

Consumer Behavior in Online Shopping

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Abstract—The exposure of world wide web has made the services available to consumers without leaving their home. The use of the internet has been increasing more on the marketing services and e-commerce business. Having said that, online shopping has achieved a very important position in the 21st century as most of the people are busy with their hectic schedule. In such a condition, online shopping has become the easiest and most suitable choice for many people when it comes to shopping. Internet has changed the way of shopping and the online transactions are rapidly increasing. This has created a need to understand customers' needs and perceptions for online shopping. The purpose of this research was to examine if there are any particular factors that impact on the consumers when shopping online.

A. Keywords

Online shopping, consumer behavior, e-commerce, e-marketing, online business

I. INTRODUCTION

21 century is known for the fast development in the area of internet, connectivity and social media. With that being said, online shopping has become very popular for many reasons. There are benefits associated with online shopping such as convenience, easy price comparisons, more variety and so on. These factors attract more and more people into online shopping. And because of the high demand of online stores, the number of online retailers are increasing rapidly.

With the fast growing online shops, the internet has built up highly competitive market, where the competition is intense. An attempt of comparison has been done considering the challenges online retailers are facing. So who are going to be on the top in the world of the internet? it is vital for the online retailers to distinguish themselves from the rest of the competitors as to what features that are valued by the customers.

According to Kuester, Sabine (2012) in her study, consumer behavior is the study of individual, groups or organizations and the processes they use to select, secure, use and dispose of products, services and experiences, or ideas to satisfy needs and the impacts that these processes have on the consumer and the society. In the research, she tries to find out the decision-making processes of consumers. The paper makes emphasis on individual consumers such as demographics and behavioral variables to understand the customers' needs. We applied these into our survey questions to assess the behavior of consumers toward online shopping.

The objectives of this research include:

- To understand the consumers' perception and shopping behavior
- toward online retail.

- To understand the factors affecting customers' behavior for choosing e-commerce sites.
- To find out the buying pattern of consumers while shopping online.
- To study relevance between the consumer buying decision with respect to price, time, demography and so on.
- To make the successful business strategy knowledge of consumer perception.

This research classifies customers based on their preferences and study their online shopping behavior. The study is mainly divided into two parts, the first part is to explore the relevance between the factors that are related to consumers' buying decision. Second is to understand the customers' pattern and valued features of online retail stores based on their preferences. We will be using Chi-square and linear regression to explore the relationship between the variables. The findings of this research will not only help retailers in enhancing the quality of their services to the customers but will also add knowledge to the research area of online shopping and e-commerce in the country by providing an up to date assessment of the sector.

II. DATASET

Data Collection:

- Sample Size: 117
- Method: Convenience Sampling
- Technique: Online Survey

The research design of this study is descriptive. The study is focusing on the factors that will help to make successful online shopping business by studying consumers'. We have selected an online survey research and sent out to our friends and on social media for exploring the consumers' perception and behavior towards online shopping. Our primary data for the research was collected from the respondents with a structured questionnaire. We drew out a questionnaire with 20 questions that contain different variables related to responsible for building consumer perception. Our independent variables include demographic factors such as age, gender, income and occupation. And the dependent variables include variables that are related to consumers' behavior such as products they usually purchase, payment method as well as the preferences ranking from scale 1-5.

III. METHODOLOGY

We used R studio for statistical analysis of our dataset. We applied the built-in functions in R studio to do statistical analysis tests such as chi-square linear regression models.

Moreover, we also made descriptive visualizations such as plotting pie-chart and bar graphs using R.

A. Data Cleaning

Before performing tests, we first had to do the data cleaning as some participants answered only certain questions and did not finish the whole survey. So, we removed those NA values first. Then we chose the features that can be useful for the type of analysis that we wanted to perform. For example, we chose the features which has numerical values to perform linear regression model. Similarly, we chose categorical features to perform chi-square test.

B. Internal Validity

To prevent the violation of internal validity due to confounding variables, we tried to group people with same characteristic first. For example, although it can be generally concluded that people who have more income will spend more money on online shopping, it might also depend on their interest on online-shopping. People who are not interested in online shopping won't spend much even though they have high-income. So, we selected people who are only interested in online shopping thereby deleting the confound variables.

IV. RESULTS AND DISCUSSION

As mentioned above, we used chi-square test and linear regression for statistical analysis.

