

Attribute based perceptual mapping of communication attributes of selected Social Media Platforms using Discriminant analysis

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Abstract

The persuasiveness of social media is inevitable. Almost every institution has digital presence on social media as the number of netizens are increasing by great strides. The major challenge in front of marketers to find attributes which attracts consumers to their portal. This lack of understanding land them to weak social media strategy. So, this study provides significant contribution in figuring out the attributes contributing in perception making. The social media platform's attributes taken for study were trustworthiness, interactivity, informative, enjoyable, acceptability, intrusive behaviour, convenience, useful and up datedness. The selected platforms were Facebook, Twitter, LinkedIn, YouTube, Company portal and consumer opinion forum. The study collected data from 250 social media users from Delhi region. The responses were evaluated using attribute based perceptual mapping using Discriminant analysis. The results revealed different attributes have different impact and play an important role in shaping perception of consumers.

Keywords: *Attribute based perceptual mapping, Discriminant Analysis, Netizens, Perceptual Mapping, Social Media Platforms*

1. Introduction

The perspective of marketing is changed after the invent of social media. It allows real time, bi-directional interactions between company and users. Social media is becoming hub for information exchange especially in millennials. The user-friendly internet access options and comprehensive data plans have escalated the number of social media users to 2.95 billion in 2019 (Statista,2020). The main aim of marketers is to create awareness about their products and services. The digital presence of brands provides innumerable advantages in sales enhancement, generating leads and fortifying brand visibility.

Social media is best way for consumer engagement. The communications among social media users is forming the content to be disseminated which plays a significant role in engaging consumers (Landry, Ude, & Vollmer, 2007). According to Globalwebindex (2018), a person spends 2 hours a day on social media and more than 50% users are using social media for information search which facilitates decision making.

Businesses are moving towards real time multi-directional communications. Social media is a must for every organisation. The positive electronic word of mouth (e-WOM) through social media can make a brand popular and familiar among consumers. So, ignoring this cost-effective and fruitful source of financial gain can be deleterious for a company. The most important task for marketers in today's world is to attract consumers towards their brands. This study throws light on different platforms are positioned in consumers' mind.

2. Literature Review

Internet plays a significant role in bringing a voluminous amount of data altogether with just few clicks. Social media platforms act as a channel for communicating and exchanging content. An integrated approach has to be followed for marketing communication so as to comprehend consumers' needs and demands (Ivanov,2012). A research done by Yadav *et al.* (2016) revealed that social media provide a unique opportunity for co-creation which enhances company's sales and led to competitive advantage.

Vohra and Bhardwaj (2016) explored Social Media (SM) worked as a platform for consumer needs, interactions and value addition which formed the backbone of consumer engagement. Consumers are engaged with the engagement object through various options e.g. likes, comments, shares, subscribers etc. Hilde *et al.* (2018) studied how engagement on

advertisements is different on different social media platforms. Consumer engagement is highly context dependent and varies across platforms based on features and functionalities.

The intentions to follow brands on social media platforms is affected by perceived ease of use (Logan, 2014). Lee and Suh (2014) showed four attributes namely information feature, motivation, promotion tool, usability that differentiated social media platforms. Java *et al.* (2007) reported the main motives of Twitter users were daily chats, conversations, information dissemination and news reporting. The users were driven by various motivations, advantages and multiple intentions which promoted them to post tweets on site. The Twitter users were identified as information source, information seekers and friends. The future heroes are those who are able to identify empowered, educated and well networked consumers for value creation and extraction process to achieve sustainable competitive advantage (Pralhad and Ramaswamy, 2004). This study is focussed on what attributes of social media platforms are helpful in making consumers' perception.

