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Consumer Preferences of Online Shopping Websites across Product Categories – An Empirical Study

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Abstract: *This study attempted to understand and compare consumer preferences across popular online shopping websites in India as well as across popular online purchase product categories. The pattern appeared similar for all the multi-category sites under study with Gadgets being the most popular category for the majority for their preferred website, followed by Apparel and Accessories categories. Snapdeal was seen to be equally preferred for all these three categories, however, for Flipkart and Amazon the share for Gadgets was significantly larger. Myntra and Jabong were found to be perceived as a category-specific website with more than 50% of the respondents stating them to be the preferred choice for online Apparel purchase. Similarly, Grofers and Big Basket were perceived to be largely Groceries-specific as is evident from the finding that a majority of the respondents opted for either of these two websites as their preferred choice for online purchase of Groceries.*

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I. Introduction

Online shopping behavior (also called online buying behavior and Internet shopping/buying behavior) is the process of purchasing products or services through the Internet. The process is similar to that associated with traditional shopping behavior and consists of five steps. In the typical online shopping process, when potential consumers recognize a need for some product or service, they surf through the Internet and search for need-related information. However, rather than searching actively, at times potential consumers are attracted by information about products or services associated with the felt need. They then evaluate alternatives and choose the one that best fits their criteria for meeting the felt need. Finally, a transaction is conducted and post-sales services provided. Online shopping attitude refers to consumers' psychological state in terms of making purchases on the Internet.

According to the UCLA Centre for Communication Policy, online shopping has become the third most popular Internet activity, the top two being e-mail using instant messaging and web browsing. It is even more popular than seeking out entertainment information and news, two commonly thought of activities when considering what Internet users do when online. Of the Internet users, nearly 50 % made online purchases as early as 2001, with three-quarters of purchasers indicating that they make 1-10 purchases per year. When segmented into very versus less experienced Internet users, the very experienced users average 20 online purchases per year, as compared to four annual purchases for new users.

There have been intensive studies of online shopping attitudes and behavior in recent years. Most of them have attempted to identify factors influencing or contributing to online shopping attitudes and behavior phases. They also review those factors related to e-commerce community.

These studies have all made important contributions to the overall understanding of the dynamics of the online shopping field. However, there is a lack of coherent understanding of the impact of relevant factors on online attitudes and behavior and an inconsistent identification of relevant independent and dependent variables. This makes comparisons of different studies difficult, applications of research findings limited, and the prospect of synthesizing and integrating the empirical literature in this area elusive.

II. Research Objective

The objective of this research was to study and compare consumer preferences of Online Shopping Websites vis-à-vis specific product categories in order to ascertain whether marked significant preferences exist for individual websites for specific product categories in the minds of the consumer.

III. Proposed Hypothesis

Hypothesis-1:
The percentage of respondents who prefer Flipkart for online purchase of Gadgets is more than 30%.

Hypothesis-2:
Ha: The percentage of respondents who prefer Snapdeal for online purchase of Appliances is less than 20%.

Hypothesis-3:
Ha: The average age of respondents who prefer Amazon for online purchase of Accessories is greater than 24 years.

Hypothesis-4:
Ha: The average age of respondents who prefer Myntra for online purchase of Apparel is more than 20 years.

Hypothesis-5:
Ha: The preference of Big Basket across product categories is dependent on Educational qualification.

Hypothesis-6:
Ha: The preference of Big Basket across product categories is not dependent on Occupation.

IV. Literature Review

Indian retailing, especially E-commerce, will see a sea of change in the next five years driving consumption boom never seen in the history of any country. From a drought situation, there will be a flood in modern retail, so Indian retail will be on a steady ground of sustained growth year after year and thereafter. Mohanty and Pandey (2014) opine that retailing as a sector in India occupies important place in the socio-economic growth strategy of the country. India is witnessing retailing boom being propelled by increasing urbanization, rising purchasing power parity (PPP) of ever growing India's middle class, changing demographic profiles heavily tilted young population, technological revolution, intense globalization drive etc.

