CHAPTER -4

DATA ANALYSIS-I

This chapter focuses on the data analysis of the first three phases of research. The chapter ends with details of questionnaire formed for the final data collection.

4.1 Phase 1: Data Collection Through Focus Groups And In Depth Interview:

Three focus groups were conducted which comprised of working executives, students and experienced customers for both the product categories (mobiles and laptops). In depth interviews with the dealer of both the product categories was conducted.

The discussion in both the exploratory techniques revolved around the following:

The features and attributes present in the mobile and laptop were discussed one by one and how they lead to quality perceptions was identified. The problem/s associated with the working of the mobile and laptops were also identified by the respondents. Dealers’ knowledge of features was more than those of respondents but they refrained from answering details on the problems in the operations of the appliances. Different brands available in the market were discussed. Also their COO was identified. Respondents knew the COO of the well known brands only. Dealers knew COO of even unknown brands such as Sahara and Fujitso for laptop. Respondents’ knowledge regarding COD and COM was known and almost all agreed that for both the product categories majority of the parts were manufactured or assembled in China. They would not prefer that but they had no other alternative and it was difficult to identify the COM for all the brands. The dealers were ignorant about the COD or COM and stressed that a brand remains attached to its original
country only, irrespective of wherever it is manufactured or assembled. The details of focus group and in depth interview for both the product categories are given below.

4.1.1 Applications of mobiles:

Initially the discussion started with basic usage for communications and different modes were talked about, right from post cards to telephones and even e-mail and lately mobiles. Also, they gave confirmation about the increase in the consumption of mobile services by the Indian consumers. Foremost application was to remain connected with the outside world for all the three categories. Communication at anytime and anywhere has become of prime importance. With a constant decrease in the price of the mobile instrument and availability of lot of models across various brands has been responsible for the exponential growth of this product category. Participants especially from the student category heavily used the mobile for sending and receiving SMS, mobile as a music player and mobile as a gaming instrument. Among the working executives and experienced customers these applications were relatively lesser but at times, they used the mobile for internet surfing also. These other applications of mobile have been prominent across all the categories because of the decrease in the rates of the value added services, by the mobile operators. In built application such as audio and video recording, camera, data storage, calculator, alarm bell and dictionary are also used widely.

4.1.2 Features considered for selection of mobiles:

The participants gave lot many different factors considered for the final selection. The main features were battery backup, reception quality, screen size,
display quality and weight and looks of the instrument. The other important features were the sharpness of the inbuilt camera, upgradation of the memory card, blue tooth connectivity and its compatibility with a computer. Issue of resale value and ease of repair was also raised by few of the participants as criteria for purchase.

4.1.3 Attributes most used in a mobile:

The student category uses mobile more for sending and receiving SMS, playing music and as a gaming tool and at times even watching movies if the handset was a higher version mobile. Their usage for making and receiving calls was alarmingly lesser than the other two categories. They used it more for making personal and official calls, surfing the net and at times for sending SMS. During travelling they did use the mobile for listening to music and watching movie clips. Their usage of mobile for playing games was not much favored.

4.1.4 Problems faced in using the mobile:

Participants were wary about the explosion of mobile during battery charging process. They also showed concern regarding the arrangements of buttons on the key pad, display problems in the sunlight and the instrument getting ‘hanged’ especially for touch screen mobiles. For mobiles the participants were also concerned about the cheap, unreliable and unbranded mobile phones from China being sold in the Indian market.

4.1.5 Desired features in the next mobile purchased:

Most of the participants from all the three categories admitted that they were using a third or even at times a fifth mobile in their lifetime. The time for the usage
of a specific model, by the participant ranged from few weeks to two years. But still there are brand loyal customers who stick to different models from the same brand. Brand loyalty towards Nokia seemed to be more than any other brand, and it was followed by Sony Ericksson and Samsung. They require a mobile whose battery backup is more and at the same time battery charging is safer, more slim and sleek mobile, higher size of mega pixels in the camera, user friendly key board, blue tooth connectivity, higher storage capacity and lot more internet based applications in their next purchase of the product. Participants also needed a mobile that was not sensitive that is it would not mal function even if it was used without any precautionary measures. Few participants only raised concern for price. Some participants opposed this and said that because of the ‘me too’ brand of mobiles (made in China), the prices will decrease year after year. Working executives and experienced customers showed the concern about the number of mobile phone they need to carry around. Hence they required a dual SIM mobile- one for personal use and the other for place of work.