3. Research Methodology

The study is focussed on Delhi as it is one of the megacities. According to Census of India 2011, Delhi comprises nine districts. Out of nine districts, top five districts in terms of literacy rate were selected for research. Two sub-divisions were selected from each district on the basis of higher literacy rate making total of ten sub-divisions from five districts. The list of selected sub districts and sub divisions is given in Table 1. Users with experience with all the six selected platforms were given structured questionnaire. The users were chosen through snowball sampling method. First few consumers were knowingly selected and then they were asked for one referral. This process continued till the required sample size was achieved. The appropriateness of consumers was tested through questionnaire by asking two questions. First question was "Please tick the different social media platforms you have visited." and second was "How much time do you spend on social media platforms". Based on these questions only those consumers who ticked all the six platforms along with minimum 1 hour per week were taken for study. The six platforms were selected on the basis of their popularity on Alexa.com site. Facebook, Twitter, LinkedIn., YouTube, Consumer Opinion Forums and company portals were selected six platforms.

Table1: List of selected districts and sub divisions of Delhi

| S. No. | Selected Districts | Selected Sub-divisions | No. of sample |
|--------|--------------------|------------------------|---------------|
| 1. | East Delhi | Gandhi Nagar | 25 |
| | | Vivek Vihar | 25 |
| 2. | New Delhi | Chankayapuri | 25 |
| | | Parliament Street | 25 |
| 3. | South West Delhi | Najafgarh | 25 |
| | | Vasant Vihar | 25 |
| 4. | West Delhi | Rajouri Garden | 25 |
| | | Patel Nagar | 25 |
| 5. | North | Civil Lines | 25 |
| | | Kotwali | 25 |
| | 5 | 10 | 250 |

Source: Census of India, 2011

4. Results and Discussion

This study was done in order to understand consumers' perception regarding various social media platforms. De-compositional approach was followed to see how different social media platforms are positioned in the minds of users. The answers given by users were evaluated by attribute based perceptual mapping using Discriminant analysis.

4.1 Attribute based perceptual mapping of SMPs using Discriminant analysis

The perceptions of consumers regarding SMP as communication channel were evaluated on the basis of eight attributes namely trustworthiness, informative, enjoyable, acceptability, intrusive behaviour, convenience, useful and up datedness. Here, the type of SMP was taken as categorical dependent variable whereas the describing eight attributes were taken as independent variables. The results of analysis of equality of means are summarized in Table 2. All eight attributes were significant at $p < 0.001$ indicating that they significantly discriminate among social media platforms. As we have taken six social media platforms for perception evaluation, there can be maximum five discriminating functions. The Wilks' Lambda statistics are used to diagnose the significant discriminant functions which explains differences among different groups. The value of lambda varies between 0 to 1. Although the values for first two functions were greater than 0.5, both the functions were found significant which discriminates

the SMPs (Table 2). The eigen value represents the ratio of between groups sum of squares to the within groups sum of squares. Table 2 showcases the eigen values and percentage of variance explained by each function. The first function 1 accounted for 72 per cent and second function accounted for 21.4 percent. The first two functions contributed 93.4 percent in total.

Table 2: Results of Discriminant Analysis

| Wilks' Lambda | | | | |
|-----------------------------------------------------|----------------------|----------------------|---------------------|------------------------------|
| Variable | Wilks' Lambda | F | Significance | |
| Trustworthiness | 0.968 | 9.786 | .000 | |
| Informative | 0.974 | 7.823 | .000 | |
| Enjoyable | 0.921 | 25.763 | .000 | |
| Acceptability | 0.976 | 7.343 | .000 | |
| Intrusive Behaviour | 0.983 | 5.068 | .000 | |
| Convenience | 0.974 | 7.872 | .000 | |
| Useful | 0.983 | 5.173 | .000 | |
| Up datedness | 0.985 | 4.694 | .000 | |
| Canonical Discriminant functions | | | | |
| Function | Eigenvalue | % of Variance | Cumulative % | Canonical Correlation |
| 1 | 0.147a | 72.1 | 72.1 | 0.358 |
| 2 | 0.044a | 21.4 | 93.5 | 0.204 |
| 3 | 0.008a | 4.0 | 97.5 | 0.090 |
| 4 | 0.004a | 2.1 | 99.7 | 0.065 |
| 5 | 0.001a | 0.3 | 100.0 | 0.027 |
| Canonical Discriminant Function Coefficients | | | | |
| Test of Functions | Wilks' Lambda | Chi-Square | df | Significance |
| 1 through 5 | 0.825 | 287.263 | 40 | 0.000 |
| 2 through 5 | 0.946 | 83.191 | 28 | 0.000 |
| 3 through 5 | 0.987 | 19.575 | 18 | 0.357 |
| 4 through 5 | 0.995 | 7.460 | 10 | 0.681 |
| 5 | 0.999 | 1.054 | 4 | 0.901 |