Akash (2009) states that Retail business in India, as anywhere else in the world, plays a crucial role in an economy. Retail in India has the potential to add value over Rs 2,00,000 crores ($45billion) business in the coming years generating employment for some 2.5 million people in various retail operations and over10 million additional workforce in retail support activities including contract production and processing, supply chain and logistics, retail real estate development and management.

Sahu (2010) describes that a rise in consumer confidence, improvement in profitability and aggressive expansion plans signal better tidings for listed players in the organized retail space. Moreover, analysts believe listed retailers could attract foreign investments by spinning off their subsidiaries into separate companies which can provide a great opportunity for the improvement of this sector.

Bhandari and Kaushal (2013) in their study on online consumer behavior using factor analysis found the reasons for using online shopping like trust, information about the product and services, convenience and effortless shopping.

A study by Sriram (2010) gives an in-depth analysis of e-retailing in India and gives a clear picture, where India stands in e-retailing. The study depicts that India has got lot of potential to grab in this area but it is still in the infancy stage due to infrastructure shortage and security threats. This area has to be tapped properly for more foreign exchange

An article by Dutta (2013) contains different internet business models, internet revenue generation models and the success of different models. The article also depicts the prediction of the growth of internet users during recent years.

Karim (2013) conducted a study on online shopping behavior of customers and documented that online vendors can assure their consumers for transaction security and avoid long delays in completing online orders and the hassle of returning goods for better online shopping experience.

Morris (2013) conducted a study on 'More Consumers Prefer Online Shopping' Shoppers increasingly want what's called a "seamless Omni channel experience," meaning one in which retailers allow them to combine online and brick and mortar browsing, shopping, ordering and returning in whatever combo they would like.

V. Research Methodology

At the outset secondary data was collected through internet-based resources. Following the preliminary data search, popular online Shopping websites were identified. The websites selected for further study were Flipkart, Amazon, Snapdeal, Myntra, Jabong, Grofers and Big Basket. The initial study also indicated

comparative popularity of product categories for online shopping. The categories shortlisted for this study were Apparel, Electronic gadgets, Accessories, Furniture, Appliances, Personal care products and Groceries.
The primary data was then collected through an online survey using an E-form. Apart from demographic information, the Form sought data on website preferences across categories in the form of close-ended Grid format questions. The Form was e-mailed out to a cross section of the general population selected randomly. The survey was restricted to respondents in the city of Mumbai only. The valid responses received to the online Form totaled 244.

The survey data was then coded and tabulated for ease of analysis. Inferential statistics were employed for this empirical study and the proposed hypotheses were tested using statistical tests such as the Z test, t test and Chi Squared test. Further Descriptive statistical analysis was carried out with the help of SPSS software.
On the basis of solutions obtained, observations and insights were developed. Finally, graphs were prepared which represented the analysis in an understandable manner.

VI. Data Analysis and Research Findings

Hypothesis 1:- Test of Proportion (Z test for Proportion)

Ho: The percentage of respondents who prefer Flipkart for online purchase of Gadgets is less than 30%.
Ha: The percentage of respondents who prefer Flipkart for online purchase of Gadgets is more than 30%.

Table no 1: Testing for Proportion

Ho: p <30%
Ha: p >30%
Test of Proportions, Right- Tailed Test
Alpha=0.1
Probability=0.9
Critical-Value=1.28
Calculating the Observed-Value
x=90
n=244
p'=37%
p=30%
q=70%
p'-p=-7%
sqrt(p*q)/n =21
p'-p sqrt(p*q)/n=5.12
Observed-Value=-2.35
p-value=0.01
Alpha=0.1
0.01< 0.1, p-value < alpha

Since p value is less than alpha, we reject the Null hypothesis and accept the alternate hypothesis ie The percentage of respondents who prefer Flipkart for Online purchase of Gadgets is more than 30%. In fact, Gadgets category accounts for the highest proportion of all products for which Flipkart is the preferred shopping website (43.5%). Apparel and Accessories are the next most popular categories, each with a share of about 21%. Appliances and Personal care products each have a comparatively smaller share – 6.3% and 7.2% while preference for Furniture purchase is a miniscule 1%.

Table no 2: Product category-wise Preference for Flipkart

	Valid Percent
Apparel	20.8
Accessories	21.3
Appliances	6.3
Gadgets	43.5
Personal care	7.2
Furniture	1.0
Total	100.0

Hypothesis 2:- Test of Proportion (Z test for Proportion)
Ho: The percentage of respondents who prefer Snapdeal for online purchase of Appliances is less than 20%.
Ha: The percentage of respondents who prefer Snapdeal for online purchase of Appliances is more than 20%.

Table no 3: Testing for Proportion

Ho: p <20%
Ha: p >20%
Test of Proportions, Left tailed Test
Alpha=0.1
Probability=0.1
Critical-Value=(1.28)
Calculating the Observed-Value
x=16
n=244
p'=7%
p=20%
q=80%
p'-p=-13%
sqrt(p*q)/n =15.62
p'-p sqrt(p*q)/n=-1312%
Observed-Value=-5.25
p-value=0.97
Alpha=0.1
0.97>0.1, p-value > alpha

Since the p value is greater than alpha, we accept the Null hypothesis ie The percentage of respondents who prefer Snapdeal for the Online purchase of Appliances is less than 20%. From the table below, it can be seen that the share of Appliances is only 9.9%. The top three categories – Gadgets (26.7%), Apparel (26.1%) and Accessories (25.5%) – cumulatively account for over 78% of the total preference for the Snapdeal shopping website. Personal care category accounts for 8.1%. Snapdeal is more popular than Flipkart for furniture but still with a share of only 3.1%.

Table no 4: Product category-wise Preference for Snapdeal

	Valid Percent
Apparel	26.1
Accessories	25.5
Appliances	9.9
Gadgets	26.7
Groceries	.6
Personal care	8.1
Furniture	3.1
Total	100.0

Hypothesis 3:- T-test
Ho: The average age of respondents who prefer Amazon for online purchase of Accessories is less than 24 years.
Ha: The average age of respondents who prefer Amazon for online purchase of Accessories is more than 24 years.

Table no 5: Test of Means

Ho: p <24
Ha: p >24
t-test
Right-Tailed test
Alpha=0.1
Probability=0.1
Critical-Value=1.476
Calculating the Observed-Value
x'=24.86
n=24
µ=11
x'-µ=0.86
s=4.67
s/sqrt(n)=0.64
Observed-Value=1.34
1.34<1.476,t-o<t-c, Failed to reject the null

Since the t observed value is less than the t critical value, we accept the Null hypothesis ie The average age of respondents who prefer Amazon for the Online purchase of Accessories is less than 24 years. As seen from the following pie chart, of all the respondents who stated Amazon as their preferred choice of shopping website for the purchase of Accessories, nearly 50% belong to the 20-25 years age group and cumulatively, respondents between the ages of 20 to 30 years comprised about 83%.

Chart no 1: Age-wise breakdown of responses with Amazon as the preferred choice for Accessories purchase

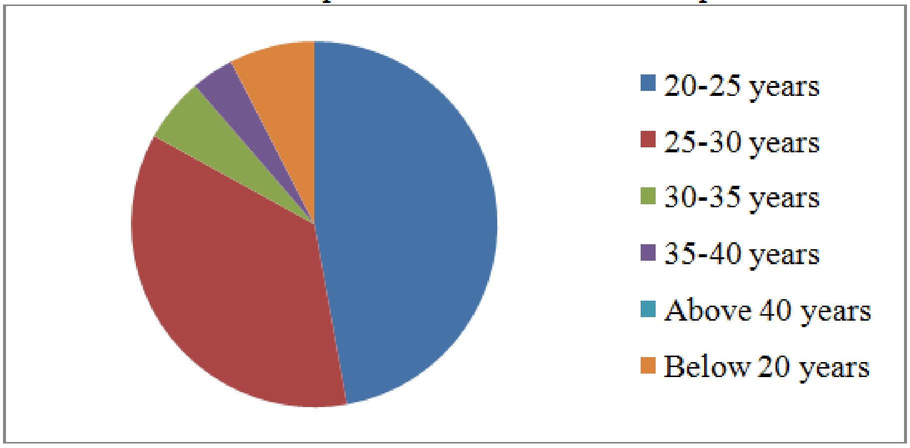

Table no 6: Product category-wise Preference for Amazon

	Valid Percent
Apparel	12.0
Accesories	24.5
Appliances	9.3
Gadgets	43.5
Personal care	9.3
Furniture	1.4
Total	100.0

43.5% of the respondents who stated Amazon as their preferred choice of shopping website, preferred it for online purchase of Gadgets. The second largest share was 24.5% for the purchase of Accessories.