4.1.6 Country of origin and mobiles:

Different brands available in the market were discussed. Also their COO were identified. Participants knew the COO of the well known brands only. Nokia’s country of origin was identified by almost all the participants as Finland. They also identified COO for Sony Ericksson (may be because of awareness towards Sony), Samsung and iPhone as Japan, Korea and USA respectively. But country of origin was not correctly identified by participants for brands like LG, Motorola, Blackberry, HTC and O2. Participants’ knowledge regarding COD and COM was known and almost all agreed that for mobiles majority of the parts were made
manufactured or assembled in China. They would not prefer that but they had no other alternative and it was difficult to identify the COM for all the brands. Some participants even dismantled their mobile phones to identify the COM for battery and were astonished to find out that almost all the batteries of different brands were made in either China, Thailand or even Indonesia and Philippines.

4.1.7 Applications of Laptops:

The discussion initiated with the usage of computers in the day to day life. Participants identified the various usage of the computer as word processing, entertainment instrument, gaming tool and internet browsing. The participants had a clear idea of how the laptop is different from a desktop. Different categories of participants identified the various applications of laptop as follows: Students for writing notes and making presentations and at times for surfing the net, (that is for study purpose). Working executives especially from the marketing and sales, use it for presentations and virtual product demonstrations. Managers use it mostly during their travel to remain in touch with their office. Also another category called SOHO (small office, home office) use it for office purpose as well as at home for various usage like making reservations, making payment for fees or premiums and stock trading. There are certain categories of customers who use the laptop only as a show off symbol of status and they rarely use it. Some even prefer the laptop as it provides the privacy because of large number of family members present at home.

4.1.8 Features considered for selection of laptop:

Majority of the respondents’ consent was that the most important parameter for choosing a laptop was brand; the popular brands being HP, Compaq and Dell.
Sony Vaio was supposed to be a premium brand and hence was preferred by all but purchased by few. Word of mouth publicity was also identified as a major parameter in choosing a specific brand. Lenovo and Sahara were considered as economical foreign brands where as HCL and Wipro were Indian made economical brands. The basic specifications combinations of a laptop such as processor (Intel or AMD), RAM size, hard disk capacity and screen size were important parameters used by respondents for choosing a specific brand. Apart from these the next important sets of features were ease of mobility, security against virus threats, lightweight and longer battery life. Also few of the participants raised concerns about the laptops ability to be compatible with various other electronic devices such as mobile, digital camera, camcorder, scanner, printer and bar code reader for easy transfer of data from one machine to another. Availability of the license software at the time of purchase was also a major factor in deciding the brand of a laptop.

4.1.9 Attributes most used in a laptop :

Different participants identified different applications for laptop. Students category identified it for study purpose mainly making assignments and reports, presentations and calculations using Excel software, for transfer of data from pen drive to laptop and vice versa and simultaneous running it for listening to songs. Also the category of working executives and experienced customers use it for their routine office work such as checking mails, making databases, presentations and reports and computing through Excel and other software. There are also specific users who use laptop of the higher end for specific purposes of making animations, CAD CAM designing, movie and photo editing, making programmes and research in scientific applications.
4.1.10 Problems faced in using the laptop:

All the participants identified the major problem in using a laptop was more of external rather than internal. That is the laptop has a constant threat of attack from virus, or other spams, which do come into the laptop when one is surfing the net or when untrusted CD, DVD or pen drives are used in the laptops. The other major problems identified were battery backup, screen resolutions from different angles, speaker quality, after sales service and almost non availability of future up gradation in the RAM or hard disk of the laptop.