Source: Primary data analysis, SPSS 25

The next step is to plot perceptual map using discriminating functions. As our results showed two discriminating functions so one perceptual map was plotted between Function 1 and

Function 2. The standardised canonical discriminants function coefficients values were taken to plot attributes whereas the unstandardized canonical discriminant functions at group centroids were taken to plot SMPs. The values are summarized in Table 3.

Table 3: Standardised and Unstandardized Canonical Discriminant Function coefficients

| Standardized Canonical- Discriminant Function Coefficients | | | | | |
|---------------------------------------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Attribute | Function 1 | Function 2 | Function 3 | Function 4 | Function 5 |
| Trustworthiness | 0.678 | 0.47 | 0.086 | 0.273 | -0.222 |
| Informative | -0.361 | -0.441 | -0.261 | 0.295 | -0.26 |
| Enjoyable | 1.108 | -0.405 | -0.463 | 0.306 | -0.448 |
| Acceptability | -0.011 | 0.099 | 0.475 | -0.337 | 0.572 |
| Intrusive Behaviour | -0.134 | 0.224 | -0.301 | -0.099 | 0.413 |
| Convenient | 0.186 | 0.164 | 0.895 | -0.997 | -0.699 |
| Usefulness | -0.267 | -0.282 | -0.899 | -0.373 | 1.081 |
| Up datedness | 0.187 | 0.792 | 0.801 | 1.147 | 0.222 |
| Unstandardized Canonical- Discriminant Function Coefficients | | | | | |
| Brand | Function | | | | |
| | 1 | 2 | 3 | 4 | 5 |
| Facebook | 0.548 | 0.236 | -0.069 | -0.013 | 0.027 |
| Twitter | 0.139 | -0.13 | 0.031 | 0.113 | -0.033 |
| LinkedIn | -0.34 | 0.252 | -0.086 | 0.056 | 0.028 |
| YouTube | 0.455 | -0.316 | 0.078 | -0.038 | -0.011 |
| Company portal | -0.403 | -0.146 | 0.142 | -0.034 | 0.021 |
| Consumer_opinion_forum | -0.299 | -0.056 | -0.097 | -0.084 | -0.032 |

Source: Primary data analysis, SPSS 25

Table 4: Discriminant analysis of Communication attributes: Classification Table

| | Brand | Fb | Tw | Li | YT | Cp | Cof | Total |
|--------------|--------------|-----------|-----------|-----------|-----------|-----------|------------|--------------|
| Count | Fb | 89 | 28 | 16 | 64 | 24 | 29 | 250 |
| | Tw | 51 | 26 | 29 | 49 | 54 | 41 | 250 |
| | Li | 31 | 19 | 68 | 48 | 42 | 42 | 250 |
| | YT | 50 | 23 | 17 | 104 | 27 | 29 | 250 |
| | Cp | 37 | 28 | 42 | 27 | 66 | 50 | 250 |
| | Cof | 32 | 33 | 47 | 35 | 52 | 51 | 250 |
| | % | Fb | 35.6 | 11.2 | 6.4 | 25.6 | 9.6 | 11.6 |
| Tw | | 20.4 | 10.4 | 11.6 | 19.6 | 21.6 | 16.4 | 100.0 |
| Li | | 12.4 | 7.6 | 27.2 | 19.2 | 16.8 | 16.8 | 100.0 |
| YT | | 20.0 | 9.2 | 6.8 | 41.6 | 10.8 | 11.6 | 100.0 |
| Cp | | 14.8 | 11.2 | 16.8 | 10.8 | 26.4 | 20.0 | 100.0 |
| Cof | | 12.8 | 13.2 | 18.8 | 14.0 | 20.8 | 20.4 | 100.0 |

