Web Service Factors and Its Impact on Online Purchase Decision of Green Consumers

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Abstract: *Web based services have gained attention in the recent years for varied applications ranging from booking tickets to shopping online. Initially, common man was not much inclined towards online shopping applications. Subsequently, the reach and acceptance of the internet technologies have facilitated him to perform online services with ease. There are different online factors that impact consumer's online buying decision like, reliability, payment options, security and privacy policies of the website, customer support etc. This paper addresses the impact of these features on consumer's buying decision using regression analysis, which would help online shopping companies to improve the online facilities provided to the users.*

Keywords : online, green, purchase

I. INTRODUCTION

To develop useful e-services, it is essential to know the requirements of online customers. The recent development of internet technologies assist consumers throughout their online purchase. Some of the utilities available online that assist customers are search engines, interactive help desk, message alerts and peer interaction. Many researchers have carried out studies about the role of involvement, loyalty, emotional attachment, advertisement and corporate entrepreneurship on the influence of work discretion and buyer's purchase intention [1-8]. Studies have also been carried out about online features that provide platform for consumers to interact with each other to rate and review products. They offer online consumers with easy options to search for information of a product based on own judgment as well as feedback from peers [9-13]. These features influence "consumers' shopping behaviour in online domain. The customer behavior analysis examines the behaviour of customers intensively in the context of online purchases. It identifies the way in which purchase decision making process is carried out in Internet. Many statistical models are developed to depict the purchase decision-making process and its influential factors. These models examine consumers' decision in choosing between products.

It depicts the phases that consumers follow to make a purchase decision. Models also facilitate the differences in the decision processes made by customers [14-16].

The purchase decision of a customer, whether offline or online depends on various aspects. In the case of offline shopping, there are various aspects that are beneficial to the customer. They are authenticity, bargaining, trial fitting, advance booking etc. There are certain other aspects that prove to be negative effect like time consuming, less number of choices in a shop, travel expense etc. In the case of online shopping, travel expense is not a factor. Also, one can browse different websites for better choices [17-20]. In this study, the work proposed is the analysis of the effect of web based services on green products purchase decisions by online customers.

II. LITERATURE SURVEY

The web service factors that influence online decision process are reliability, ease of use, information content, security, privacy, payment options, interactive features and online awareness [21-25]. Reliability is the most important feature that decides the customers' decision to buy a product online. Yang studied the impact of reliability along with other web based factors that affect customer perception on online service quality [26]. The study empirically examined the construct of online service quality in the context of business-to-consumer e-commerce and three broad conceptual categories related to online service quality namely customer perceived service quality, information systems quality and product portfolio.

Lee et al. analyses the impact of reliability as one of the independent variables that affect online buyer's purchase intention [27]. The respondents consists of online buyers from Malaysia who purchase from local online sellers website. The authors state that website security, privacy and trust are the main concern of online buyers who want to purchase online. The independent variables are website design, website reliability/ fulfilment, website security, privacy and trust, and website customer service and the dependent variable is customers purchase intention. Theory of planned behaviour (TPB) is used to model the data. It was found that website security, privacy and trust positively affect the intention of the buyers to continuously purchase online because these are the features of the website that makes it reliable. The influence of customer service on online customer decision process was studied by Chincholkar and Sonwaney [28].

Data was collected using online survey from respondents in Mumbai.

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Other than customer service, the independent variables are available product or service on website, website image, visual appeal, and interactivity of website, loading time or speed, product or information content, website privacy and security transaction process. The dependent variable is customer buying decision. Data analysis is done using statistical methods. It could be observed that customer service has a positive effect on online buying decision process.

Studies were carried out by Indriani on the effect of ease of use of website on online shopping of customers [29]. She studied the factors that influence the buying decision on online shopping clothing for consumer in Manado.

The independent variables are convenience, product information, available products, time and cost efficiency, prices, website quality, brand loyalty, promotion, brand recognition, refund, privacy of the information, perceived ease of use, consumer attitude, consumer satisfaction, demographics, reputation of online store, delivery time, perceived risk, vendor characteristics and personal characteristics. The dependent variable is consumer buying decision. Data is analysed using factor analysis. It could be observed that all factors are qualified and influence consumer buying decision on online shopping of clothing in Manado City. The three most dominant factors that influence online shopping are available products, refund, and perceived ease of use.

