etc. were also included.

In this part of questionnaire design, each question and statement are discussed briefly.

After demographic information, first question was asked to respondents regarding their brand awareness. They were asked to determine environment friendly decorative paint providing companies as well as their respective brands. Asian Paints Ltd., Kansai Nerolac Ind. Ltd., AkzoNobel India, Berger Paints India Ltd. and Shalimar Paints were considered as environment

friendly paint providing company under brand names like Royale, Impression Eco Clean, Pantalite, Breathe Easy and Superlac respectively.

After this section in questionnaire, psychographic factors were taken care of to know impact of knowledge, belief, social norms, attitude and motivation on purchase intention of consumers and then on purchase behavior. Though following factors are discussed in literature review but statements asked to respondents were obtained from such literature, which should be justified here. This section asked about the level of respondents' agreement or disagreement towards attitudes and subjective norms statements, their likelihood towards the perceived behavior control, environmental knowledge, and their intention to purchase green paints. These questions deal with decorative paints. The response option that accompanied each statement is a 5-point descriptor that allows the respondents to select their level of agreement or disagreement with statement. The response options in this section used odd numbers that allow the respondents to select for the middle scale step to be the neutral or indifferent. The reason behind this is to avoid the respondent that may, in reality, be undecided. Furthermore, in order to obtain linguistic equivalence of English and Gujarati, respondents were helped verbally by translating questions into Gujarati.

### **Environmental Knowledge**

Environmental knowledge entails what people know about the environment, key relationships leading to environmental aspects or impacts, and appreciation of 'whole systems', and collective responsibilities necessary for sustainable development (Mostafa, 2007a, p. 221)<sup>247</sup>. However, Schahn & Holzer (1990)<sup>248</sup> emphasize that the variable of knowledge has to be distinguished into factual knowledge (abstract) and action-related knowledge (concrete). While factual knowledge deals with people's knowledge concerning definitions and causes or consequences of certain problems, action-related knowledge is something to do with the information of possible actions (Schahn & Holzer, 1990; Tanner & Kast, 2003<sup>249</sup>).

From above studies following eight statements were used in the questionnaire to measure environmental knowledge of consumers from Gujarat.

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<sup>247</sup> Mostafa, M. M., 2007a, Gender differences in Egyptian consumers' green purchase behavior: The effects of environmental knowledge, concern and attitude, *International Journal of Consumer Studies*, 31: 220–229.

<sup>248</sup> Schahn, J., & Holzer, E. (1990). Studies of individual environmental concern: The role of knowledge, gender, and background variables. *Environment and Behavior*, 22, 767–786.

<sup>249</sup> Tanner, C. & Kast, S. W., 2003, Promoting sustainable consumption: Determinants of green purchases by Swiss consumers, *Psychology and Marketing*, 20: 883–902.

1. I am very knowledgeable on environmental friendly paints.
2. Traditional paints contain lead and other harmful substances.
3. Lead is a carcinogen.
4. Volatile Organic Compounds (VOCs) are injurious to health
5. Fumes emitted from traditional paints cause problems of respiratory system
6. I have a lot of knowledge about how to select the best brand that offers environmentally friendly products.
7. I have a clear idea about which product categories offer environmental products.
8. I have no knowledge on where to go to find environmental friendly paints.

In accordance with above statements, respondents were asked about their detailed knowledge about harmfulness level of VOCs and how important it is to have harmful chemical free materials around their reach. Moreover, they were also asked whose i.e., own health, child's health, others' health, pet's health, none of these or all of these, health they mostly care about during their purchase of item containing toxins.

### **Consumer Belief**

Research has found that if consumers believe there is an environmental problem, and they are concerned, they are more likely to adopt consumer behavior practices geared toward alleviating the problem (Dickson, 2000<sup>250</sup>, Mainieri et al. 1997<sup>251</sup>). In a study to evaluate the influence of environmental concern on consumer behavior, (Mainieri et al., 1997) also found that consumer beliefs significantly contribute to the prediction of three attitudinal variables, as identified in the study. Positive beliefs about environmental consumerism were associated with pro-environment attitudes (Mainieri, et al., 1997). Consumer beliefs predicted not only all behavioral measures of environmental concern but all environmental attitudes as well. Participants with specific beliefs about the environmental impact of the purchase and use of consumer products were also likely to hold pro-environment attitudes (Mainieri, et al, 1997). For instance, consumers who attached importance to the purchase of products made with recyclable materials or packaged in reusable

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<sup>250</sup> Dickson, M. (2000). Personal Values, Beliefs, Knowledge, and Attitudes Relating to Intentions to Purchase Apparel from Socially Responsible Businesses. *Clothing Textiles and Research Journal*, 18(1), 19-30.

