

Brand Image Assessment by Consumer: An Application of Multidimensional Scaling To Mobile Telephone Services

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Abstract - Brand image assessment by consumer: An application of multidimensional scaling to Mobile Telephone service is the research done on eight mobile telephone service providers namely AIRCEL, AERTEL, BSNL, IDEA, RELIANECE, TATA, VIDEOCON, and VODAFONE. The growing rivalry in Mobile Telephone services is arisen here it's needed for the study. Objectives for the study were to determine the perceptual proximity of brand image of Mobile Telephone services in India using technique of multidimensional scaling and ascertaining the image of the above eight brands of mobile telephone services. The perceptual map by all consumers, by male and female consumers has been drawn. Eight service providers are analyses on three attributes namely price, service quality and network quality. Reliance and Videocone are the very low priced say most economic mobile telephone services. Airtel is very good at its network and services.

Keywords: Brand Image, Brand Equity, Multidimensional Scaling, ALSCALE.

I. INTRODUCTION

Brand image assessment by consumer: An application of multidimensional scaling to Mobile Telephone services is an empirical study. The research has provided current situation about how different brand are positioned in mind of customer therefore the brand image has been assessed. For this purpose multidimensional scale has been used for the mapping of Mobile Telephone Services. Three perceptual maps of Mobile Telephone Services have been obtained for all respondents, male and female of customer.

1.1 BRAND IMAGE

A brand image consists of a name, term sign, symbols, or combination of them that attempts to represent the unique benefits a company can provide to consumer through a particular product or service, in terms of attributes, values and culture (Kotler 1997). Brand image has been defined as the information linked to a brand in customer memory (Keller 1993). Brand equity is the differential effects that knowing the brand has on customer responses to the product of its marketing (Kotler). Brand is any special information

they exist in mind of customer with respect to a brand relevant as an image elements. Branding in consumer markets has been shown to increase a company's financial performance and long term competitive position (Mudambi, 2002).

This is indisputable fact that brand image creates a value to the company and a number of researches have been conducted on this field in last three to four decade years. Using different entails for advertising and marketing so on so forth allows building brand image faster and therefore making the mark in the consumer's minds.

Brand as an epitome image in consumer's mind. Brand as visualize image in mind of consumer, consumer just perceived reality, in the other words brand as image in consumer's mind of functional and psychological attributes. Other generalizations about brand are images of products/services and its experiences, that consumer associate with a particular brand.

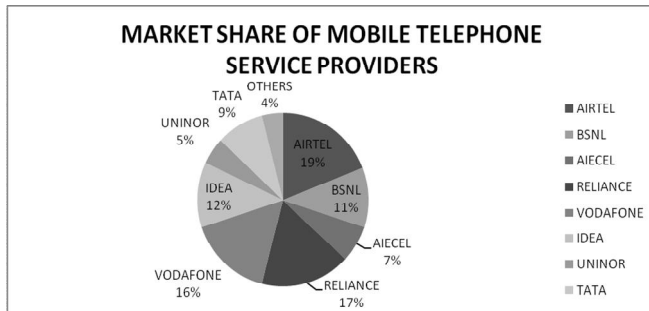
Consumer perceived attributes of the product or services these attributes are well known as stimuli. So this stimulus gets in contracts with the receptors of consumer and as general physiological process the respondents response about the stimulus. So the brand image assessment of Mobile Telephone Services is study for identification of these attributes reminiscence, stimulus/attributes help in perceptual mapping. Stimulus/attributes are grouped and positive/negative impact of these attribute/stimuli has been presented in semantic differential scale, by ranking of these responses the impact of attributes has been prioritized and snake diagram of group of eight Mobile Telephone Services and individual Mobile Telephone Services has been drawn in the research.

1.2 MOBILE TELEPHONE SERVICES IN INDIA

The mobile telecommunication industry in India has significantly poked out. The mobile phone now has a multiform operational it may become a portable computer,

dedicated to professional customers, it can take on multiple forms for entertainment and communication so on and so forth. At present the mobile telephone service provider manages various numbers of services. On the demand side, the evolution of mobile communication consumption is a flooding out phenomenon. The big players are Airtel, Reliance, Vodafone, Idea, and BSNL/MTNL. There are many smaller players, with operations in only a few states. Figure 1.1 showing market shares of different companies

Figure 1.1 Market Shares Mobile Telephone Services



Source: Minister of State for Communications and IT MilindDeora base transceiver stations (2GGSM & CDMA, and 3G).

1.3 NEED FOR THE STUDY

The Mobile Telephone services are the vital services. The growing rivalry in Mobile Telephone services is arisen here it's needed. The Mobile Telephone services industry is largest and fastest growing industry in country like India. Due to which the competition in this services has been increased dramatically since last decade. This industry is in the state of flux.

The research has been conducted on eight mobile telephone service as availability and accessibility in research conducted area. Those eight brands of Mobile Telephone Services are AIRCEL, AERTEL, BSNL, IDEA, RELIANECE, TATA, VIDEOCON, and VODAFONE

1.4 RESEARCH OBJECTIVE

Research objective for the study were to determine the perceptual proximity of brand image of Mobile Telephone services in India using technique of multidimensional scaling and ascertaining the image of the major brands of mobile telephone services.

1.5 MULTIDIMENSIONAL SCALING

Multidimensional scaling (MDS) is a series of techniques that helps the analyst to identify key dimensions underlying respondents' evaluations of objects. It has been used in the

research to obtain positioning of branded Mobile Telephone Services. The purpose of MDS is to transform consumer judgments of similarity/dissimilarity into distances represented in multidimensional space. The resulting perceptual maps show the relative positioning of all branded Mobile Telephone Services. (MDS) is a technique had created a map displays the relative positions of a number of brands of Mobile Telephone Services. The map is consisting of two dimensions. The program calculates the metric solution. The table of distances is known as the proximity matrix.

The data has been typically gather by respondents given simple global responses to statements such as these: - respond the similarity or dissimilarity of Airtel-Airtel, Airtel-BSNL, Airtel-TATA, Airtel- IDEA, Airtel-Reliance, Airtel-Videocon, Airtel-Vodafone, Airtel- BSNL, Airtel-TATA, Airtel- IDEA, Airtel- Reliance, Airtel- Videocon, Airtel- Vodafone, BSNL- TATA, BSNL- IDEA, BSNL-Reliance, BSNL- Videocon, BSNL- Vodafone, TATA-IDEA, TATA- Reliance, TATA- Videocon, TATA-Vodafone, IDEA- Reliance, IDEA- Videocon, IDEA-Vodafone, Reliance- Videocon, Reliance- Vodafone, Videocon- Vodafone, on a 5-point scale - AIRCEL is more similar to AIRTEL than to Vodafone- I like Airtel better than product Vodafone From these simple responses, The basic purpose of multidimensional scaling is to represent the object relationships by comparing the similarities or dissimilarities in pairs among a set of n objects A perceptual map has been drawn that best portrays the overall pattern of similarities among the eight Mobile Telephone services.

II. SYSTEM MODEL

The positioning of eight mobile telephone service providers *Airtel, Airtel, Bsnl Idea, Reliance, Tata Videocon, and Vodafone* has been obtained. Perceptual map by all respondents has been shown in figure 2.1

The perceptual proximity of branded Mobile Telephone Services has been mapped in four quadrants against two important dimensions i.e. dimension 1 and dimension 2. The dimension 1 is *price* and dimension 2 is *services*, but the *network* has also mark very near to services i.e. also considered as dimension 2 and as second option.

Perceptual map by Male respondents has been shown in figure 2.2

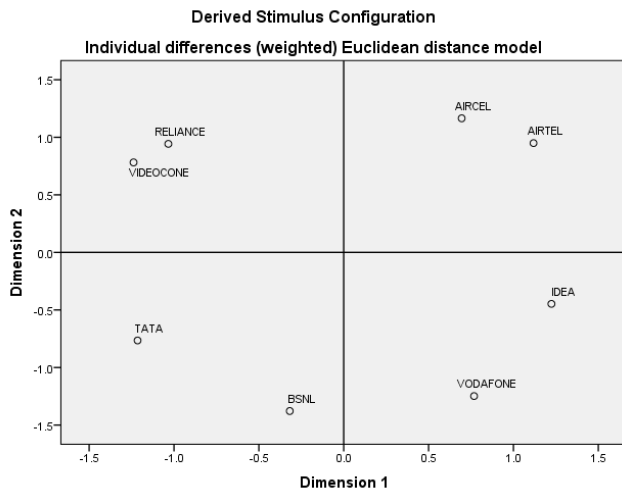


Figure 2.1 Perceptual maps of eight branded Mobile Telephone services providers.

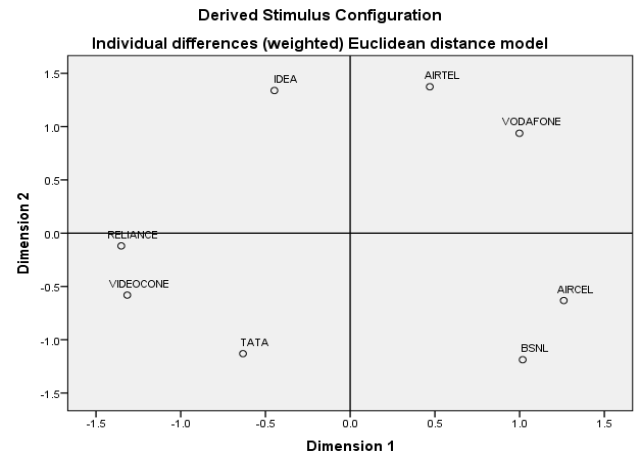


Figure 2.3 Perceptual Map of Female Respondents

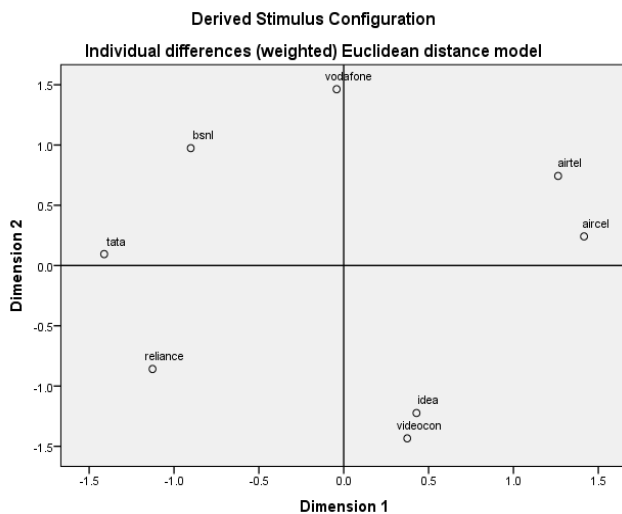


Figure 2.2 Perceptual Maps by Male Respondents

In this map Airtel and Aircel lies in first quadrant, Tata and BSNL lies in second quadrant Vodafone at very close to zero x-axis, Only reliance lies at third quadrant and last idea and Videocon lies at fourth quadrant.

Perceptual map by Female respondents has been shown in figure 2.3

In this map Airtel and Vodafone lies in first quadrant. Idea lies in second quadrant reliance at very close to zero y-axis. Videocon and Tata laid at third quadrant and last idea and Aircel and BSNL lies at fourth quadrant.

III. REVIEW OF LITERATURE

3.1. BRAND IMAGE

A brand image consists of a name, term sign, symbols, or combination of them that attempts to represent the unique benefits a company can provide to consumer through a particular product or service, in terms of attributes, values and culture (Kotler 1997). Brand imagery that has both depth and breadth of brand awareness, such that customers always make sufficient purchases as well as always think of the brand across a variety of settings in which it could possibly be employed or consumed Kevin Lane Keller (2010).

3.2 Brand image and Brand equity

Aaker (1991, p 15) defines brand equity as ‘a set of brand assets and liabilities linked to a brand, its name, and symbol, which add to or subtract from the value provided by a producer, by a product or service to a firm and/or to that firm's customers’. Aaker (1991), who proposes five dimensions to measure brand equity: brand loyalty, brand recognition, perceived quality, brand image and other assets owned by the brands (patents, registered trademarks, and so on).

Aaker (1992, pp. 109-110), brand image is “a set of associations, usually organized in some meaningful way.” Associations constitute pieces of information consumers hold about a particular brand that constitute product-related or non-product-related attributes; functional, experiential, or symbolic benefits; and overall brand attitudes (Keller, 1993).

3.2 MULTIDIMENSIONAL SCALING (MDS)

According to Malhotra and Dash (2009) multidimensional Scaling is the class of procedures for representing perceptions and preferences of respondents spatially by means of a visual display. Perceived or psychological relationships among stimuli are represented as geometric relationships among points in a multidimensional space.

These geometric relationships are known as spatial maps, the axis of same are assumed to denote the psychological bases respondent use to form perceptions and preferences for stimuli. Multidimensional scaling has been used in marketing to identify the number and nature of dimensions consumers use to perceive different brands in the market place, the positioning of current brands on these dimensions and the positioning of consumers ideal brand on these dimensions. Information provided by multidimensional Scaling has been used for variety of marketing applications, like Image measurement, market segmentation, and new product development etc.

MDS methodologies represent variables as points in Euclidian space; with inter point's distances corresponding to the proximities of variables as provided by any proximity measures, such as correlations. The underlying concept of the MDS approach is that there is a strong isomorphism between proximity measures among variables and a set of points in Euclidian space.

The MDS approach enables us to achieve a geometric representation of order relations. MDS emphasizes direct observation of the correlation matrix. There are several MDS programs

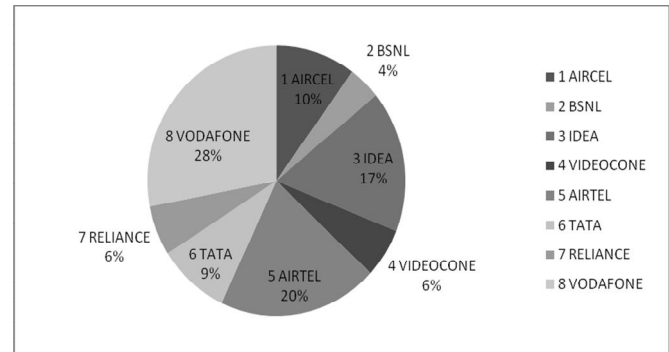
IV. PROPOSED METHODOLOGY

The research had been focused on following objectives, a) to determine the perceptual proximity of brand image of mobile telephone services in India using technique of multidimensional scaling, b) to ascertain the image of each of the major brands of mobile telephone services. The questionnaire consists of 49 questions. First 28 questions ask respondent express their feelings about paired eight brands of Mobile Telephone Services based on dis/similarity of *paired* of brand as paired below Aircel-Airtel, Aircel-BSNL, and so on so forth.

Question 30 ask name of your current service provider and the next question ask duration, socio demographic information etc. The data has been collected in sectors and mall.

The analysis has been done using the ALSCAL Multidimensional Scaling for obtaining the perceptual map depicted in system model section of the paper. The market shares of all mobile telephone services brands have been drawn in the figure 4.1

The figure 4.1 shows the market shares of all mobile telephone services brands



V. SIMULATION/EXPERIMENTAL RESULTS

Perception based on three variables namely (Price, Service, Network.) for eight (Aircel, Airtel, BSNL, IDEA, Reliance, Tata, Videocon, Vodafone) mobile telephone services are obtained, analysed and presented in table 5.1

Table no 5.1 Perception of mobile telephone by all consumers with their market share.

Mobile Telephone services	Dimension 1 (Price)	Dimension 2(Service)	Dimension 3 (Network)	Market Share Percentage
<i>Aircel</i>	<i>high</i>	<i>very good</i>	<i>very good</i>	10
<i>Airtel</i>	<i>highest</i>	<i>high</i>	<i>good</i>	20
<i>BSNL</i>	<i>low</i>	<i>lowest</i>	<i>poorest</i>	4
<i>IDEA</i>	<i>highest</i>	<i>medium</i>	<i>good</i>	17
<i>Reliance</i>	<i>very low</i>	<i>high</i>	<i>high</i>	6
<i>Tata</i>	<i>low</i>	<i>medium</i>	<i>medium</i>	9
<i>Videocon</i>	<i>very low</i>	<i>high</i>	<i>high</i>	6
<i>Vodafone</i>	<i>high</i>	<i>low</i>	<i>low</i>	28

Reliance and Videocone are the very low priced say most economic mobile telephone services. Airtel is very good at its network and services.

But the perceptual map obtain from male is different as compare to that of female. According to male Tata is the most economic, and Vodafone is very good in network and services. Table no 5.2 shows perception of male consumers.

Table no 5.2 Perception of mobile telephone by male consumers.

Mobile Telephone services	Dimension 1 (Price)	Dimension 2(Service)	Dimension 3 (Network)
Aircel	highest	medium	medium
Airtel	high	medium	medium
BSNL	low	low	poor
IDEA	medium	lowest	poorest
Reliance	low	low	low
Tata	lowest	medium	medium
Videocon	medium	lowest	poorest
Vodafone	medium	highest	highest

Table no 5.3 shows the perceptual maps obtain female consumers. According to them reliance and Videocone are most economic and Airtel provides best network and the services

Table no 5.3 The Perceptual maps obtain female consumers.

Mobile Telephone services	Dimension 1 (Price)	Dimension 2(Service)	Dimension 3 (Network)
Aircel	high	medium	medium
Airtel	medium	highest	highest
BSNL	high	low	low
IDEA	medium	highest	best
Reliance	lowest	medium	medium
Tata	medium	low	poor
Videocon	lowest	medium	medium
Vodafone	high	high	high

VI. CONCLUSION

From the research following conclusion can be drawn Reliance and Videocone are most economic mobile telephone services. Airtel is very good at its network and services in consumers mind.

Male consumer thinks that Tata is the most economic, and Vodafone is very good in network and services, female consumers perceives that reliance and Videocone are most economic and Airtel provides best network and the services.

VII. MANAGERIAL IMPLICATION

The important directions are brand manager of each brand of mobile telephone services get a feedback. The brand manager can compare his brand with other brands and can

formulate strategies. Brand managers may work to improve on attributes they score less rated.

VIII. LIMITATION AND DIRECTION FOR FUTURE RESEARCH

The sample size itself was relatively small. To accurately evaluate Customers perceptions about Mobile Telephone Services a larger sample size is desirable. Another is the limitations of the statistical methods used. The interpretation of MDS is different on the ability of the researcher.

Future research needs to focus on a larger cross section of Mobile Telephone Services and employ more diversified random samples to verify the findings of the current study.

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