

Types of Customers Surrounding a Brand: A Classification Based on Correspondence Analysis

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Summary: In order to survive in this competitive market scenario, it has become a mandate to be customer centric. And so, the importance of customer empathy over sympathy should be understood with greater zeal. Having high levels of customer empathy is a key reason why world class brands have become world class. Now-a-days, when consumers have a wide range & variety to choose from, it becomes very difficult for brands to sustain in the marketplace. So, the brands are always flanked by a mixed lot of adopters; reliable, reachable, hoaxed and unreliable. For a firm it is very important to have an insight in what type of customers are surrounding its offering as it could either enhance or degrade its market value in the long run. Keeping this frame in mind, in this work we have classified the customers on the basis of their behavioural and attitudinal performances. To understand this varying behaviour, a well known multivariate technique called Correspondence Analysis has been utilized and has been tested on data collected from Students of University of Delhi.

Key words: Brands, correspondence analysis, customers classification, multivariate technique.

1. INTRODUCTION

Companies spend millions of money to leave ever lasting impression of their brands on consumers. Brand is an image which represents fame, market share, acceptability etc. of the companies in the

market. In this digital world where a consumer can demand any product at any time at any place, a brand (company) should be prepared to perform all necessary tasks to fulfil their unanticipated demands. Therefore, brands obligate to be a "modern brand" for consumers. For this purpose, a brand requires to work on three aspects such that [17]:

- a) Deliver Dynamic Experience: This implies a brand should be reachable to all their customers irrespective of time and location and need to remain active in identifying how and where people like to interact as per customers' feasibility and availability.
- b) Foster an Emotional Connection: Deepening the connection with the customers creates brand loyalty. Customers feel great when they experience a strong connection with the brand and brand always answer their queries, satisfies their demands on time and endow with high-quality customers services.
- c) Stand for a Cause: Instead of just touting their own sustainability, brands should focus on environmental issues, racial justice, gender equality and more. Being morally engaged with the customers build a bond for a particular brand.

Many brands are continuously making efforts to engender such instance loyalty that will take their brand image to an iconic brand. Studies have shown the importance of investing great deal of time in thinking about their customers and their buying behaviour. For example, Harley-Davidson's managers have identified, who their customers are, how customers think and how customers feel and why they buy a Harley rather than a Yamada or a Suzuki or a Big Honda American Classic and who rides a Harley? The research revealed that the average Harley customer is a 43 years old husband with a medium household income of \$66,400 and also come up with seven core customers type such that 1) Adventure-Loving Traditionalist 2) Sensitive Pragmatists 3) Stylish status seekers 4) Laid-back campers 5) Classy capitalists 6) Cool-headed loners and 7) Cocky misfits [10].

A recent study conducted by Praxis Research Partners for MBLM [16] has provided report about the "Most Intimate Brand". By providing warm and fuzzy feelings to the customers, Apple, BMW and Toyota positioned as top three brands among 100 brands. The key reason of being top three brands is; close engagement and connectivity with the customers by producing high quality product and by building emotional commitments. Here, Apple is the most intimate product because the brand itself is a part of customers' own self-expression and life style. When a customer own any Apple product, the product makes him feel an independent thinker, an innovator and ahead of the crowd. Apple brand is known as "The Keeper of All Things Cool" and The Urban Dictionary defines a Macolyte as "one who is fanatically devoted to Apple products", as in "He's a Macolyte; don't even think of mentioning Microsoft within earshot" [10]. To comprehend the dynamic behaviour of the customers, below section discusses the customer behaviour model, the factors that affect their behaviour, buyer decision process and types of buying decision behaviour.

1.1 CUSTOMER BEHAVIOUR AND THEIR DECISION [10]

Deep study of consumers' behaviour and their responses towards products make marketers to come up with different strategies which include best combination of 4 P's i.e. qualitative product, at lower price, at feasible place and with effective promotions. Decisions of the buyers are called as black box which is not able to understand. Profound researches performed many surveys and analyzed some universal characteristics which directly or indirectly impact the decisions of the consumers; such that cultural, social, personal and psychological are the factors which impact buyers behaviours. Buying decisions of the customers follows a particular pattern, which can be explained as follows:

- 1) Initially, need of the product is recognised,

- 2) After that, information related to requirement and product is gathered,
- 3) Further, all possible alternatives are evaluated,
- 4) Once the product is finalized, customers buy the product
- 5) Last, but most important step how customer would react i.e. post behaviour. This behaviour is based upon their satisfaction/ dissatisfaction level.

This last step is necessary for marketers to observe the reasons why customers are satisfied/ dissatisfied with the product. Because future decisions of customers are based on their current satisfaction level with the product and this will directly impact the image of the brands. Brands analyze these characteristics of consumers and accordingly they use new and advance technologies which economically and politically best fit to the market.

Customers buying decisions differs greatly for a particular product. These decisions have been categorized on the basis of the degree of buyer involvement and the degree of differences among brands. This can be explained as:

- 1) If customers have high involvement in searching rare, expensive and risky product and also significant difference is present among different brands or it can be said that brand's preference is important then it is called as complex buying behaviour.
- 2) Dissonance reducing buying behaviour occurs while involvement of customer is high with infrequent or risky purchase but differences among brands are found low.
- 3) Under this category, the quality of the product is imperative such that brands hold their significant level but the involvement of the customers is not much or it can be said that they do not spend much time in searching information extensively rather than they are looking for the variety of the products that are available in the market. This behaviour of customers is called as Variety-seeking buying behaviour.
- 4) When customers show very less involvement and also the brands do not make any significant difference generally for basic and common products then this behaviour is called as habitual buying behaviour.

As we have seen how customers have been categorized on the basis of their involvement in purchasing and by comparing the products with many well known and established brands. Therefore, it is a fact that when a customer receive great experience from a brand and feels connected with the brand, it makes him to spend extra even if the same type of product is available with the competitive brand at lower price. To figure out customer buying behaviour is never being a simple task, understanding customers from their perspective is essential task for the marketers. Hence, customer empathy is a need for any brand which produces dramatic sales and profits. This study is an alternative approach to classify customers in different categories i.e. reliable, reachable, hoaxed and unreliable on the basis of their attitudinal and behavioural activities. This classification is presented in section 2. In section 3, concept of Correspondence Analysis multivariate technique along with its usage is described. In section 4, we have demonstrated how customers' categories are associated with different brands using Correspondence Analysis. Section 5 discussed interpretation and some insight points of this study. Managerial implication and Conclusion are given in section 6 and section 7.

2. RESEARCH METHODOLOGY

Science and upcoming technologies are making humans' life fast and better by providing hi-tech electronic gadgets. Smart phones are one of the best and widely used devices which have become a basic necessity of every individual. These individuals can belong to any cluster which can be based on any/many factors such as income level, age, qualification, location etc. This study is an effort to

cover the behaviour of young generation towards brands, as this age group behaves very differently on every new technology of mobile phones provided by different brands. They indulge in the need to have something electronic in their hands always. They use mobile phones for many reasons such as news-updates, playing games, connecting with friends, searching new applications, surfing and browsing on internet etc. Therefore, this case study has carried out on 101 students of the age group of 18-25 years, who are the students of University of Delhi.

To observe the overall response of the students towards brands and the products (mobile phones) provided by brands, we asked questions based on the behavioural and attitudinal aspects from them. Behavioural aspect implies how much a particular brand is significant for a student. For this purpose, two questions were enquired on the basis of 5 pointer scale where 5 stands for "Strongly Agree", 4 means "Agree", 3 means "Neither Agree Nor Disagree", 2 means "Disagree" and 1 implies "Strongly Disagree". These two questions and their respective values can be seen graphically as below i.e. Figure 1: here it can be analyzed that more than 60% students are loyal towards their respective brands and for more than 50% students making purchase from their preferable brands would matter a lot. Also it can be observed that there is very less percentage of students for who brand image do not make any difference.