<sup>251</sup> Mainieri, T., Barnett, E., Valdero, T., Unipan, J., & Oskamp S. (1997). Green Buying: The Influence of Environmental Concern on Consumer Behavior. *Journal of Social Psychology*, 137(2), 189-204.



containers were more likely to care about the quality of the environment and the wise stewardship of natural resources (Mainieri, et al., 1997).

From above mentioned studies following factors were drawn for questionnaire –

1. We should not slow down industry progress because of concern for the environment.
2. A well-known brand is always a safe product to buy.
3. The price of environmentally friendly products is usually more expensive than other products.
4. Paint companies are generally doing a good job in helping protect the environment.
5. Companies should place a higher priority on reducing pollution than on increasing their own profitability.

### **Motivation**

Consumer motivation often addresses questions of how consumption-related behavior gets started, sustained and directed, and stopped (Moisander, 2007)<sup>252</sup>. Thus, one can assume that the reason for the behavior is driven from a particular motive. Wilkie (1990)<sup>253</sup> makes a distinction between primary motives and secondary motives. A primary motive refers to the purposes behind consumers decisions to engage or not to engage in entire classes of behavior (to engage in ecologically responsible behavior). Selective motives refer to the purposes behind consumers' decisions as to exactly which particular behaviors they want to engage in (recycling, saving energy and buying eco-products).

Research has shown that there are several motivations that may stimulate a brand purchase intention. Fennel (1995)<sup>254</sup> suggested that one may look at consumer responses to particular brands in relation to a brand's ability to fulfill one of a set of either positive or negative motivations. These motivations are seen as a part of an energizing mechanism that helps relate perceived benefits of an advertised brand with the underlying needs of the consumer (Percy, 1992)<sup>255</sup>.

From above studies following statements were drawn –

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<sup>252</sup> Moisander, J. (2007). Motivational Complexity of Green Consumerism. *International Journal of Consumer Studies*, 31, 404-409.

<sup>253</sup> Wilkie, W.L. (1990). *Consumer Behavior*. John Wiley & Sons, New York.

<sup>254</sup> Fennell, G. (1975). Motivation research revisited. *Journal of Advertising Research*, 15, 23-27.

<sup>255</sup> Percy, L. & Rossiter, J.R. (1992). A Model of Brand Awareness and Brand Attitude Advertising Strategies. *Psychology and Marketing*, 9(4), 263-274.

1. I would be willing to pay higher prices for environmentally friendly paints.
2. I often search for paint brands that are environmentally friendly.
3. I am never motivated to buy environmental products.
4. I would be willing to switch brands for one that is more environmentally friendly.
5. If a paint brand does not offer an environmental product, I will not buy that brand.

### **Social Norms**

For the present study, the measurement of consumers' subjective norm (SUN) is adapted from Ajzen (2002a)<sup>256</sup>, in which, however, the words of "walk on a treadmill for at least 30 minutes each day in the forthcoming month" are reworded into "buy green paints". Moreover, he suggested that except employing items that have injunctive quality, it is also important to capture descriptive norms, i.e., whether other important others themselves perform the behavior in question (p.6). Thus, there are total eight items out of which five items of subjective norms presented in the questionnaire, employing Semantic Differential scale. The scale ranges from 1 to 5 in inquiring respondents' likelihood such injunctive statements as "Most people who are important to me think that" either "I should" or "I should not" buy green food products, "The people in my life whose opinions I value would" either to "approve" or "disapprove" me to buy green food products. Also, the statement "It is expected of me that I purchase green paints" with "extremely likely" or "extremely unlikely". Descriptive norm statements include: "Most people who are important to me buy green paints" (completely true-completely false), "The people in my life whose opinions I value" (buy-not buy green paints).