Hypothesis 4:- T-test

Ho: The average age of respondents who prefer Myntra for online purchase of Apparel is less than 30 years.
Ha: The average age of respondents who prefer Myntra for online purchase of Apparel is more than 30 years.

Table no 7: Test of Means

Ho: p <30
Ha: p >30
t-test
Right-Tailed test
Alpha=0.1
Probability=0.9
Critical-Value=1.48
Calculating the Observed-Value
x'=25.46
n=93
μ=20
x'-μ=5.46
s=67.85
s/sqrt(n=7.04
Observed-Value=0.78
1.48 >0.78,t-critical>t-observed, Failed to reject the null

Since the t observed value is less than the t critical value, we accept the Null hypothesis ie The average age of respondents who prefer Myntra for online purchase of Apparel is less than 30 years.

Hypothesis 5:- Test of Independence (Chi-squared test)

Ho: The preference of Big Basket across product categories is independent of Educational qualification.

Ha: The preference of Big Basket across product categories is not independent of Educational qualification.

Table no 8: Testing for Dependence

Ho: The preference of Big Basket across product categories is independent of Educational qualification.
Ha: The preference of Big Basket across product categories is not independent of Educational qualification.
Chi square test
Right-Tailed test
Alpha=0.1
Probability=0.1
Critical-Value=29.62
Calculating the Observed-Value
Observed value= 588.06
P value=0.00
Alpha= 0.1
0.00> 0.10
Since p value < alpha, reject the null.

Observed	Graduate	Post-Graduate	Professional	Under-graduate	Grand Total	
Accessories	11	1		1	13	5.33%
Apparel	13	8	2	5	28	11.48%
Appliances	1				1	0.41%
Furniture	2		1	1	4	1.64%
Gadgets	9	1	1		11	4.51%
Groceries	29	23	9	5	66	27.05%
Personal care	7	2	3	3	15	6.15%
(blank)	48	24	15	19	106	43.44%
Grand Total	120	59	31	34	244	

Expected	Graduate	Post-Graduate	Professional	Under-graduate
Accessories	6.39	3.14	1.65	1.81
Apparel	13.77	6.77	3.56	3.90
Appliances	0.49	0.24	0.13	0.14
Furniture	1.97	0.97	0.51	0.56
Gadgets	5.41	2.66	1.40	1.53
Groceries	32.46	15.96	8.39	9.20
Personal care	7.38	3.63	1.91	2.09
(blank)	7.38	3.63	1.91	2.09

((fo-fe)^2)/fe	Graduate	Post-Graduate	Professional	Under-graduate
Accessories	3.32	1.46	1.65	0.36
Apparel	0.04	0.22	0.68	0.31
Appliances	0.53	0.24	0.13	0.14
Furniture	0.00	0.97	0.48	0.35
Gadgets	2.38	1.04	0.11	1.53
Groceries	0.37	3.11	0.05	1.92
Personal care	0.02	0.73	0.63	0.40
(blank)	223.70	114.43	89.97	136.80

Since the p value is less than alpha we reject the Null hypothesis and accept the alternate hypothesis ie The preference of Big Basket across product categories is dependent on Educational qualification.

Hypothesis 6:- Test of Independence (Chi- Square Test)

Ho: The preference of Big Basket across product categories is independent of Occupation.

Ha: The preference of Big Basket across product categories is not independent of Occupation.