Park and Kim studied the relationship between various characteristics of online shopping and consumer purchase behavior [30]. The respondents were Korean consumers who had memberships at the online bookstores. The independent variables are user interface quality, product information quality, service information quality, security perception and site awareness. The mediators are information satisfaction and relational benefit. The dependent variable is buying behaviour. The data was analysed by factor analysis. It was observed that a consumer's commitment to an online store is highly related to information satisfaction and relational benefit. Also, information satisfaction and relational benefit are significantly affected by product and service information quality, user interface quality, and security perception. These results imply that information of an online store is an important factor that affects each consumer's site loyalty and purchase behaviour.

There are many payment options available online. Some online users prefer to use Net banking where as some prefer card options. Katawetawaraks and Wang studied the payment related factors that impede consumers from online shopping [31].

III. METHODOLOGY

The research design carried out in this study is descriptive in nature. Descriptive Research concentrates on formulating the research objective, designing methods for the collection of data, selection of sample, data collection, processing, analysis and report generation. Survey technique is used for carrying out research. The strength of survey research is its wide scope and ability to collect the detailed information from the respondents in order to find the determinants of online purchase decision of green products [32-33]. The conceptual framework is given in Figure 1.

The hypothesis for the study are the following

H1: Reliability of website has no impact on consumers online purchase decision
H2: Customer service offered by website has no impact on consumers online purchase decision
H3: Ease of use of features of website has no impact on consumers online purchase decision
H4: Information content of website has no impact on consumers online purchase decision
H5: Security aspects of website has no impact on consumers online purchase decision
H6: Privacy aspects of website has no impact on consumers online purchase decision
H7: Payment options of website has no impact on consumers online purchase decision
H8: Interactive features of website has no impact on consumers online purchase decision
H9: Online awareness of consumer in the utilisation of website has no impact on consumers online purchase decision
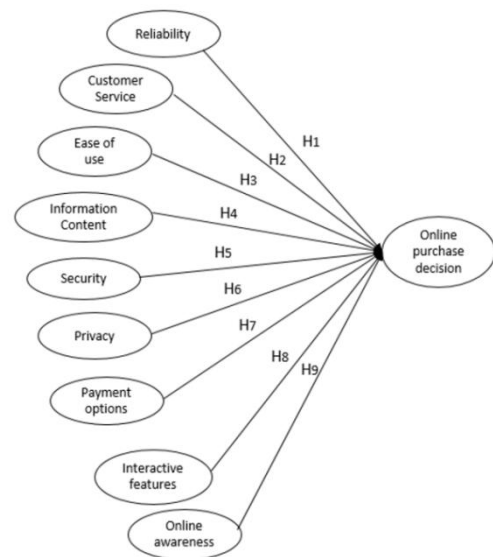
Fig 1: Conceptual framework

The steps in the analysis are
  (a)Frequency count of demographic factors
  (b) ANOVA of independent variables
  (c) Regression - A regression model is fitted for the data by taking the online shopping decision as the response variable and reliability, customer service, Ease-of-use, information content, security, privacy, payment options, interactive features and online awareness as the independent variables.

The proposed regression model is

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \varepsilon$$

Where, Y = online shopping decision, X_1= reliability, X_2= customer service, X_3 = Ease-of-use, X_4= information content, X_5= security, X_6 = privacy, X_7 = payment options, X_8= interactive features, X_9 = online awareness, β_0 is the offset factor and ε is the error.

IV. DATA COLLECTION

The research instrument used for the survey is questionnaire. Self-administrated questionnaire were distributed among the respondents. A brief description on the work was narrated to the respondents prior to the distribution of the questionnaire. This was to ensure that the respondents satisfy the criteria of being an online shopping person who purchase green products. The language selected for the construction was English, being a language with terminologies related to online familiar to common man. The total number of observations is 100. The region selected for data collection are residential and industrial areas of Kochi.

V. FINDINGS AND DISCUSSION

Initially, a pilot study was carried out to check the consistency of the data collected. The intention of this pilot study is to determine the response rate likely to be encountered in the main survey and to determine the reliability of the tool for this study. In this research, all the questions are asked in the Likert's five point scaling technique, where five stands for strongly agree and one stands for strongly disagree. The researcher conducted a pilot study by using convenience sampling method. The collected data was analysed by using statistical package for social science software package (SPSS) for reliability tests. The results of reliability analysis is displayed in Table 1. It could be observed that all the variables had an alpha value greater than 0.8. After reliability analysis, a detailed data analysis is carried out using regression method. The demographic factors considered are age, gender, qualification, occupation and salary. Chart 1 and Figures 2 to 5 shows the frequency counts of the demographic factors.
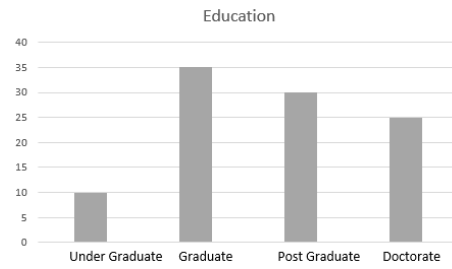
Table I : Reliability analysis