Moreover, family members' influence, friends/peers influence and influence of media were also taken care by keeping them in questionnaire under five point Likert scale.

### **Attitude**

Studies have also focused on general attitudes toward recycling and their effect on intention to purchase green textile and apparel products. The number of materials that people recycled helped to predict their general environmental buying behaviors. The findings suggested that through conscious efforts to recycle, people become more aware of the environmental effects of the

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<sup>256</sup> Ajzen, I., 2002a, Constructing a TpB questionnaire: Conceptual and methodological considerations, URL: <http://www.people.umass.edu/ajzen/pdf/tpb.measurement.pdf>.

materials and packaging they buy (Mainieri et al, 1997). Using multivariate analysis of variance, Ellen, Wiener and Cobb-Walgreen (1991) found that a general attitude towards improving the environment was a significant predictor of purchasing environmentally safe products, recycling, contributing money to environmental groups, communicating with elected officials, and attending public hearings. A body of research has shown how improved correlations between attitude and behaviors are achieved with certain measurement conditions and by recognizing differences in attitudes (Dickson, 2000)<sup>257</sup>. Azjen and Fishbein (1980)<sup>258</sup> argue that attitudes more specific to a given behavior are better predictors of that behavior than general attitudes. Attitudes are more “specific when they correspond in action, target, time, and context to the behavior of interest” (Azjen and Fishbein, 1980, p.7). From above discussed studies following statements were outlined for current study –

1. Compared to other traditional paints, I prefer green paints.
2. I think that buying green products is good for me.
3. I think that buying green products is good for the community.
4. I think recyclable paint is a good idea.
5. I think that there is too much hype on environmental products.

### **Purchase Intention**

The types of variables that affected actual purchase decisions were different from those affecting intention to purchase. In general, actual purchase was mainly influenced by product attributes such as the information regarding safety and handling instructions on package labels and appearance, i.e., fat content. In addition, product attribute variables, particularly safety information, were strong for ground beef and ground chuck. Safety information on the package labels had significant impact on purchase intention for ground beef as reported during the exit survey. Few demographic variables such as sex and age of respondents influenced actual purchase decisions. None of the attitude variables such as general knowledge about paint safety and willingness to pay for ‘safety’ assurance through irradiation had statistically significant impact on actual purchase. Contrary to that, intention to purchase was mostly influenced by demographic and attitude variables. Overall, none of the three variables relating to physical characteristics of the products as displayed in the

<sup>257</sup> Dickson, M. (2000). Personal Values, Beliefs, Knowledge, and Attitudes Relating to Intentions to Purchase Apparel from Socially Responsible Businesses. *Clothing Textiles and Research Journal*, 18(1), 19-30.

<sup>258</sup> Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice Hall.

supermarkets such as fat content, safety and handling information on the packaged labels influenced intention to purchase decisions. Income, sex, household size, general knowledge about paint safety, and willingness to pay for safety assurance through irradiation had statistically significant impact on intention to purchase. Female respondents and large size household were less likely to have intention to purchase. According to Schiffman & Kanuk (2007)<sup>259</sup>, the behavior intention measurement deal with the likelihood that consumers will act in a certain way in the future (p. 32). For the conceptualization of Purchase Intention in this study, ten corresponding intention statements to measure respondents' intention to engage in green purchase. Following are statements used in questionnaire -

1. For future purchases, I plan to seek out environmental products.
2. It is important to me that paints contain no Volatile Organic Compounds
3. It is important to me that paints contain no Lead material.
4. I avoid paints containing substances which are harmful to human kind.
5. When making purchases, I pay attention to whether the paints contain unhealthy substances.
6. Health issues play an important role for me when I make up my purchase decisions.
7. When making purchases, I would primarily buy paints which do not emit harmful fumes.
8. For future purchases, I plan to buy environmental friendly paints for myself.
9. I plan to spend time searching company websites to learn more about environmentally friendly options.
10. For future purchases, I will take more time to search for environmentally friendly alternatives to products that I typically buy.

### **Actual Purchase Behaviour**

The actual green purchase questions were asked one month after the first survey of attitude-purchase intention. Five constructs were served to investigate respondents' actual green purchase. Following are five statements for actual purchase –

1. I frequently purchase environmental brands.
2. I frequently search for brands that are known to offer environmental products.
3. When shopping for environmentally friendly paints, I often read the labels or tags.

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<sup>259</sup> Schiffman, L. G. & Kanuk, L. L., 2007, Consumer Behavior, 9th edn., Pearson Prentice Hall, Upper Saddle River, New Jersey, 561 pages.

4. I normally put a lot of effort into purchasing paint that is environmentally friendly.
5. I always believe that paints claiming to be environmentally friendly are actually environmentally friendly and good for the environment.

All given statements i.e., 5 of knowledge, 5 for belief, 5 for motivation, 5 statements of attitude, 10 statements for purchase intention and 5 for actual purchase, were measured on 5 point likert scale to know their agreement and likelihood on 1 as “strongly disagree” and 5 as “strongly agree”. 3 statements of social norms were measured on the basis of 5 point likert scale to check influence of social members with 1 as “not at all” to 5 as “always”.

Responses of respondents from all four cities were collected and overall mean scores of specific factors were computed to divide those mean scores into three groups by percentile distribution method. Following results were obtained after applying percentile method.

**Table 4.3.1 Table showing percentile score of responses for all variables**

Variables		Belief	Motivation	Social Norms	Attitude	Purchase Intention	Purchase Behaviour	Knowledge
Percentiles	33.33	3.8000	4.0000	3.0210	4.0000	4.1000	4.0000	4.1250
	66.66	4.2000	4.4000	3.3750	4.4000	4.3000	4.2000	4.2500

- As given in above table, score for all variables were divided in three equal parts by applying percentile measure. By applying this statistical measure, responses of consumers were categorized into Low (up to 33.33 percentile), Moderate (above 33.33 percentile up to 66.66 percentile) and High (above 66.66 percentile).
- Likert Scale was 5 point scale in which 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral (Neither agree nor disagree), 4 = Agree and 5 = Strongly Agree. Hence, higher score denotes maximum likelihood or maximum agreement towards statements. Here, for all factors, minimum score was 3.021, which is yet above neutral value of scale.
- For all selected cities of Gujarat state, for Consumer Knowledge, up to 4.125 is low score and above 4.25 is high.
- For Consumer Belief variable low score is up to 3.8, moderate score is above 3.8 to 4.2 and high score is above 4.2.
- Similarly, for Motivation level up to 4.0 is low score while 4.0 to 4.4 is moderate and above 4.4 is high score.

- For Social Norms low, moderate and high score are up to 3.021, 3.021 to 3.375 and above 3.375 respectively.
- Moreover, for Attitude up to 4 is low score and above 4.4 is high.
- For Purchase Intention up to 4.1 is low score and above 4.3 is high.
- Furthermore, for Purchase Behaviour low score is below 4 and above 4.2 is high.

### **Other Factors**

Respondents were also asked about their usual situation for shopping given four specific choices i.e., mass merchants, specialty stores, agencies or they order designs and patterns online.

Online paint purchase is still a lesser used choice in India but now a days people get used to check online designs and patterns as well as they ask for demos at home online. Keeping this into mind, online option was kept for a choice.

Mass merchants are huge retailers who focus on multiple product categories, for e.g., who keep paints with other tools, furniture items, spares at one place.

Specialty stores are retail businesses that focus on specific product categories, such as paints, clothes, furniture etc. For e.g., specialty stores would only provide paints related items at their store.

Agencies are those who sell only a single manufacturers' brands. For e.g., Agency of Asian Paints Ltd sells different types of paints manufactured by Asian Paints Ltd.

Further, respondents were also asked about their paint change frequency given four choices i.e., within 3 years, within 4 to 5 years, within 5 to 10 years and after 10 years. Furthermore, they were also asked about their source of information about eco-friendly paints and other products given choices Family, Friends, Print Media, Electronic Media, Internet sources or any other specific information source.

