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Cluster Analysis of Consumers Based on Their Perception Towards Digital Marketing

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Abstract

With the rapid expansion of internet usage and the widespread adoption of smartphones, digital marketing has emerged as a dominant force in the business landscape. The increasing reliance on digital platforms for communication, entertainment, and commerce has transformed the way businesses interact with consumers. In today's digitally connected world, consumers spend significant time online, engaging with various digital touchpoints such as social media, search engines, email, and mobile applications. This shift has made digital marketing an essential tool for businesses aiming to reach their target audience effectively. One of the key factors driving the success of digital marketing is the ability to personalise advertisements and tailor content to individual consumer preferences. Unlike traditional marketing methods, digital marketing leverages data analytics, artificial intelligence, and machine learning to track consumer behaviour, analyse trends, and deliver personalised experiences. Personalised advertisements appearing on consumers' smartphones influence their buying decisions, making digital marketing an integral component of modern business strategies. The current paper aims at mapping consumer based on their perception towards different digital marketing practices used by companies today. The study found three major types of consumer segments, which were Digital Neutral consumers, Digital Enthusiasts and Digital Pessimists. The study found that the majority of the consumers belonged to the cluster of Digital Enthusiasts, and there were few consumers who belonged to the cluster of Digital Pessimists.

Keywords: Content Marketing, Email Marketing, Mobile Marketing and Affiliate Marketing, and Social Media Marketing

1. Introduction

Digital Marketing can be described as the use of digital technologies in marketing activities so that customer needs may be met by improving their knowledge (Chaffey & Ellis Chadwick, 2019). Today, companies need an amalgamation of both traditional marketing and online marketing in order to reach customers. Digital Marketing can be done through various channels like Emails, Social media, mobile, search engines, *etc*. Through these channels, many types of Digital Marketing strategies may be implemented, like content marketing, search engine marketing, display advertisements, social media marketing, influencer marketing, *etc*. Digital media consists of Owned, earned and paid media, which gives even more opportunity for marketers to reach customers in their desired way. With Omni channel Marketing, customers can easily engage with fashion brands on their own terms. Omni channel marketing is all about engaging customers across different platforms as they move from one stage to another stage of decision making. Each stage requires a different strategy, and a seamless integration of both online and offline helps customers to walk through that journey easily and hassle-free.

The benefit of using Digital Marketing also lies in the fact that it can be easily measured. Measuring ROI on advertising was never so easy, but today, with so many Digital Marketing tools like Google Analytics, it is easy

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for marketers to understand their return on investment. This also helps them to make decisions regarding investments. Digital advertisements have transformed the way companies reach out to their customers through digital channels. The media of advertisement are constantly evolving day by day. Initially, only traditional channels of advertisements like newspapers and print advertisements were available, but now many digital channels of advertisements like search engines, social media like Facebook, Instagram, *etc*. are available.

2. Research Scope and Objectives

The study focused on different types of Digital Marketing Strategies applied by companies to promote their fashion products. The consumers were grouped based on their perception towards social media marketing, Email Marketing, Mobile Marketing, Content marketing and Affiliate marketing. The research was carried out keeping in mind the following objectives-

i. To segment consumers based on their perception towards Digital Marketing
ii. To understand the different kind of consumers and their characteristics based on the cluster they belong to.

3. Literature Review

Digital channels have become integral to the promotional strategies of many companies. Even small businesses today can adopt various low-cost and efficient digital methods to market their products and services. A wide range of devices and platforms, such as tablets, smartphones, laptops, televisions, digital billboards, social media, email, display advertisements, Search Engine Optimisation (SEO), content marketing, and video marketing, are commonly used by firms to promote their offerings (Mandal & Joshi, 2017). Basr and Daud (2020) examined three variables: attitude, subjective norms, and pricing in digital marketing. Their findings indicate that consumer attitude has a direct impact on digital marketing effectiveness, and Consumers often rely on others' opinions before making purchase decisions, suggesting that subjective norms significantly influence buying behaviour. Additionally, pricing was found to be a critical factor in purchase decisions, implying that discounts and promotional pricing can act as catalysts for boosting sales.

Companies today widely employ digital media channels such as SEO, websites, mobile marketing, email marketing, and social media marketing. These online channels significantly influence online digital media advertisements, ultimately contributing to brand sustainability. Ahmed *et al.* (2019) noted that the availability of extensive consumer databases and fewer regulations surrounding consumer data have further simplified the implementation of mobile marketing strategies. Through Exploratory Factor Analysis, Bagga and Bhatt (2013) identified seven intrinsic and extrinsic factors affecting consumer buying behaviour: social media communication, convenience, need for recreation, privacy concerns, website attributes, security, and online advertising. Digital marketing through mobile technologies, social media, and Electronic Word-Of-Mtouh (eWOM) has become a vital part of everyday communication. These channels offer companies new opportunities to promote their products, particularly in sectors such as tourism. Alghizzawi (2019) found that eWOM plays a major role in consumer acquisition and retention, while mobile applications and social media make information more accessible to consumers. Li and Huang (2009) explored the dimensions of online shopping channels using the Theory of Perceived Risk and the Technology Acceptance Model. Perceived risk plays a significant role in online environments, increasing uncertainty and negatively influencing consumer attitudes toward online shopping. The perceived ease of use and perceived usefulness are positively associated with consumers' behavioural intentions, which in turn influence actual purchase behaviour.

Digital media has become a key factor in modern marketing. The widespread reach of digital platforms provides marketers with significant visibility, making focused and strategic use of digital media essential. Consumer perceptions of online shopping, however, vary based on individual characteristics and depend on factors such as internet connectivity and exposure to digital platforms. Younger consumers are more inclined toward online shopping. With ongoing technological

advancements and globalisation, digital marketing is expected to remain central to marketing practices in the future (Chakravarthy & Bade, 2017). The nature of advertising has evolved significantly in the digital era. Alongside traditional media such as newspapers and print advertisements, companies now use a variety of digital platforms, including search engines, social media sites like Facebook and Instagram, and blogs to promote brands. Digital channels play a crucial role in shaping consumer attitudes and influencing buying behaviour in the modern marketplace (Bansal, 2020).

4. Methodology

This study was conducted based on both primary and secondary data sources. A structured questionnaire was used for the collection of primary data. The current research covered the urban consumers of Uttar Pradesh. Data was collected from the respondents of Lucknow, Noida, Bareilly, Varanasi and Gorakhpur. A sample of 811 respondents was taken for the study, out of which 384 respondents were female and 427 respondents were male. In the given study, 183 respondents belonged to the age group 18-25 years, while 146 were between 26–30 years, 200 fell within the 31–35 age group, 138 were aged 36–40 years, and 144 respondents belonged to the age group 41 & above. The questionnaire focused on variables related to Digital Marketing strategies. The variables under study were Email Marketing, Social Media Marketing, Content Marketing, Mobile Marketing and Affiliate Marketing. The questionnaire was designed to understand the perception of consumers towards different Digital Marketing practices of companies and how they influence their buying behaviour of fashion products. The questionnaire was based on 5-point Likert scale of 1-5, and the responses ranged from Strongly Disagree to Strongly Agree. The entire questionnaire was divided into two sections. The data collected was analysed with the help of SPSS and the application of cluster analysis to it. Hierarchical cluster analysis was done initially to find out the suitable number of clusters for the study. After identifying the preliminary cluster structure through hierarchical clustering**, k-means** cluster analysis was subsequently performed to refine and validate the grouping solution. While hierarchical clustering is effective for visualising the overall structure and determining the likely number of clusters, k-means provides a more robust, iterative method for optimising cluster membership. The number of clusters in this study was determined using the dendrogram obtained from hierarchical cluster analysis. The dendrogram displayed three clearly distinguishable groups, with a noticeable increase in the vertical fusion distances after the third cluster. This sudden jump in the linkage distance indicates that merging beyond three clusters would combine observations that are not similar, thereby reducing the quality of the classification. In hierarchical clustering, such a large increase in distance is considered a reliable indicator of the appropriate number of clusters. To ensure the stability and accuracy of this classification, k-means cluster analysis was subsequently performed using $k = 3$, the number suggested by the dendrogram. The k-means results confirmed that the three-cluster solution produced compact, internally homogeneous clusters with strong separation between groups. Alternative solutions (such as $k = 2$ or $k = 4$) showed higher within-cluster variance and lower interpretability, indicating that they were statistically less suitable. Therefore, based on the structure of the dendrogram, the distinct separation between clusters, and the validation through k-means, the selection of three clusters is both statistically justified and conceptually meaningful.

5. Reliability of the Scale

When a scale produces similar results even when the same measurements are made repeatedly, it is referred to as reliability. The reliability of a scale is assessed by the stability of measurement, similarity of measurement and consistency of results. Amongst this internal consistency is the most important. The most commonly used approach to assess the internal consistency of a scale is Cronbach's alpha. When scale items are highly correlated, the value of Cronbach's alpha is also high. Different researchers have given different values of Cronbach's alpha. A value of 0.6 or less is generally considered an unsatisfactory value of Cronbach's alpha. In the Table given below all the values of Cronbach alpha are much above the satisfactory value. Table 1 given below represents the reliability and validity of the scale.

Table 1. Construct reliability and validity

S. No.	Constructs	No. of Items	Cronbach Alpha	CR	Ave
1	Email marketing	4	0.893	0.864	0.761
2	Social media marketing	9	0.921	924	0.607
3	Content marketing	4	0.850	0.833	0.626
4	Mobile marketing	3	0.835	0.874	0.699
5	Affiliate marketing	4	0.906	0.856	0.719

6. Cluster Analysis

Clusters were formed through K K-means clustering technique. Cluster analysis groups respondents based on their similar interest towards a variable. The objects in clusters are grouped and formed as per their similarity in the same cluster and dissimilarity with other clusters. K-means clustering is also called a non-hierarchical clustering method. The process of clustering is iterative in nature. Clusters are formed based on the smallest distance between the cluster means and the cases. Table 2 represents the final cluster centres. The three clusters are given below. The first cluster consisted of 337 respondents, the second cluster consisted of 363 respondents, and the third and final cluster consisted of 111 respondents.

The F values and P values of variables are given below, along with the cluster details.

Table 2. Final cluster centres

Variable	CLUSTERS			F	Sig.
	Cluster 1	Cluster 2	Cluster 3		
EM1	2	3	2	48.483	0.000
EM2	2	3	2	63.912	0.000
EM3	3	4	2	132.777	0.000
EM4	3	4	2	104.596	0.000
S1	3	4	2	290.079	0.000
S2	3	4	2	335.553	0.000
S3	3	4	2	418.091	0.000
S4	3	4	2	364.817	0.000
S5	3	4	2	321.602	0.000
S6	3	4	2	317.311	0.000
S7	3	4	2	346.144	0.000
S8	4	4	2	381.760	0.000
S9	4	4	2	403.762	0.000
C1	3	4	2	316.340	0.000
C2	3	4	2	229.465	0.000
C3	4	4	2	240.734	0.000
C4	3	4	2	266.023	0.000
M3	4	4	2	200.069	0.000
M4	4	4	2	233.436	0.000
M5	4	4	2	215.630	0.000
A1	3	4	2	181.396	0.000
A2	3	4	2	211.445	0.000
A3	3	4	2	198.795	0.000
A4	3	4	2	256.693	0.000

As per the analysis, 3 clusters were formed. The interpretation of individual clusters is given.

6.1 Cluster 1-Digital Neutrals

Cluster 1 consists of respondents who were neutral towards digital marketing strategies. For most of the responses, they neither agreed nor disagreed but remained neutral. Being neutral towards the digital Marketing strategies reflects that the respondents may or may not be influenced; they are not sure if the Digital Marketing strategies really have an effect on them when they are buying fashion products. They were neutral for most of the variables, but also were positive for some and negative for others. These consumers are not sure about their liking towards the Digital Marketing of products. Digital Neutral consumers consist of individuals who use digital platforms but remain relatively indifferent towards digital marketing. While they may engage with online advertisements and promotional content occasionally, they do not actively seek digital interactions with brands. These consumers prefer traditional marketing channels, such as television and print media, but are not entirely opposed to digital marketing. For businesses, this segment represents an opportunity to increase digital engagement by building trust and demonstrating the value of digital marketing. Strategies such as providing informative content, improving online customer service, and offering seamless digital experiences can help convert Digitally Neutral consumers into Digital Enthusiasts.

i. S1-Social Media influences me to try new products.
ii. S4-I feel the contents visible on social media are of the latest trends
iii. C2-I find the videos on fashion products relevant
iv. C4-Fashion articles on websites, frequent posts on fashion make me buy their product.

v. E4- The emails I receive contain information about coupons and gifts from fashion retailers.
vi. A1- I find the Product recommendations by fashion blogs & Affiliates websites relevant

6.2 Cluster 2-Digital Enthusiasts

Cluster 2 consists of respondents who were enthusiastic towards different Digital Marketing strategies. For most of the responses, they showed a positive attitude. The respondents belonging to this category had a positive attitude towards various digital Marketing activities. They were positive towards Social Media Marketing, Content Marketing, Affiliate Marketing, *etc*. The largest segment identified in the study consists of Digital Enthusiasts who actively embrace digital marketing and engage with online content regularly. These consumers are tech-savvy, comfortable with using digital platforms, and appreciate the convenience offered by online shopping platforms, targeted advertisements, and personalised recommendations. They frequently interact with brands on social media, subscribe to newsletters, and participate in online promotions. Digital Enthusiasts are more likely to make purchasing decisions based on online reviews, Affiliate endorsements and digital advertisements. Their buying behaviour is significantly influenced by promotional offers, engaging content, and interactive marketing campaigns. Businesses targeting this segment must focus on delivering high-quality, engaging, and personalised content to maintain consumer interest and drive conversions. This shows that Digital Marketing strategies do have an impact on them, and they are likely to turn into consumers of products. Most of the respondents in the study belonged to this category. Although they are positive towards all forms of digital media marketing, for some, they remain neutral too.

Some of them are listed:
i. E3-I find Email advertisements useful
ii. S2- The product recommendations on social media make me buy their product
iii. S6- social media facilitates personalised information search of the products I need
iv. S8-Using social media is really trendy.
v. M5-Mobile apps help me to make better purchase decisions

6.3 Cluster 3-Digital Pessimists

The smallest segment in the study consists of Digital Pessimists. These are the consumers who are resistant to digital marketing and prefer traditional methods of shopping and brand engagement. These consumers may have concerns about privacy, data security, and the authenticity of online advertisements. They are less likely to trust digital platforms and often avoid engaging with online promotions, preferring in-person shopping experiences instead. Businesses targeting Digital Pessimists must adopt a more cautious approach, addressing consumer concerns and ensuring transparency in digital marketing practices. Providing secure online transactions, offering personalised offline experiences, and educating consumers on the benefits of digital engagement can help build trust and encourage adoption of digital marketing strategies. Cluster 3 respondents were pessimistic about the Digital Marketing activities by companies. For most of the variables, they have disagreed to which means they are not interested in the Digital Marketing strategies of fashion products by companies. These types of consumers are likely to follow the traditional methods for purchasing products. They may have a social media account, but they will not be interested in a product that is displayed on social media. They are more likely to ignore the products promoted online and will always be sceptical about the products that are promoted online. Some of the statements for which they have disagreed are given:
i. S2-I find the product information on social media relevant.
ii. S9-Anything trendy is available on social media.
iii. C1-I Blog posts on fashion styling tips and techniques influence me to try new products
iv. M4-Mobile apps help me to make better purchase decisions
v. C3-I find the videos on fashion products relevant

Table 3 gives details of each of the clusters. The maximum number of respondents which are Digital Enthusiasts belonged to Cluster 2. These are the respondents who are positive towards digital marketing. The second cluster with the maximum number of respondents belonged to Cluster 1, who are Digital Neutral, ones who are neither negative nor positive

Table 3. Number of cases in each cluster

CLUSTER	FREQUENCY
Cluster 1	337.000
Cluster 2	363.000
Cluster 3	111.000
Valid	811.000
Missing	0.000

Table 4. Distances between final cluster centres

Clusters	Cluster 1	Cluster 2	Cluster 3
Cluster 1		3.864	6.743
Cluster 2	3.864		10.428
Cluster 3	6.743	10.428	

about digital marketing activities by companies. They may consume Digital advertisements and may ignore them as well. The third category with the least number of respondents is the Digital Pessimists. These are the consumers who are more inclined towards traditional Forms of advertisements and are not at all influenced by digital marketing promotions by companies.

Table 4 shows the difference between final cluster centres. These distances tell us how far the clusters are from each other. A smaller distance indicates less difference between the clusters, whereas a larger distance indicates greater distance between the clusters. It can be seen from the table that Cluster 2 and Cluster 3 have the maximum distance, which also indicates that the respondents belonging to Cluster 2 and Cluster 3 have the maximum dissimilarity and respondents belonging to Cluster 1 and Cluster 2 are comparatively less.

7. Managerial Implications

Clustering customers provides marketers with valuable insights that can significantly enhance the effectiveness of digital marketing strategies. By segmenting consumers into groups such as Digital Enthusiasts, Digitally Neutral consumers, and Digital Pessimists, marketers are better equipped to understand the diverse attitudes and engagement levels within their target audience. This segmentation enables the development of tailored marketing strategies that align with the specific preferences and behaviours of each cluster, ensuring that highly interactive and personalised content is directed towards Digital Enthusiasts, while simplified and reassuring communication is used to engage Digital Pessimists. Moreover, clustering supports more efficient resource allocation, allowing marketers to focus their investments on segments with higher engagement potential without neglecting the needs of less active groups. It also contributes to improved customer experiences by guiding the customisation of website design, digital interfaces, and recommendation systems to suit the expectations of different consumer clusters. Additionally, clustering uncovers behavioural patterns that offer predictive insights, helping businesses anticipate future trends and proactively adjust their digital strategies. Ultimately, by addressing the unique motivations and barriers of each segment, marketers can enhance customer retention and foster stronger brand loyalty across diverse consumer groups.

8. Conclusion

The cluster analysis clearly indicates that a majority of respondents hold a positive perception of digital marketing. These consumers do not overlook digital marketing initiatives and are more likely to be influenced by online promotional activities undertaken by marketers. A considerable proportion of respondents were classified as neutral, suggesting that they neither endorse nor oppose digital marketing practices. This neutrality highlights the need for further investigation to understand the reasons behind their indecision—specifically, which types of digital marketing practices they find appealing and which ones they perceive as intrusive or irritating. Conducting a detailed study in this area would enable marketers to refine their strategies and direct their efforts more effectively. Additionally, only a small number of respondents exhibited negative attitudes toward digital marketing, indicating that in the current era of widespread internet usage, very few individuals fully disregard or resist online advertisements.

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