A. Chi-Square Test 1

Features

- Shopping Preference
- Privacy Concern

Null Hypothesis : Privacy concern and online shopping behavior are independent.

Alternative Hypothesis : Privacy concern and online shopping behavior are dependent.

TABLE I
RESULT OF CHI-SQUARE TEST 1

Privacy Concern	Shopping in Store	Shopping Online
YES	15	25
NO	26	51

p-value = 0.688 Since p-value of our test is greater than 0.05, we cannot not reject our null hypothesis and can conclude that privacy concern does not effect the shopping preference of people.

B. Chi-Square Test 2

Features

- Gender
- Shop Online

Null Hypothesis : There is no difference in terms of online shopping behaviour between male and female.

Alternative Hypothesis : There is difference in terms of online shopping behaviour between male and female.

TABLE II
RESULT OF CHI-SQUARE TEST 2

Shop_Online	Male	Female
YES	49	50
NO	5	13

p-value = 0.08991 Since p-value of our test is greater than 0.05, we cannot not reject our null hypothesis and can conclude that there is no significant difference between male and female in terms of their shopping behaviour. Men and women tend to shop online the same.

C. Linear Regression

Model 1 : Shopping_MoneySpent_Monthly = Age + Monthly_Income + Browsing_Time

TABLE III
RESULT OF LINEAR REGRESSION

	Estimate	Std.Error	t value	Pr(> t)
(Intercept)	-78.643147	91.928600	-0.855	0.394
Age	3.551249	3.095718	1.147	0.254
Monthly_Income	0.030412	0.006526	4.660	104e-7***
Browsing_Time	9.550036	8.161936	1.170	0.245

Adjusted R-squared: 0.2188

From the result of Model 1, we can see that only Monthly Income feature is significant in predicting the outcome of the model. So, we built another model with only that feature and compared if there is difference between old model and the new model.

Model 2 : Shopping_MoneySpent_Monthly = Monthly_Income

TABLE IV
RESULT OF LINEAR REGRESSION

	Estimate	Std.Error	t value	Pr(> t)
(Intercept)	54.400168	38.905858	1.398	0.165
Monthly_Income	0.032578	0.006364	5.119	158e-8 ***

Adjusted R-squared: 0.2062.

Comparing Model 1 and 2 using Anova

TABLE V
RESULT OF LINEAR REGRESSION

	Res.Df	RSS	Df	Sum of Sq	F	Pr(>F)
Model 1	94	4984680				
2	96	5172940	-2	-188260	1.7751	0.1751

We compare these two models using Anova. As can be seen, the p-value is greater than 0.05, and we can say there is no difference between these two models. This means we just need one predictor which is Monthly_Income to predict the outcome of our model.

D. Visualizations

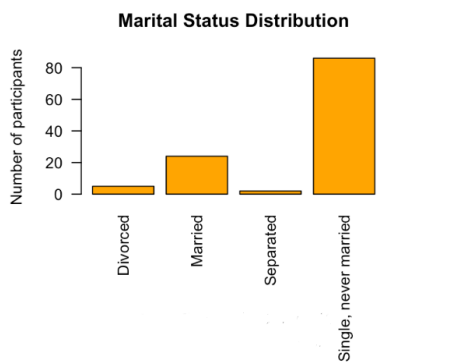


Fig. 1. Number of times male and female make purchases online

In this bar graph, we try to find out the marital status of the people who took part in our survey.

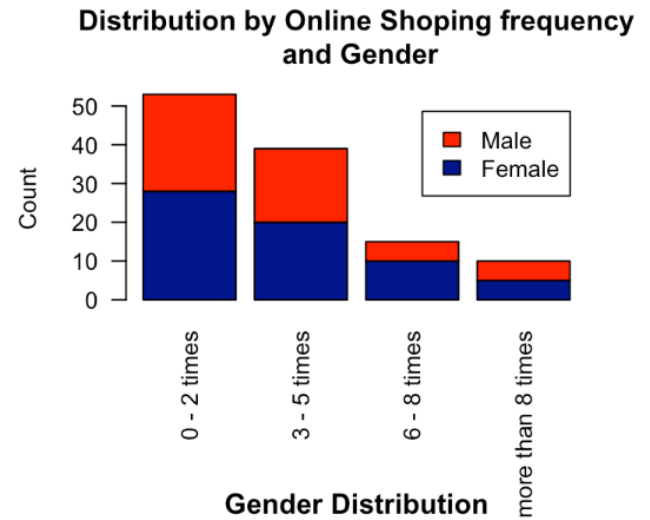


Fig. 2. Group of participants according to marital status

This graph helps us visualize the number of times people purchase online depend on the gender. From this, we can clearly see that female make more purchases than men.