Looking to India's major five decorative paint manufacturing players i.e., Asian Paints Ltd., Akzonoble India, Kansai Nerolac Paints Ltd, Berger Paints and Shalimar Paints Ltd., respondents were asked about their preference to purchase of specific brand for interior and exterior paints application. For interior paints, Royale, Pentalite, Impression Eco-Clean, Breathe Easy and

Superlac were taken and for exterior paints, Apex Ultima, Weather Shield, Excel, Weather Coat and Xtra were given as choices. These brands were taken from official websites of these specific giant players and also specifically marketed under green brands. Here, respondents had to give rank i.e., 1 as most preferred and 5 as least preferred, to all brands of interior paints as well as exterior paints. To know reason behind choice of specific brand, respondents were asked to rank i.e., 1 as most influencing factor and 8 as least influencing factor, eight factors i.e., value for money, quality, price, performance, safety, designs and patterns, maintenance issues and environment friendliness, which influenced them to select those specific brand.

All seven factors mentioned above are defined below and definitions were taken from website dictionary for business<sup>260</sup>. Environment Friendliness is explained in literature.

**Value for Money:** A utility derived from every purchase or every sum of money spent. Value for money is based not only on the minimum purchase price (economy) but also on the maximum efficiency and effectiveness of the purchase.

**Quality:** In manufacturing, a measure of excellence or a state of being free from defects, deficiencies and significant variations. It is brought about by strict and consistent commitment to certain standards that achieve uniformity of a product in order to satisfy specific customer or user requirements.

**Price:** A value that will purchase a finite quantity, weight, or other measure of a good or service.

**Performance:** The accomplishment of a given task measured against preset known standards of accuracy, completeness, cost, and speed.

**Safety:** Relative freedom from danger, risk, or threat of harm, injury, or loss to personnel and/or property, whether caused deliberately or by accident

**Design and Patterns:** Design and pattern is a repetition of specific visual elements as well as matching of two or multiple specific colours.

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<sup>260</sup> [www.businessdictionary.com](http://www.businessdictionary.com)

**Maintenance:** Actions necessary for retaining or restoring a piece of equipment, machine, or system to the specified operable condition to achieve its maximum useful life. It includes correctives and preventives for a specific paint application at home.

#### 4.4 Statistical Methods

For analysis purpose, following methods have been applied

- Mean Analysis
- Frequency distribution
- T-test
- ANOVA (Analysis of Variables)
- Chi Square and F Test
- Simple Regression Analysis and Multiple Regression Analysis
- Post-hoc analysis

#### 4.5 Reliability of Data

The goal of researchers is to reduce the measurement error. For that purpose, there are two paths that need to be addressed: validity and reliability tests. In contrast to validity test that relates to what should be measured, reliability test is more to do with the consistency of how a set of variables is measured. If we have assured that the instrument has reached the validity level, we still have to consider the reliability. Reliability is concerned with estimates of the degree to which a measurement is free of random or unstable error (Cooper & Schindler, 2008)<sup>261</sup>. Reliability is an assessment of the degree of consistency between multiple measurements of a construct or variable (Hair Jr. et al., 2006, p. 137)<sup>262</sup>. A construct can be said reliable if the answer of the respondent towards the question is consistent or stable over time. The research applied one shot reliability: Cronbach's alpha. This diagnostic measure of reliability test is the most commonly used in scientific researches. The idea behind this approach is that the higher Cronbach's coefficient alpha is, the higher degree of inter-correlation among items in the scale, which leads to the more reliable a construct is. How large of an appropriate level of Cronbach's alpha is illustrated in the Table 4.5.1. This table presents the rules of thumb of Cronbach's alpha coefficient size.

<sup>261</sup> Cooper, D. R. & Schindler, P. S., 2008, Business Research Methods, 10th edn., McGraw Hill, 746 pages.

<sup>262</sup> Hair Jr., J. F., Money, A. H., Samouel, P. & Page, M., 2007, Research methods for business, John Wiley & Sons, Inc., New Jersey, 448 pages.



**Table 4.5.1: Rules of thumb about Cronbach's alpha ( $\alpha$ ) coefficient size**

Alpha Coefficient Range	Strength of Association
< 0.6	Poor
0.6 to < 0.7	Moderate
0.7 to < 0.8	Good
0.8 to < 0.9	Very Good
> 0.9	Excellent

**\*\*Source: Hair Jr. et al. ( 2007, p. 244)**

As shown in the table 4.5.1, it can be concluded that a construct or variable is good reliable if it, at least, presents Cronbach's alpha value of 0.70. Consequently, if the Cronbach's alpha of a variable or construct is less than 0.60, it indicates there are many respondents inconsistently answered the questions and hence. This conclusion implies that the larger Cronbach's alpha coefficient ( $\alpha$ ), the more reliable or the better the research instrument and observed data. Cronbach's Alpha of all variables for selected cities of Gujarat is depicted in table 4.5.2.