4.1.11 Desired features in the next laptop purchased:

The participants observed that the laptop has been used more as a computer that can be taken along with you. Hence the weight of the laptop is a major concern and hence the companies which can decrease the weight without compromising on features are likely to get more sales. Other important features while selection are the robustness, extended warranty options, customization, easy connection to other networks, compatibility to other electronic gadgets like e book (iPad), Mp3 players, LCD projectors, system and data security, styling and in built mobile broadband connectivity. The specifications of rival brands are more and more similar and hence they did not become important criteria for the choice of a laptop. But few of the participants preferred LED screens instead of LCD screens in the laptop.
4.1.12 Country of origin and laptops:

The discussion on the originality of various brands of laptops brought out that unlike mobiles customers were aware of only Sony Vaio’s COO. For other brands like HP, Compaq, Dell, Acer, Lenovo the COO were not known. These brands COO were not recognized even after giving certain clues. Hence there was no question of getting the response on identification of COD. But many of the participants did identify that many parts of the laptops were manufactured in China.

After the focus group, in depth interview of dealers for both product categories was done. This was to ensure access to any other information which was left out in the focus group. But it was found that the dealers were also having limited information especially related to COO, although their technical knowledge on features was much more than the focus group members. Also, some more unknown brands like NEC and Fujitso for higher end laptop and Chinese made unbranded mobiles came into knowledge through in depth interview of the dealers.

Both the focus group and in depth interview were used to identify any new parameters that will help to formulate the scale items. But the details given by the participants were all covered up in the scale items because of the general description nature of the scale items.

4.2 Phase 2 - Identification of product categories and their COD & COM:

4.2.1 Identification of Product Categories:

We can see from annexure 2-a, 2-b that the sales of laptops have jumped up in the years 2006 and 2007 and also from the annexure 3-a, 3-b and 3-c the sales of mobiles have jumped up in the years 2006 to 2008. Hence these two product categories were chosen for the study. Also pretest was done to identify the following
parameters of the laptop and mobile phones through a questionnaire.(see annexure 6-a).

a. Financial risk associated with laptop and mobile: In the pretest the respondents identified that the laptop was more financial risky than the mobile. Almost all the respondents identified the laptop as financially risky where as only about half of the respondents identified mobile as risky. It may be because of the higher price range of the laptop.

b. In the pretest laptop was identified to be more technologically complex than mobile as almost half of the respondents had identified laptop to be technologically complex to only about one third of the respondents identifying mobile as technologically complex.

c. Status of consuming the mobile and laptop was measured using five item scale. The grand mean of the scale suggests that the status while using a mobile is more than that while using a laptop. Grand mean for mobile =3 and for laptop =2.77 on a scale of 1 to 5 where 1=mostly disagree and 5 = mostly agree.

d. Personal involvement was measured for both the product categories with the help of Zaichowosky’s (1986) 20 item scale. The grand mean for laptop was 3.69 and that for mobile was 3.23. Hence the involvement for laptop is relatively more than that of mobile.

Thus we can say that although both the product categories are familiar to the respondents, yet they possess different levels of financial risk, technological complexity, status consumption and personal involvement. On all the parameters the
scoring of laptop is different than that of mobile. Hence the two product categories are rightly chosen as instruments of research study.

4.2.2 Identification of countries of design & countries of manufacturing:

To identify the countries required for the research study, a questionnaire (see annexure 6-b) was developed asking the respondents to name countries in which various product categories were produced of greatest value. This was also cross checked with identification of country of design and country of manufacturing for mobile and laptop. The results of these two parts were USA, Finland, Japan, China, Korea and Taiwan as major countries for mobile by the respondents. Similarly for laptop the major countries identified were USA, Japan, China and India. But as majority of companies get their laptops manufactured in Taiwan, it was replaced in place of India where certain operations of laptop manufacturing are only performed and is again restricted to few companies.

4.3 Phase 3 – Data Collection for Factor Analysis and Reliability and Validity checking:

4.3.1 Data Collection for Factor Analysis:

Factor analysis was done for the 14 item country image scale initially formed by Martin and Eroglu (see annexure 10-a). The technique used was Principal component analysis for the reduction of 14 items. For this as a part of pretest, respondents were asked to score the values for different countries namely USA, France, China and South Korea on the 14 items of the scale. The details of the factor analysis for each of the countries are given in annexure 7-a, 7-b, 7-c and 7-d. Analyzing the rotated component matrix for all these countries, the total items
reduced from 14 to 6. Most of these items were present in the factor analysis of majority of these countries. Only one item namely low/ high standard of living was not present in the analysis. But looking to its importance, it was added in the final questionnaire. The items selected for final questionnaire were as follows:

1. Economically underdeveloped / developed
2. Production of low quality/ high quality products
3. Unstable/ stable economic environment
4. Non industrialized/ Predominantly industrialized
5. Low/ high standard of living
6. Low level/ high level of technological research

4.3.2 Reliability and Validity Checking :

The reliability of the scale was checked using internal consistency. This required calculation of reliability coefficient also known as Cronbach’s Alpha, for all the four countries namely USA, France, China and South Korea. It was 0.729 for USA, 0.727 for France, 0.615 for China and 0.727 for South Korea (see annexure 8-a, 8-b, 8-c and 8-d). Thus all the four countries had Cronbach’s Alpha value more than 0.6. Hence as suggested by Peter (1979), the scale is reliable.

Also the scale’s convergent validity was checked using four other countries namely India, England, Germany and Japan. That is the respondents gave their response on the 14 items of country image scale for altogether a different set of countries as listed above. The results of factor analysis through Principal Component Analysis revealed the presence of majority of these six items in all the four countries (see annexure 9-a, 9-b, 9-c and 9-d). Only one item namely predominantly industrialized/ predominantly non-industrialized did not feature in the factor analysis
of all these four countries. Hence scale’s convergent validity was established (Churchill, 1979).

The discriminate validity was checked using correlation. The mean scoring of these scale for all the eight countries was co related with the Nagashima’s scale for ‘Made in’ product image with 14 items. (see annexure 10-a and 10-b for the two scales) It was identified that both the scales had a very moderate correlation of the value of 0.273 only (see annexure 11). So, this scale measured the country image construct only and is not reflecting any other variable (Peter and Churchill, 1981).

Hence the newly revised items were used in the subsequent Phase IV as items to measure country image for various countries of Country of Design and Country of Manufacture for the two product categories

The final part of data collection required the questionnaires to be formed with the help of the three scales as mentioned in the research design chapter. Six items from country image scale (mentioned before in phase III), three items from brand extension scale (illogical/ logical, not natural/ natural* and inappropriate/ appropriate), five items from perceived quality scale (reliability, workmanship, overall quality, dependability and durability) and five items from perceived value scale (value for money, economy, quality of purchase, bargain and acceptability of price) were used to form the questionnaires. Also in the beginning part of questionnaire the respondents’ demographic details and the purchase details of the laptop or mobile (as the case may be) were included. Total eight questionnaires for the two product categories were formed as mentioned below:
Table 4.1

Combination of COD and COM for Laptop and mobile for 8 versions of questionnaires

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Product</th>
<th>Country of design (COD)</th>
<th>Country of manufacture (COM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Laptop</td>
<td>USA</td>
<td>Japan</td>
</tr>
<tr>
<td>2.</td>
<td>Laptop</td>
<td>USA</td>
<td>China</td>
</tr>
<tr>
<td>3.</td>
<td>Laptop</td>
<td>Japan</td>
<td>Taiwan</td>
</tr>
<tr>
<td>4.</td>
<td>Laptop</td>
<td>Japan</td>
<td>China</td>
</tr>
<tr>
<td>5.</td>
<td>Mobile</td>
<td>Finland</td>
<td>USA</td>
</tr>
<tr>
<td>6.</td>
<td>Mobile</td>
<td>Finland</td>
<td>China</td>
</tr>
<tr>
<td>7.</td>
<td>Mobile</td>
<td>South Korea</td>
<td>Japan</td>
</tr>
<tr>
<td>8.</td>
<td>Mobile</td>
<td>South Korea</td>
<td>India</td>
</tr>
</tbody>
</table>

All the eight versions of the questionnaires are given in the annexure 12-a to 12-h.

*It would be worth mentioning that I had interacted with Mr. Kevin Keller and Mr. David Aakar through e-mail as the third item in their original scale was bad fit/good fit. Authors Ms. Leila Hamzaoui and Mr. Dwight Merunka have replaced this item in their article (mentioned in the reference section) with natural/not natural. Mr. Keller had asked me to better cross check with the authors who have cited the article and also changed it. When contacted through e-mail Ms. Leila Hamzaoui had replied that the item was adapted to the requirement of the study. Hence I have replaced this item with natural/not natural to better suit to the requirement of this study. Later on Ms. Leila had also answered my queries related to factor analysis and data analysis.
References:


