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A STUDY ON CUSTOMERS' PREFERENCE TO DIFFERENT PRODUCT CATEGORIES IN ONLINE SHOPPING AND THE FACTORS AFFECTING THEIR ONLINE SHOPPING: APPLICATION OF GARRET RANKING TECHNIQUE

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ABSTRACT

This paper deals with the customers' preference to different product categories in online shopping and factors affecting online shopping in suburban Mumbai region. To identify the dominant factors affecting online shopping of consumers, Garret Ranking technique is applied. Primary data was collected through well-structured questionnaire on ranking scale from 1st rank to 7th rank. The results revealed that in case of Factors affecting online shopping, increased online time is the most important factor scoring 1st rank followed by more time spent indoor and Convenience on 2nd and 3rd rank positions respectively. In case of customers' preference to different product categories in online shopping, first rank is obtained by Healthcare and medical utilities followed by 2nd rank given to Grocery and 3rd to Food and beverages, the least preferred product to be bought online is Plumbing, Electrician, Salon & Spa services.

***KEYWORDS**: Garret Technique of Ranking, Factors Affecting Online Shopping, Customers' Preference in Online Shopping.*

Introduction

The term "online shopping" refers to the act of purchasing goods or services via the internet. This process entails browsing through various e-commerce websites, selecting an item or service, adding it to a virtual shopping cart, and then making an online payment. Once the payment has been processed, the item or service is delivered to the customer's doorstep. Interestingly, online shopping actually predates the internet, IBM PC, and Microsoft. In 1979, Michael Aldrich of Redifon Computers in the UK demonstrated online shopping by connecting a modified 26-inch color television to a real-time transaction processing computer via a domestic telephone line. In recent years, online shopping has gained in popularity, particularly in the Indian market, due to its convenience, ease of use, and other benefits over traditional brick-and-mortar shopping, such as a wider selection, lower prices, easy comparisons, and personalized experiences. According to research published in the Journal of Electronic Commerce, the perception of non-store shopping is generally more favorable among in-home shoppers with higher levels of education, income, and occupation. Furthermore, exposure to technology is a significant factor influencing consumer attitudes towards non-store shopping, with increased exposure leading to a greater likelihood of developing positive attitudes towards new shopping channels (Manoj, P. 2015). Products such as books and music are well-suited for online shopping, unlike some other products. Fast-moving consumer goods (FMCG) may also be suitable for online shopping, but it is crucial for the e-tailer to achieve a "critical mass" in terms of having a well-functioning supply chain system and stocking a broad range of products, which can require a substantial investment in infrastructure (Kumar, R. S. 2007).

The Garette score, also known as the Garette model or Garette's importance-performance analysis, is a technique used to assess and prioritize factors that influence customer satisfaction. It helps

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businesses identify which factors have the most significant impact on customer satisfaction and prioritize their efforts accordingly. When applied to factors affecting online shopping, the Garette score can provide valuable insights and help organizations optimize their online shopping experiences.

Review of Literature

Dhanavandan, S. (2016), discussed about the garret ranking and its calculation methods in a research article. The technique attempts to find out the most substantial factor which influences the respondents. With the help of Garrett's Table the researcher found the per cent position projected and it is converted into scores. For each factor, the scores of each individual are added and then the total value of scores and mean values of scores is calculated with the help of the Garret ranking formula. The factors having highest mean value is considered to be the most important factor. Study concludes that the researcher must know the Chi-square and Garret ranking tolls where to be used and why should it be used. Sivanesan (2014) conducted a comparative study on rural and urban women entrepreneurs, examining the prospects and challenges they face. The research highlighted the significant increase in self-employed women since World War II and emphasized the importance of women's social and economic growth for overall economic development. The study utilized simple percentage analysis, Garrett ranking technique, and hypothesis analysis to identify the problems, motivating factors, and demotivating factors affecting women's entrepreneurship in the Kanyakumari District. The findings shed light on the opportunities in the service sector for women to excel and maintain work-life balance. Sahoo, Dash, and Rath (2020) expressed in their research paper highlighting the vital role of farmers as the backbone of the country in terms of food and fiber production. The study focused on analyzing farmer credit utilization, the actions of institutional lenders in extending credit, and the challenges faced by farmers in obtaining and repaying credit in the Sambalpur district. The researchers utilized the Garret scoring technique to convert ranks into scores, considering individual preferences for specific problems. The findings suggest the need for the government to update its credit policy to better address the credit needs of farmers.

Research Objectives

The overall aim of this study is to know preferences of customers towards various categories of products while shopping online. The present study will also assess the various factors affecting consumers while shopping online. Researcher has made an attempt to use Garrett scoring technique to know consumers' dominant preferences for different product categories and factors.

Scope and Importance

Post COVID, online shopping became part and parcel of the consumers' life. Importance of online shopping has increased to a great extent to all the varieties of products. And there are number of reasons for people to choose online shopping over offline. There have been many different research studies undertaken on factors affecting online shopping experience and the products bought online. In the present study researcher attempted to not only understand the factors considered while shopping online and preference for products but has also tried to reveal the most or least dominant factor and the most and least preferred product in online shopping. This study will be an eye opener for the companies whose products are not preferred online and will also let them understand the reasons behind it. Study will also be beneficial to many researchers wishing to explore area of online shopping and application Garrett scoring technique for such studies.

Research Methodology

- **Sampling Procedure and Sample Size**

Data for the present study has been collected from 152 consumers selected using simple random sampling from Mumbai and Mumbai Suburban area

- **Data Collection**

To gain more understanding about the research study researcher attempted to refer some of the books, e-journals and internet sites and Primary data was collected through well-structured questionnaire.

Garrett Technique of Ranking

Garrett's ranking technique is a statistical method used to analyze and rank the preferences of individuals or groups based on their responses to a set of items or questions. It is commonly used in market research, opinion surveys, and other social sciences research.

The Garrett score formula (Henry Garret (1969) is as follows:

$G = \Sigma R / (N \times M)$

Where,

G is the Garrett score

ΣR is the sum of the ranks assigned by all respondents to each item

N is the number of respondents

M is the number of items

The Garrett score technique involves asking respondents to rank a set of items or questions in order of preference. Each item is assigned a numerical rank, with the most preferred item receiving a rank of 1, the second-most preferred item receiving a rank of 2, and so on. The sum of all the ranks for each item is then calculated, and the Garrett score is obtained by dividing the sum of ranks by the total number of respondents multiplied by the number of items.

The resulting Garrett score provides a measure of the overall preference or ranking of each item, which can be used to compare and rank the items in order of importance.

Results and Discussion

Data was collected from 152 respondents, age group considered for the study fall under 15 years and above, preferences of customers were taken on ranking scale from 1 to 7, 1st rank being highest and 7th being lowest rank. This section is divided in two parts one is factors affecting online shopping and second part of results and discussion focusses on customers' preference towards different product categories while online shopping. Both the categories of products and factors affecting online shopping are enlisted as follows.

Ranking of Total Sample for Factors Affecting Online Shopping

Data collected from 152 respondents is summarized in Table 1.1 by calculating total frequency of each rank given to respective factors. It can been seen from the table that out of 152 respondents, 54 respondents have given 1st rank to a factor 'increased online time', whereas 23 respondents have given 2nd rank to 'more time spend indoor and the least responded factor was 'more options available online.

Table 1: Estimating Ranks of Total Sample for Factors Affecting Online Shopping

Sr. No.	Factors affecting online shopping	Ranks given by respondents							Total
		1	2	3	4	5	6	7	
1	Increased time online	54	23	23	20	13	11	8	152
2	More time spent indoors	15	71	33	15	8	6	4	152
3	Convenience	24	22	55	25	8	15	3	152
4	Erratic Work from Home schedules	16	14	15	40	20	13	34	152
5	Safer to shop from home	14	9	14	33	53	16	13	152
6	Very few outlets open due to COVID restrictions	13	10	10	9	35	60	15	152
7	More options available online	16	3	2	10	15	31	75	152

Per cent Position and Garret Value of factors Affecting Online Shopping

Per cent position value were estimated by applying the formula i.e., 100(Rij-0.5)/Nj, where, Rij represents respective ranks and Nj represents total number of ranks. Following table depicts the percent positions of each factor calculated by applying the formula. Garret Scores given in the last column are obtained by referring Garret Ranking Conversion Table.

Table 2: Per cent Position and Garret Values of Factors Affecting Online Shopping

Sr. No.	Ranks	100(Rij - 0.5)/Nj	Percent Position	Garret Score
1	Rank 01	100(1 - 0.5)/7	7.14	78
2	Rank 02	100(2 - 0.5)/7	21.43	66
3	Rank 03	100(3 - 0.5)/7	35.71	57
4	Rank 04	100(4 - 0.5)/7	50.00	50
5	Rank 05	100(5 - 0.5)/7	64.29	43
6	Rank 06	100(6 - 0.5)/7	78.57	34
7	Rank 07	100(7 - 0.5)/7	92.86	22

Estimating Total Score of factors by multiplying Garrett Value with the respective rank Garrett value: Next step in calculating Garret ranks is multiplying Garret Value with the given values as shown in Table 1.3. Then total values are summed for each factor as shown in last column of Table 1.3.

Table 3: Estimating Total Score of factors by Multiplying Garrett Value with the Respective Rank Garrett Value

Sr. No.	Factors affecting online shopping	1st*78	2nd*66	3rd*57	4th* 50	5th* 43	6th* 34	7th* 22	Total
1	Increased time online	4212	1518	1311	1000	559	374	176	9150
2	More time spent indoors	1170	4686	1881	750	344	204	88	9123
3	Convenience	1872	1452	3135	1250	344	510	66	8629
4	Erratic Work from Home schedules	1248	924	855	2000	860	442	748	7077
5	Safer to shop from home	1092	594	798	1650	2279	544	286	7243
6	Very few outlets open due to COVID restrictions	1014	660	570	450	1505	2040	330	6569
7	More options available online	1248	198	114	500	645	1054	1650	5409

Estimating Ranks of factors based on Average Score of the respondents: Average scores are estimated by dividing total value as obtained in Table 1.3 by total number of respondents. In the next step, ranks are allotted to average scores of respective factors. 1st rank is given to factor with highest average score i.e. 60.20 followed by 2nd rank given to factor scoring 60.02 average.

Table 4: Estimating Ranks of factors based on Average Score of the Respondents

Sr. No.	Factors Affecting Online Shopping	Total	Average	Ranks
1	Increased time online	9150	60.20	1
2	More time spent indoors	9123	60.02	2
3	Convenience	8629	56.77	3
4	Erratic Work from Home schedules	7077	46.56	5
5	Safer to shop from home	7243	47.65	4
6	Less outlets in nearby locations	6569	43.22	6
7	More options available online	5409	35.59	7

The above table represents an estimation of the factors that affect online shopping, ranked based on the average scores given by the respondents. The table includes seven factors and provides information about the total number of respondents who identified each factor, the average score of each factor, and the rank of each factor based on the average score.

According to the table, the factor that ranked the highest among respondents was "increased time online," with a total of 9150 respondents identifying it and an average score of 60.20. This was followed closely by "more time spent indoors," with a total of 9123 respondents and an average score of 60.02. The third factor that affected online shopping the most, according to the respondents, was "convenience," with an average score of 56.77 and a total of 8629 respondents identifying it.

The remaining factors, in order of their ranking, were "safer to shop from home" (average score of 47.65 and identified by 7243 respondents), "erratic work from home schedules" (average score of 46.56 and identified by 7077 respondents), "less outlets in nearby locations" (average score of 43.22 and identified by 6569 respondents), and "more options available online" (average score of 35.59 and identified by 5409 respondents).

Estimating ranks of total samples of customers' preference towards different product categories:

Table 5: Estimating Ranks of Total Sample of Customers' Preference towards Different Product Categories

Sr. No.	Product Categories	Ranks given by respondents										Total
		1	2	3	4	5	6	7	8	9	10	
1	Food & Beverages	11	45	40	14	17	6	5	3	8	3	152
2	Grocery	36	36	29	18	13	11	1	2	1	5	152
3	Healthcare and Medical utilities	48	18	32	17	13	8	7	5	1	3	152
4	Fashion, Cosmetics & Apparel	16	7	17	49	21	17	7	11	4	3	152

5	Real Estate & Construction	8	5	5	6	24	17	19	19	24	25	152
6	Sports, Fitness & wellness	10	14	4	15	18	37	26	19	6	3	152
7	Entertainment	11	9	15	9	22	29	36	15	5	1	152
8	Tourism & Hospitality	5	8	4	10	9	15	29	49	18	5	152
9	Education	4	8	3	9	12	9	14	18	53	22	152
10	Plumbing, Electrician, Salon & Spa services	3	2	3	5	3	3	8	11	32	82	152

Per cent position and Garret values of customers' preference towards different product categories:

Table 6: Percent position and Garret Values of Customers' Preference towards Different Product Categories

Sr. No.	Ranks	100(Rij - 0.5)/Nj	Percent Position	Garret Score
1	Rank 01	100(1 - 0.5)/10	5	82
2	Rank 02	100(2 - 0.5)/10	15	70
3	Rank 03	100(3 - 0.5)/10	25	63
4	Rank 04	100(4 - 0.5)/10	35	58
5	Rank 05	100(5 - 0.5)/10	45	52
6	Rank 06	100(6 - 0.5)/10	55	48
7	Rank 07	100(7 - 0.5)/10	65	42
8	Rank 08	100(8 - 0.5)/10	75	36
9	Rank 09	100(9 - 0.5)/10	85	29
10	Rank 10	100(10 - 0.5)/10	95	18

Estimating total Scores of customers' preference towards different product categories by multiplying Garrett Value with the respective rank values:

Table 7: Estimating total Scores of customers' preference by multiplying Garrett Value with the respective rank values

Sr. No.	Product Categories	1*82	2*70	3*63	4*58	5*52	6*48	7*42	8*36	9*29	10*18	Total
1	Food & Beverages	902	3150	2520	812	884	288	210	108	232	54	9160
2	Grocery	2952	2520	1827	1044	676	528	42	72	29	90	9780
3	Healthcare and Medical utilities	3936	1260	2016	986	676	384	294	180	29	54	9815
4	Fashion, Cosmetics & Apparel	1312	490	1071	2842	1092	816	294	396	116	54	8483
5	Real Estate & Construction	656	350	315	348	1248	816	798	684	696	450	6361
6	Sports, Fitness & wellness	820	980	252	870	936	1776	1092	684	174	54	7638
7	Entertainment	902	630	945	522	1144	1392	1512	540	145	18	7750
8	Tourism & Hospitality	410	560	252	580	468	720	1218	1764	522	90	6584
9	Education	328	560	189	522	624	432	588	648	1537	396	5824
10	Plumbing, Electrician, Salon & Spa services	246	140	189	290	156	144	336	396	928	1476	4301

Estimating Ranks of customers' preference based on Average Score of the respondents

Table 8: Estimating Ranks of Customers' Preference based on Average Score of the Respondents

Sr. No.	Product Categories	Total	Avg.	Ranks
1	Food & Beverages	9160	60.26	3
2	Grocery	9780	64.34	2
3	Healthcare and Medical utilities	9815	64.57	1
4	Fashion, Cosmetics & Apparel	8483	55.81	4
5	Real Estate & Construction	6361	41.85	8
6	Sports, Fitness & wellness	7638	50.25	6
7	Entertainment	7750	50.99	5
8	Tourism & Hospitality	6584	43.32	7
9	Education	5824	38.32	9
10	Plumbing, Electrician, Salon & Spa services	4301	28.30	10

Above table presents the estimated ranks of customers' preference for different product categories based on the average score of the respondents. The survey results show that healthcare and medical utilities are the most preferred product category with an average score of 64.57 and rank 1. The grocery category is ranked second with an average score of 64.34, while the food and beverages category ranks third with an average score of 60.26.

The fashion, cosmetics, and apparel category is ranked fourth with an average score of 55.81. The real estate and construction category ranks eighth with an average score of 41.85, indicating that it is less preferred by the respondents. Similarly, education and plumbing, electrician, salon, and spa services categories are also less preferred, with average scores of 38.32 and 28.30, respectively.

Conclusion

It can be concluded from the study that the factors that affect online shopping the most are increased time online, more time spent indoors, and convenience. This suggests that consumers are more likely to shop online due to the convenience and flexibility it offers, as well as the increased amount of time spent online and indoors. This trend is likely to continue, particularly given the shift towards remote work and online activities. Further healthcare and medical utilities, grocery, and food and beverages are the top three preferred product categories among the respondents. This indicates that consumers are prioritizing their health and wellness needs, as well as their basic needs for food and household essentials. On the other hand, categories such as real estate and construction, education, and plumbing, electrician, salon, and spa services are less preferred, suggesting that they may not be seen as essential or may require more specialized or in-person services.

Study highlights the importance of convenience, accessibility, and basic needs in shaping consumer preferences and behavior, particularly in the context of online shopping.

Suggestions

The survey findings can be useful for businesses and policymakers to understand customer preferences, factors that carry relevance for the while shopping online and develop marketing strategies accordingly. For instance, businesses can focus on promoting and improving the preferred product categories, while policymakers can promote policies that support the growth of these categories. The survey results can also help businesses to allocate their resources effectively and efficiently to maximize their profits.

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