**Table 4.5.2 Table showing test of reliability of data through Cronbach's Alpha of all variables for selected cities of Gujarat**

Variable	Cronbach's Alpha				
	Vadodara	Ahmedabad	Surat	Rajkot	Overall (City)
Environmental Knowledge	0.933	0.941	0.945	0.931	0.950
Consumer Belief	0.806	0.876	0.869	0.851	0.848
Consumer Motivation	0.902	0.929	0.933	0.932	0.932
Social Norms	0.825	0.836	0.826	0.813	0.822
Consumer Attitude	0.901	0.910	0.950	0.941	0.930
Consumer Purchase Intention	0.942	0.938	0.947	0.950	0.950
Consumer Purchase Behaviour	0.897	0.945	0.948	0.934	0.946
Over All (Variable)	0.903	0.939	0.924	0.901	0.904

- In overall city, 0.904 alpha value for all variables suggested that data from selected cities of Gujarat was reliable and consistent. It could be observed from above table that alpha values for each variable were above 0.8. An alpha value for Environmental Knowledge and Purchase Intention was 0.95 while Purchase Behaviour alpha value was 0.946. Alpha values of only two variables i.e., Consumer Belief (0.848) and Social Norms (0.822) were below 0.90. Same for Motivation level and Consumer Attitude were 0.932 and 0.93 respectively.
- In Vadodara city, 0.903 alpha value for all variables suggested that data from Vadodara city was reliable and consistent. It could be observed from above table that alpha values for each variable were above 0.8. An alpha value for Purchase Intention was 0.942 while

Purchase Behaviour alpha value was 0.897. Alike Purchase behaviour alpha values of only two variables i.e., Consumer Belief (0.806) and Social Norms (0.825) were below 0.90. Alpha values for Environmental Knowledge, Motivation level and Consumer Attitude were 0.933, 0.902 and 0.901 respectively.

- In Ahmedabad city, 0.939 alpha value for all variables suggested that data from Ahmedabad city was reliable and consistent. It could be observed from above table that alpha values for each variable were above 0.8. An alpha value for Purchase Intention was 0.938 while Purchase Behaviour alpha value was 0.945. Alpha values of only two variables i.e., Consumer Belief (0.876) and Social Norms (0.836) were below 0.90. Alpha values for Environmental Knowledge, Motivation level and Consumer Attitude were 0.941, 0.929 and 0.910 respectively.
- In Surat city, 0.924 alpha value for all variables suggests that data from Surat city was reliable and consistent. It could be observed from above table that alpha values for each variable were above 0.8. An alpha value for Purchase Intention was 0.947 while Purchase Behaviour alpha value was 0.948. Alpha values of only two variables i.e., Consumer Belief (0.869) and Social Norms (0.826) were below 0.90. Alpha values for Environmental Knowledge, Motivation level and Consumer Attitude were 0.945, 0.933 and 0.950 respectively.
- Similarly in Rajkot city, 0.901 alpha value for all variables suggests that data from Rajkot city was reliable and consistent. It could be observed from above table that alpha values for each variable were above 0.8. An alpha value for Purchase Intention was 0.950 while Purchase Behaviour alpha value was 0.934. Alpha values of only two variables i.e., Consumer Belief (0.851) and Social Norms (0.813) were below 0.90. Alpha values for Environmental Knowledge, Motivation level and Consumer Attitude were 0.931, 0.932 and 0.930 respectively.

Socioeconomic and demographic features can examine detail characteristics of buyers. As far as methodology and estimation is concerned, use of descriptive and analytical statistics will be made. Further, to focus and frame the various issues, which will be examined in the thesis a factor analysis, will be applied. It is imperative to study cause and effect relationship, which would exist among the different dimensions of key variables, which will be used to address the research

objectives as, presented in the hypotheses. Statistics associated with each model will be interpreted within the context of the research.