Gender Distribution

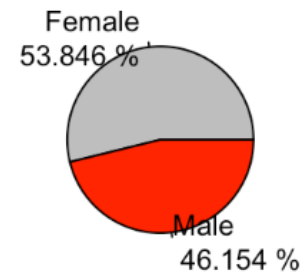


Fig. 3. Ratio of male and female participants

In this pie chart, we try to find out the ratio of male and female participants.

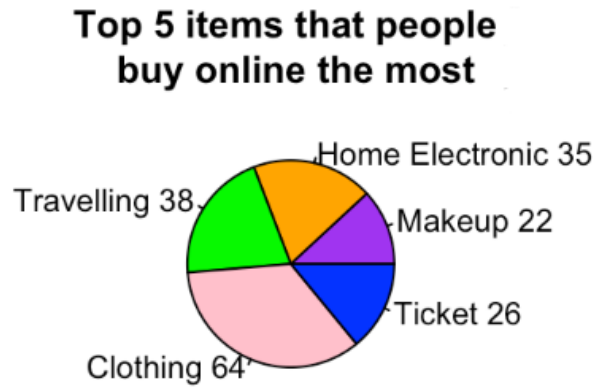


Fig. 4. Percentage of the number of items that people buy online

This graph shows us which items are popular among people when they shop online.

V. CONCLUSIONS

In this research, we have gained a comprehensive idea of online consumer behavior. However, our study is not representative and will need adjustment for further improvements. Below are the limitations we have encountered while conducting the research.

A. Limitations

Internal Validity:

- Sample size was only 117
- Response Time
- Convenience sampling
- Not representative

External Validity:

- Online Survey
- Diversity of the population
- Some of the participants didn't complete the survey

Our primary collected data was conducted through an online survey. We were affected by a lack of time to collect the data therefore our sample size was only 117. Since we have also selected convenience sampling, which resulted in a large number of respondents being in the same age range. We have 80 percent of the respondents ranging from 18 - 34 years old. As a consequence, the research is not representative. If the number of the respondents were larger and more diverse, we might have gotten a different result.

B. Findings

- Online shopping has become widely popular among the younger generation as they feel it more convenient and less time-consuming.
- The main concern users have for online shopping is the safety issue.
- We have discovered a strong relation between monthly income, occupation and purchase decision of respondents.

- We have confirmed from the survey that even though there is a privacy issue, it does not concern the consumers.
- We found that the online shopping is commonly used from the age of 18 to 34. Thus, they have the total independence to shop online as most of them have different levels of income.

C. Future Research

After considering the limitations in time, method and resources that we had while conducting the research. We have listed a few adjustments for possible future research:

- Conduct a survey with a larger sample size and choose random sampling as the method, this will improve the age diversity we encountered in the study. Which can lead to new analytical possibilities.
- This research was only conducted from the customers' perception. It would be interesting if we could also focus toward the online retailer to get a different perspective.

In conclusion, along with the fast growing of online shopping, this rapid growth has also interest many retailers for selling their products or services online as an important channel to raise brand awareness or expand their market. The online retailers should explore the customer behavior in purchasing decision in order to create better business strategies.

REFERENCES

- [1] Kabacoff, Robert I. "Quick-R by DataCamp." 2017. Sitemap. December 2019.
- [2] "Chi-Square Test in R | Explore the Examples and Essential concepts!" 10 July 2019. Data Flair. 4 December 2019.
- [3] Xie, Yihui. "Title slide." 12 May 2019. GitHub. 5 December 2019.
- [4] Porras, Eladio Montero. "Linear Regression in R." 18 July 2018. Data Camp. 5 December 2019. 6, 1990.
- [5] Kuester, Sabine (2012): MKT 301: Strategic Marketing Marketing in Specific Industry Contexts, University of Mannheim, p.110