Source: Primary data analysis, SPSS 25

The perceptual map shown in Figure 1 represented the trajectory for all eight attributes-trustworthiness, informative, enjoyable, acceptability, intrusive behaviour, convenience, usefulness, up datedness. This graph shown layout of six different social media platforms on the basis of attribute assessment. Longer arrows towards group centroids means variable is strong related with that group. As deduced from the perceptual maps shown above, two dimensions were prominent. Dimension 1 emerged as enjoyable and trustworthiness. It was evident from the values of standardised discriminant coefficient for enjoyable (1.1077) and trustworthiness (-0.6779). Dimension 2 comprised of up datedness attribute (0.7924). The other attributes were not that prominent as the arrows were not close to any of the two dimensions.

The perceptual maps clearly depicted two different clusters of SMPs with distinct locations. The first cluster consisted of LinkedIn, company portal and consumer opinion forum which were high in trustworthiness, acceptability, usefulness and informative attributes and scored low on remaining attributes. On the other hand, the second cluster comprised Facebook, Twitter and YouTube which were high on enjoyable, up datedness, intrusive behaviour and convenience attributes.

It was further seen that in first cluster, out of three social media platforms, LinkedIn occupied relatively different position as compared to company portal and consumer opinion forum. The communication received through LinkedIn was found most trustworthy compared

to others. Furthermore, in second cluster all three platforms showed that the communication received was enjoyable. Twitter was considered more up to date in comparison to other two platforms of the cluster. The perceptual maps between Function 1 and Function 2 is shown in Figure 1.

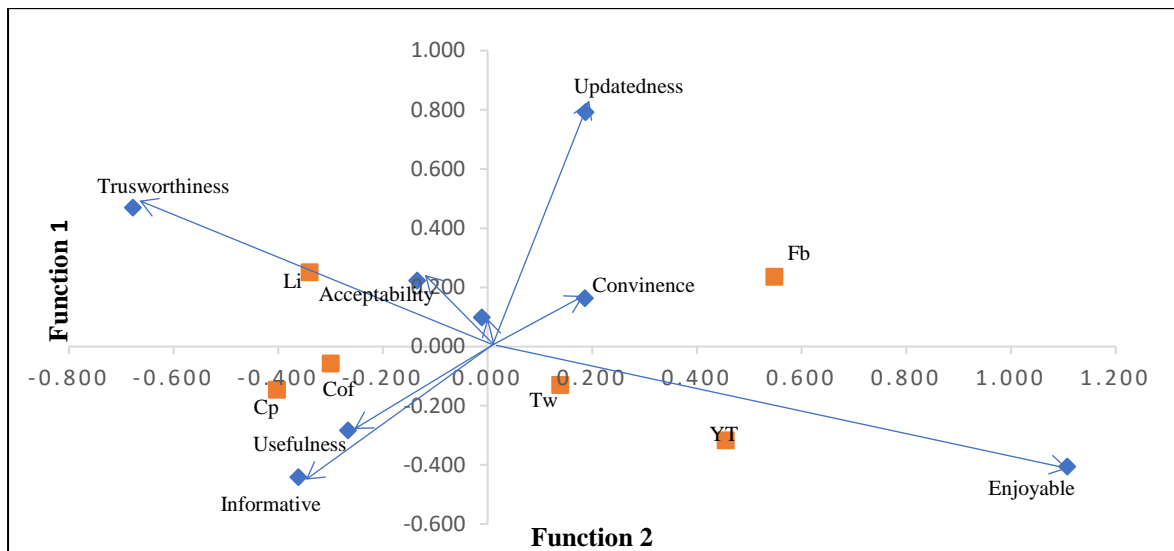


Figure 1: Attribute based perceptual mapping of SMP attributes: Function 1 vs Function2

5. Conclusion

This research was done to comprehend the brand positioning in consumer's mind. Data was collected from 250 social media users on eight attributes. The results depicted three prominent attributes namely enjoyable, trustworthiness and up datedness whereas rest of the attributes had no significant impact on users. The results can be classified to two divisions. LinkedIn, company portal and consumer opinion forum comprised first division whereas the second division consisted Facebook, YouTube and Twitter.

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