- Total 800 sample size is selected for the purpose of this research from four cities in Gujarat i.e. Ahmedabad, Vadodara, Rajkot and Surat.
- Primary data will be collected in the form of questionnaires, surveys and personal interviews to test the hypothesis.
- From each city 200 numbers of respondents will be selected as samples for which stratified random sampling technique will be used.
- Sample units will also comprise respondents belonging to different age groups and also different gender.
- Within the sample size, the sample unit will comprise professionals, businessmen and salaried class.
- Primary data collected will be analysed using statistical software for the purpose of studying the findings.

## 4.6 Hypotheses

Following Hypotheses are tested and used to predict consumer buying behavior towards eco-friendly decorative paints from four selected cities of Gujarat in context of green supply chain practices implemented by paint industries.

**H1:** There are no demographic differences (Gender, age, income, education, occupation, family size, family type, marital status and number of children) between consumers who indicate they intend to purchase environment friendly decorative paints and those who indicate they do not.

Hypothesis 1 contains multiple demographic factors to test. Hence. This hypothesis was divided into ten sub hypotheses, which are as mentioned below -

- H1-1: There is no association of age group between consumers who indicate they intend to purchase environment friendly decorative paints and those who indicate they do not.
- H1-2: There is no association of gender between consumers who indicate they intend to purchase environment friendly decorative paints and those who indicate they do not.

- H1-3: There is no association of educational qualifications between consumers who indicate they intend to purchase environment friendly decorative paints and those who indicate they do not.
- H1-4: There is no association of occupation between consumers who indicate they intend to purchase environment friendly decorative paints and those who indicate they do not.
- H1-5: There is no association of marital status between consumers who indicate they intend to purchase environment friendly decorative paints and those who indicate they do not.
- H1-6: There is no association of monthly income between consumers who indicate they intend to purchase environment friendly decorative paints and those who indicate they do not.
- H1-7: There is no association of per capita income between consumers who indicate they intend to purchase environment friendly decorative paints and those who indicate they do not.
- H1-8: There is no association of family size between consumers who indicate they intend to purchase environment friendly decorative paints and those who indicate they do not.
- H1-9: There is no association of family type between consumers who indicate they intend to purchase environment friendly decorative paints and those who indicate they do not.
- H1-10: There is no association of number of children between consumers who indicate they intend to purchase environment friendly decorative paints and those who indicate they do not.

**H2:** There is no influence of consumer knowledge of green industry initiatives and green brands on motivation of consumers to purchase environment friendly decorative paints.

**H3:** There is no influence of consumer knowledge of green industry initiatives and green brands on attitudes of consumers toward environment friendly decorative paints.

**H4:** There is no influence of environmental consumer beliefs on consumers' motivation to purchase environment friendly decorative paints.

**H5:** There is no influence of environmental consumer beliefs on consumers' attitudes towards environment friendly decorative paints.

**H6:** There is no influence of subjective norms on consumers' motivation to purchase environment friendly decorative paints.

**H7:** There is no influence of subjective norms on consumers' attitudes toward environment friendly decorative paints.

**H8:** There is no influence of subjective norms on consumers' purchase intention to purchase environment friendly decorative paints.

**H9:** There is no influence of motivation of consumer to purchase environment friendly decorative paints on consumers' intention to purchase environment friendly decorative paints.

**H10:** There is no influence of attitude of consumer to purchase environment friendly decorative paints on consumers' intention to purchase environment friendly decorative paints.

**H11:** There is no association between consumers' motivational level and attitude towards purchase of eco-friendly paints.

**H12:** There is no influence of consumers' intention to purchase environment friendly decorative paint on consumers' purchase behavior.

**H13:** There is no association of consumers' environmental knowledge, belief and social norms with consumers' motivation to purchase green paints.

**H14:** There is no association of consumers' environmental knowledge, belief and social norms with consumers' attitude towards purchase of green paints.

**H15:** There is no association of consumers' social norms, attitude and motivation towards eco-friendly paints with consumers' intention towards purchase of green paints.

**H16:** There is no association of consumers' intention towards purchase of green paints and their actual purchase behaviour.