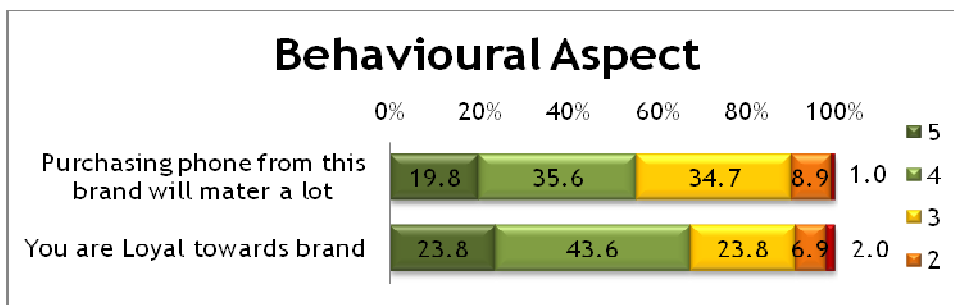


Figure 1. Behavioural Aspect

Another aspect is attitudinal aspect, which describe the response of customers (students) after the making purchase that is after the purchase how consumers have experienced that branded product. As it might happen consumers might undergo post-purchase dissonance (after sale discomfort) as compared to the expectations they kept from the product and its brand. For this purpose two another questions were enquired which were measured on 5 pointer scale where 5 stands for "Extremely Likely", 4 means "Very Likely", 3 means "Somewhat Likely", 2 means "Not Very Likely" and 1 implies "Not at all Likely". The questions were based on the continuation and recommendation of the brand. These two questions have very significant role in observing the reaction of customers after purchase. "Continue" explains those customers (students) who would like to continue/discontinue with this brand in future which indirectly implies that they are satisfy/dissatisfy respectively with this branded product. "Recommend" terms describes response of those students who would like to spread positive/negative word of mouth about the product and its brand to their connected networks (i.e. family, friends or relatives etc.). In Figure 2, it is observed that more that 50% students would like to continue with the same brand and similarly 50% students would recommend to the other individuals.

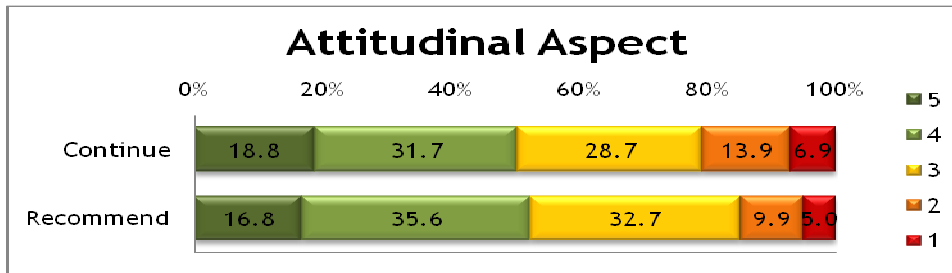


Figure 2. Attitudinal Aspect

By studying individual attributes of "behavioural aspect", it may lead to any result but joint effect of both attributes would result a significant output as it measures the overall commitment of customers towards brand. Therefore, we combined both the attributes into one called as "Commitment", this is an average value of both attributes i.e. "You are loyal towards brand" and "Purchasing phone from this brand will mater a lot". Figure 3 represents the values of the "Commitment" below.

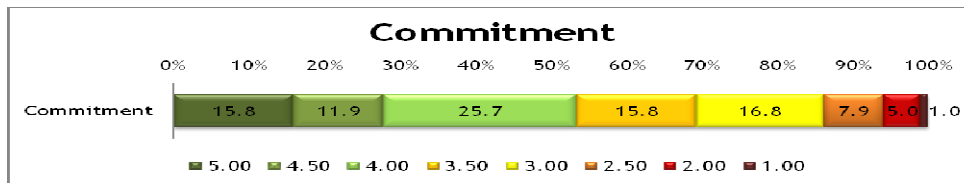


Figure 3. Overall Commitment towards Brand

One objective of this study is to classify individuals on the basis of their post purchase behaviour. As we have mentioned two different aspects of consumers, by observing them mutually, we have categorized them in different classes. Here, "Commitment" has been plotted keeping it on y-axis with respect to "Continue" and "Recommend" keeping it on x-axis. Figure 4, is a pictorial representation of this classification. This graph has signified four different categories of customers on the basis of ratings described as following:

1. **Reliable customers:** This class of consumers is "loyal" towards their brand and would also like to continue the brand in future whenever brand come up with any innovative technology or would like to recommend this brand of product in future since the commitment level and continue/recommend level are greater than and equal to 3.5. Therefore, these students are trustworthy and honest customers for the company.
2. **Reachable customers:** This category includes those customers whose commitment level is high but they would not like to continue/recommend the product in future. This might be the scenario that consumers prefer the brand but they are not happy with the current product purchased. Therefore, there is a possibility for the brands to reach to these customers again and can build its new image by providing better and innovative product.
3. **Hoaxed customers:** These are those unpredictable customers whose commitment level is low such that they are not loyal with the brand but they used to spread a fake image that they would like to continue/recommend the product and its brand to others. This category plays a crucial role in constructing/deconstructing the image of the brand.
4. **Unreliable customers:** This category belongs to those not trusted customers who are not truthful with brands. Their commitment level and chances of continue/recommend both are very low. These customers have high probability of switching from one brand to another brand very frequently. Therefore, they are called as unreliable.

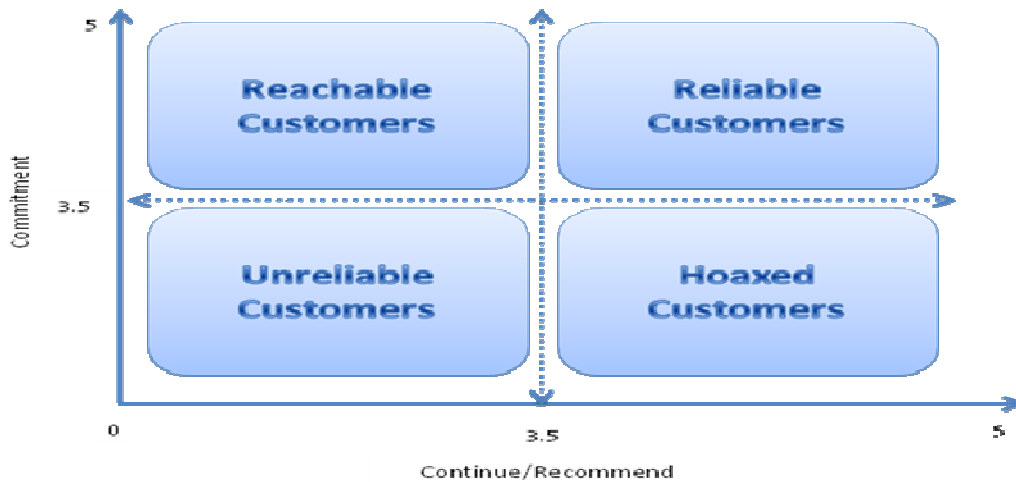


Figure 4. Classification of customers as per Commitment with Continue/Recommend

Further, section explains how these categorizations of customers have been used for correspondence analysis. Before this a brief description of multivariate technique “Correspondence Analysis” has been discussed.

3. CONCEPT OF CORRESPONDENCE ANALYSIS

Correspondence Analysis is a statistical and an increasingly well-accepted interdependence technique for dimensional reduction and perpetual mapping [6]. This technique is analogous to principal component analysis, which is appropriate to discrete rather than to continuous variables but also mentioned as a neglected multivariate method by Hill in his article in 1973 due to less widespread of this technique. But with time, its features and its usefulness made this analysis a highly flexible method. A distinct advantage of correspondence analysis over other method yielding joint graphical displays is that it produces two *dual* displays whose row and column geometries have similar interpretations, facilitating analysis and detection of relationships [9]. Further, extensions of correspondence have also been made called as Canonical Correspondence Analysis and Detrended Correspondence Analysis [3,12]. Correspondence Analysis of contingency tables (CA) can also be closely related to a particular Supervised Multilayer Perceptron (MLP) or can also be described as Unsupervised MLP [11].

History of this technique can be traced over last 80 years under a variety of names such as optimal scaling or scoring, reciprocal averaging or homogeneity analysis. A bibliographic review of this technique has been given by Beh in 2004, where it mentioned that its foundation is algebraic rather than geometric. The foundation of the technique was nearly laid with the 1904 and 1906 papers of Karl Pearson, as argued by [4], when he developed the correlation coefficients of a two-way contingency table using linear regression. As [13,14] states that "The conception of linear regression line as giving this arrangement with the maximum degree of correlation appears of considerable philosophical interest. It amounts primarily to much the same thing as saying that if we have a fine classification, we shall get the maximum correlation by arranging the arrays so that the means of the arrays fall as closely as possible on a line". Then [4] and [5] noted that "This is exactly what correspondence analysis does. Pearson just was not familiar with singular value decomposition, although this had been discovered much earlier by Beltrami, Sylvester and Jordan". However, the original algebraic derivation of correspondence analysis is often accredited to [8] who

developed a formulation of the correlation between the rows and columns of a two-way contingency table.

Mathematical description of this technique is mentioned in [1,2] concisely. This technique is based on following procedure [6]:

- I. First, collected data has to be converted into a cross-tabulated (contingency table) form.
- II. Calculate measures of association or similarity among each cell frequency value presented in the table.
- III. Creating the Perceptual map as per the values derived in step II.

Hence, this technique is one of the hybrid methods of multidimensional scaling which creates the perceptual map by utilizing cross tabulated non-metric data and position the values of each cell in a single perceptual map. In this study, correspondence analysis technique is utilized to demonstrate the association of types of customers.

4. APPLICATION ON CORRESPONDENCE ANALYSIS

As discussed, in this study interest lies in portraying the association between Types of customers and the brands, from where students have made purchase of mobile phones. Customers' classification has been given as per the rules described in section 2. As it can be seen that first table (Table 1) represents those customers classification who would like to continue/discontinue with the brand which states that in totality 42.6% are the reliable customers who would continue with the brand and on the other hand 36.6% of students who are not satisfied with the product (brand) and would discontinue with the brand in future. Similarly, Table 2 represents counts of those students who would like to recommend/not recommend the brand to others. Here, also overall 42.6% of customers would like to recommend the product in future but 38.6% of students are not going to recommend this brand.

Table 1. Contingency Table: Customers' classification Vs. Total and Brand (Continue)

		Total	Continue			
		Count	Reliable customers	Reachable customers	Hoaxed customers	Unreliable customers
Total	Total	101	43	11	10	37
Which brand of mobile phone you are using currently	Samsung	35	13	3	4	15
	Nokia	18	6	7	2	3
	Apple	5	5	0	0	0
	Sony	23	14	0	2	7
	Micromax	5	0	0	2	3
	HTC	2	1	0	0	1
	LG	1	0	0	0	1
	Blackberry	6	3	0	0	3
	Karbon	1	0	0	0	1
	Lava	0	0	0	0	0
	Panasonic	0	0	0	0	0
	Lenovo	1	0	0	0	1
Any Other	4	1	1	0	2	

Table 2. Contingency Table: Customers' classification Vs. Total and Brand (Recommend)

		Total	Recommend			
		Count	Reliable customers	Reachable customers	Hoaxed customers	Unreliable customers
Total	Total	101	43	11	8	39
Which brand of mobile phone you are using currently	Samsung	35	13	3	2	17
	Nokia	18	8	5	3	2
	Apple	5	5	0	0	0
	Sony	23	12	2	0	9
	Micromax	5	0	0	1	4
	HTC	2	1	0	0	1
	LG	1	0	0	0	1
	Blackberry	6	3	0	1	2
	Karbon	1	0	0	0	1
	Lava	0	0	0	0	0
	Panasonic	0	0	0	0	0
	Lenovo	1	0	0	0	1
Any Other	4	1	1	1	1	

Above two tables (Table 1 and Table 2) are also representing classification of customers on the basis of the brands from where they bought the product i.e. mobile phone. Here, first column gives counts of students with respect to brands where maximum numbers of students belong to brand Samsung, Sony and Nokia and their respective count of types of customers can also be studied. Because of the low base in other brands, we have considered only three brands i.e. Samsung, Nokia and Sony for further analysis. And since the counts of the reachable and hoaxed is low therefore these two columns have been merged into one called "Need-Based Customers". These customers are those who make purchases and switch from one brand to another brand as per their changing need and requirements. Numerical illustration based on correspondence analysis has been shown on the basis of those customers who would continue/recommend the brand.

4.1 Numerical Illustration

Correspondence Analysis (CA) can be implemented on many statistical tools such as SAS, XLSTAT, SYSTAT, SPSS and many packages have been dedicated in R to run CA. We have run this analysis using SPSS version 20. As discussed above (in section 4), only those cases have been considered which belong to any of these three brands such as Samsung, Nokia and Sony. Therefore, total responses have been reduced from 101 to 76. As per the procedure mentioned above (in section 3), analysis has been carried out in three steps:

Step 1: Conversion of data into a cross-tabulated (contingency table) form. Two different attitudinal scenarios have been considered, first those students who would continue the brand and second who would like to recommend the brand to others. Therefore, Table 3 represents two different cross-tabulations with each scenario where brands and customers types have been classified.

Table 3. Contingency Table: Customers' classification Vs. Brands (Continue and Recommend)

Correspondence Table-Continue				
Brand	Customer Type			
	Unreliable Customers	Reliable Customers	Need-Based Customers	Active Margin
Nokia	3	6	9	18
Samsung	15	13	7	35
Sony	7	14	2	23
Active Margin	25	33	18	76

Correspondence Table-Recommend				
Brand	Customer Type			
	Unreliable Customers	Reliable Customers	Need-Based Customers	Active Margin
Nokia	2	8	8	18
Samsung	17	13	5	35
Sony	9	12	2	23
Active Margin	28	33	15	76

Step 2: Calculate measures of association or similarity. To form the basis for association or similarity, CA uses one of the most common statistical concepts called chi-square which standardize the cell frequency of the contingency table and calculate the chi-square value for each cell. Then chi-square value is converted into a similarity/association measure [6]. Below Table 4 is a summary table which represents variety of valuable information, first column is the number of derived dimensions i.e. the number calculated as smaller number of rows/columns' minus one. Singular value is displaying canonical correlation between two variables for all dimensions that indicates the relative contribution of every dimension in explaining the variation in the categories. Inertia is the value which refers to the amount of that total variance which is accounted by each dimension. The chi-square values along with significance levels have been shown for both (continue and recommend) that signifies total inertia value is different than zero. Proportion of inertia is displaying the proportion of total inertia explained by each dimension. Standard deviation of the singular value(s) and correlation between dimensions has been described in last column [6,15].

Table 4. Summary Tables: Continue and Recommend

Summary-Continue								
Dimension	Singular Value	Inertia	Chi Square	Sig.	Proportion of Inertia		Confidence Singular Value	
					Accounted for	Cumulative	Standard Deviation	Correlation
1	.363	.132			.799	.799	.116	.008
2	.182	.033			.201	1.000	.117	
Total		.165	12.537	.014 ^a	1.000	1.000		

Summary-Recommend								
Dimension	Singular Value	Inertia	Chi Square	Sig.	Proportion of Inertia		Confidence Singular Value	
					Accounted for	Cumulative	Standard Deviation	Correlation
1	.390	.152			.900	.900	.110	-.026
2	.130	.017			.100	1.000	.113	
Total		.169	12.817	.012 ^a	1.000	1.000		

Step 3: Creating the Perceptual map. CA creates a perpetual map by using the standardized measure to estimate orthogonal dimensions upon which the categories can be placed to best account for the strength of association represented by the chi-square distances [6]. Below graphical representations (Figure 5 and Figure 6) of cross tables of brands with the classification of customers can be visualized and easily analysed that Sony and Nokia are those brands whose customers are more reliable as compare to the customers of Samsung brand in both the scenarios (continue/recommend).

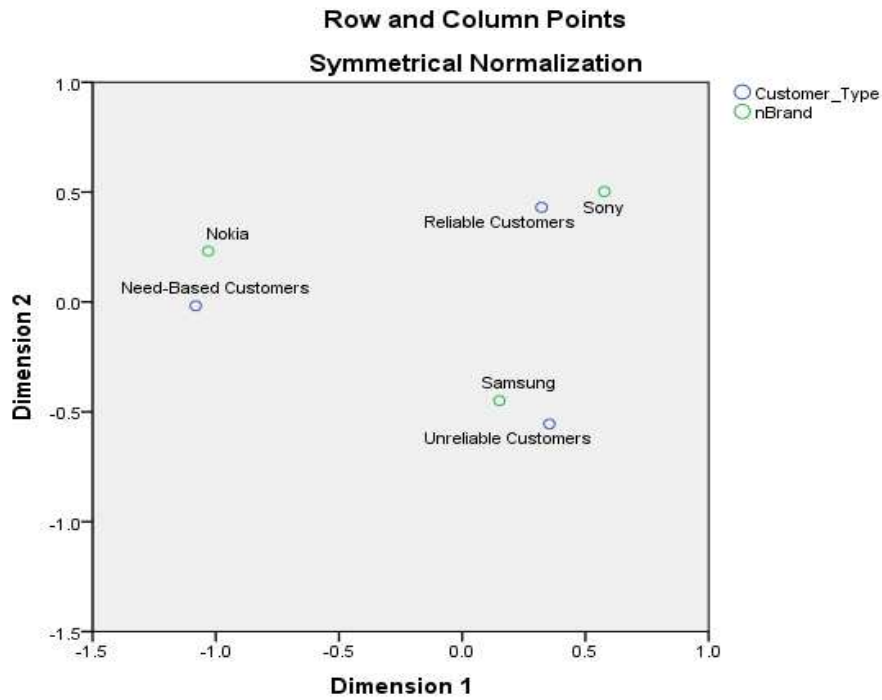


Figure 5. Customers' classification Vs. Brands (Continue)

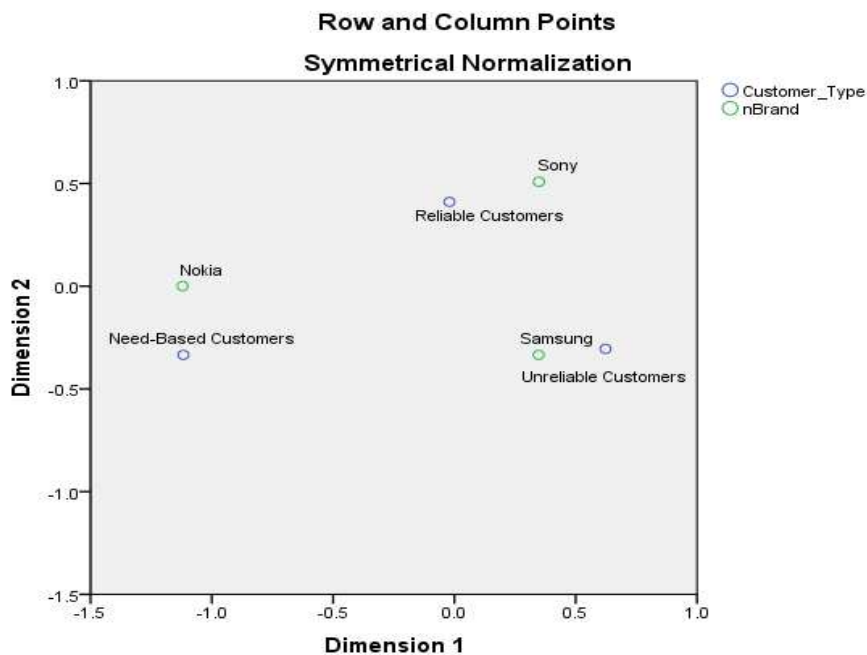


Figure 6. Customers' classification Vs. Brands (Recommend)

5. INTERPRETATION AND FINDINGS

Interpreting the collected data plays an essential role in making managerial and financial decisions for any firm/brand. As in Figure 1 and Figure 2, where overall behaviour and attitudinal aspect of students have been described that good percentage of individuals are satisfied with their respective brands which shows an excellent sign of acceptance of product among the customers but it is more important for the brands to know about the reasons of those customer who rated "3" i.e. who did not agree or disagree their loyalty towards any brand. Because it carries a good percentage of students that is 34.7%, 23.8%, 28.7%, 32.7% for "Brands matter a lot", "Loyal towards brand", "Continue" and "Recommend" respectively.

Continuing and recommending a product or a brand is general phenomena of customers. Therefore, these two attributes have been studied differently by calculating the overall commitment level by combining behavioural attributes. While studying Table 1 and Table 2 at brand level, it is been analysed that maximum students have purchased mobile phone of Samsung brand (i.e. 35 out of 101) as compared to the others but unreliable customers are also high in numbers (15 out of 35 students in case of continuing and 17 out of 35 students in recommending this brand).

Since, evaluating and comparing customers behaviour along with many brands using cross-tabulations only is a difficult task, therefore correspondence analysis technique have been utilized to effortlessly visualize the position of the brands for the type of customers surrounding a brand. Due to less data brand wise and also customers' classification wise, we have comprise the Table 1 and Table 2 into Table 3 for 3 brands (Samsung, Nokia and Sony) and 3 customers (reliable, need-based and unreliable) for continue and recommend. Table 4 represents the summary table obtained after running correspondence analysis, where singular values of dimension 1 and dimension 2 is .363 and .182 for continue (.390 and .130 for recommend) respectively. Dimension 1 has explained 79.9% (90%) of total variance and dimension 2 has explained 18.1% (13%) for continue (recommend). Chi-square value of Continue (Recommend) is 12.537 (12.817), which indicate that there is a significant dependency by 95% between rows and columns.

From both scenarios of continue and recommend in Figure 5 and Figure 6 respectively, it can be easily visualized that Samsung brand is more associated with unreliable customers as compare to the other customers. Whereas Nokia brand is preferred by those customers who might switch to another brands as per their altering requirements i.e. need based customers. And Sony is the top brand that has been accepted by the students. Students felt more connected and attached themselves with this brand. Therefore, reliable customers follow this brand.

Whereas, if we look at the other brands specially Apple, in case of Apple brand, though count is less but all five customers are fully loyal and reliable towards Apple that verifies the example mentioned in introduction as being the "most intimate brand".

6. MANAGERIAL IMPLICATION

It is said that consumers and producers compliments each other by satisfying needs of each other. But in the rush of quickly changing requirements of customers and also with the aim to meet financial requirements, brands have become less caring and solving specific needs of individuals rather they put more attempts to generate more revenue by promoting undesirable needs, which put them into more loss. It can also be said that companies are working more on consumers' sympathy in spite of working towards consumers' empathy. Therefore, for any brand; number of sales should not matter instead they have to identify those valuable and reliable customers who are ready to pay out additional money. Spreading positive/negative words of mouth regarding a product or a brand is

the most common reaction of consumers upon which its success depends. And before this, brand should determine how much it is been accepted and liked by customers.

Therefore, this study is an endeavour to observe customers behaviour by considering their commitment level towards a brand. Also, it provides a significant comparison among the presence of many brands that provides a helping hand to understand which brands have reliable customers and which brands are enclosed with need-based and unreliable customers.

7. CONCLUSIONS

This paper is an alternative approach to study and analyze two most exceptional components of the market i.e. consumers' behaviour and brands' image among the consumers. At one hand, consumers' empathy has been accomplished by studying their perspective towards brands and also classified them into four different categories of customers (i.e. reliable, reachable, hoaxed and unreliable) by observing their behavioural and attitudinal phases. Using this classification of customers another important phase of this paper has been carried out Correspondence Analysis; a multivariate technique have been applied that has provided a graphical representation that displayed which brand is surrounded with which types of customers. With the help of this representation, it is clarified that though initially students were inclined towards Samsung brand and purchased mobile phones of this brand. But because products of this brand could not meet up to the demands of those students, this brand is flanked with the unreliable consumers as compared to the other brands.

Hence, though in such a technical and advanced world where each company or brand is coming up with innovative ideas/products which allure new and existing customers every time, but those ideas/products should also involve with desires of the individuals.

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