Table no 9: Testing for Dependency

Observed	Accessories	Apparel	Appliances	Furniture	Gadgets	Groceries	Personal care	Grand Total
Business	1	4				7	4	16
Freelancing						1		1
Homemaker	1	1				1		3
Housewife						1		1
Professional				1	1	7	1	10
Salaried	6	14			8	36	6	70
Service	1							1
Student	4	9	1	3	2	13	4	36
Grand total	**13**	**28**	**1**	**4**	**11**	**66**	**15**	138

((fo-fe)^2)/fe	Accessories	Apparel	Appliances	Furniture	Gadgets	Groceries	Personal care
Business	0.17	0.17	0.12	0.46	-	0.06	2.94
Freelancing	0.09	0.20	0.01	0.03	-	0.57	0.11
Homemaker	1.82	0.25	0.02	0.09	-	0.13	0.33
Housewife	0.09	0.20	0.01	0.03	-	0.57	0.11
Professional	0.94	2.03	0.07	1.74	1.97	1.03	0.01
Salaried	0.05	0.00	0.51	2.03	0.37	0.19	0.34
Service	8.71	0.20	0.01	0.03	-	0.48	0.11
Student	0.11	0.39	2.09	3.67	0.17	1.03	0.00

Ho: The preference of Big Basket across product categories is independent of Occupation.
Ha: The preference of Big Basket across product categories is not independent of Occupation.
Chi square test
Right-Tailed test
Alpha=0.1
Probability=0.1
Critical-Value=54.9
Calculating the Observed-Value
Observed value= 36.87
P value=0.96
Alpha= 0.1
0.96> 0.1
Since p value > alpha, failed to reject the null.

Since the p value is greater than alpha we accept the Null hypothesis ie The preference of Big Basket across product categories is independent of Occupation.

VII. Conclusion

This study attempted to understand and compare consumer preferences across popular online shopping websites in India as well as across popular online purchase product categories. The pattern appeared similar for all the multi-category sites under study with Gadgets being the most popular category for the majority of the respondents for their preferred website, followed by Apparel and Accessories categories. Snapdeal was seen to be equally preferred for all these three categories, however, for Flipkart and Amazon the share for Gadgets was significantly larger.

Myntra and Jabong were found to be perceived as a category-specific website with more than 50% of the respondents stating them to be the preferred choice for online Apparel purchase. Similarly, Grofers and Big Basket were perceived to be largely Groceries-specific as is evident from the finding that a majority of the respondents opted for either of these two websites as their preferred choice for online purchase of Groceries.

Table no 10: Summary of Category-wise Preferred Choice of Website

	Apparel	Accesories	Appliances	Gadgets	Groceries	Personal Care	Furniture
Flipkart	20.8%	21.3%	6.3%	43.5%	--	7.2%	1.0%
Snapdeal	26%	25.5%	9.9%	26.7%	0.6%	8.1%	3.1%
Amazon	12%	24.5%	9.3%	43.5%	--	9.3%	1.4%
Myntra	57.8%	13.7%	3.7%	11.25	0.6%	11.2%	1.9%
Jabong	52.3%	17.4%	2.7%	10.7%	0.7%	13.4%	2.7%
Grofers	20.3%	12.3%	5.1%	11.6%	37.7%	10.9%	2.2%
Big Basket	20.3%	9.4%	0.7%	8.0%	47.8%	10.9%	2.9%

Category-wise variation was observed across demographic classes of age groups, education and occupation. However, statistically relevant co-relations could not be established. This study also indicated very little differentiation or brand association with regard to the multi-category shopping websites. However, preference at the micro-level is influence by factors that are beyond the scope of this study.

VIII. Limitations of Research

This research was conducted through an online survey methodology. No attempt was made at any point during the study to gather qualitative data. The objective was to conduct an empirical quantitative study. However, the findings indicate the need for a detailed qualitative study in order to identify criteria and factors that drive consumer preferences at the micro-level despite the lack of significant differentiation or category association. The aim of qualitative analysis is a complete, detailed description. No attempt is made to assign frequencies to the linguistic features which are identified in the data, and rare phenomena receive the same amount of attention as more frequent phenomena. Qualitative analysis allows for fine distinctions to be drawn because it is not necessary to segregate the data into a finite number of classifications.

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