S.No.	Variables	Cronbach's alpha value
1	Reliability	0.862
2	Customer Service	0.811
3	Ease of use	0.849
4	Information Content	0.829
5	Security	0.847
6	Privacy	0.808
7	Payment options	0.812
8	Interactive feature	0.855
9	Online awareness	0.862

Chart 1 : Frequency count of Gender

Gender

Age
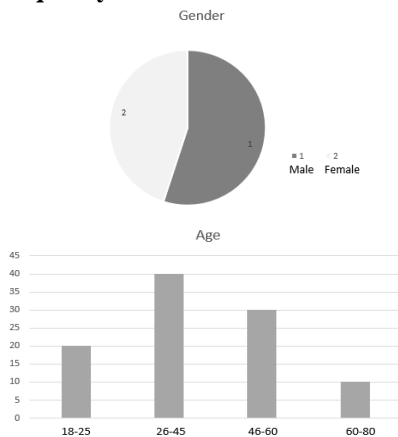
Fig 2: Frequency count of age

Education

Fig 3: Frequency count of education
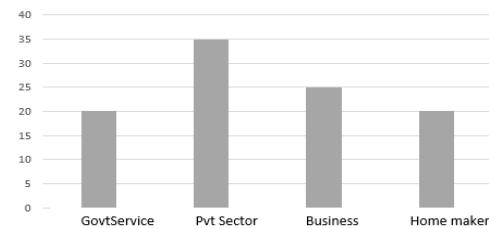
Occupation

Fig 4: Frequency count of occupation
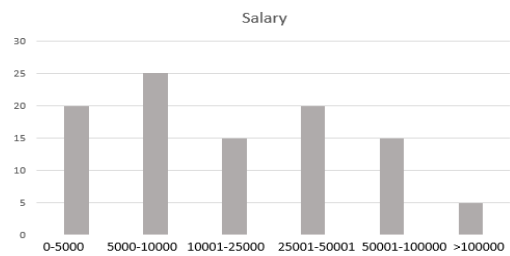
Salary

Fig 5: Frequency count of salary

The summary statistics of the demographic variables under study are given in Table II. Table III gives the results of ANOVA.

Table II : Statistics of observations

Independent Variables	Mean	Standard Deviation
Reliability	3.91	0.778
Customer service	3.7	0.8227
Ease-of-use	3.6	0.755
Information content	4.03	0.774
Security	3.64	0.9047
Privacy	3.44	0.8536
Payment options	3.3	0.6313
Interactive features	3.6	0.941
Online awareness	3.2	0.4893

Table III : Results of ANOVA

Independent Variable	Sum of squares	df	Mean square	F	p-value
Reliability	20.8173	1	20.8173	80.7118	<0.05
Customer service	1.6315	1	1.6315	6.3258	<0.05
Ease-of-use	6.7115	1	6.7115	26.0215	<0.05
Information content	1.2439	1	1.2439	4.8228	<0.05
Security	1.4104	1	1.4104	5.4684	<0.05
Privacy	1.2826	1	1.2826	4.9730	<0.05
Payment options	0.4580	1	0.4580	1.7759	<0.05
Interactive features	0.0347	1	0.0347	0.1344	<0.05
Online awareness	0.0537	1	0.0537	0.2084	<0.05
Residual	23.2129	90	0.2579		

The p value (<0.05) is very small. Hence the null hypothesis is rejected.

The regression model is given in equation (1)

$$Y = 1.025 + 0.057 * X_1 - 0.042 * X_2 + 0.259 * X_3 + 0.132 * X_4 + 0.122 * X_5 + 0.289 * X_6 - 0.121 * X_7 + 0.041 * X_8 - 0.053 * X_9 \quad (1)$$

From the above fitted model, it observed that the coefficient of reliability, ease-of-use, information content, security, privacy and interactive features are positive. This means, these variables have a positive impact on the dependent variable, which is online shopping decision. The coefficient of customer service, payment options and online awareness are negative, which means these variables have a negative impact on the dependent variable.

Multiple R-square gives the variation of the dependent variable influenced by the independent variables. The R and adjusted R^2 values are given in Table IV.

Table IV : R values

R^2	Adjusted R^2
0.592	0.551

The value of R^2 is 0.592 and that of adjusted R^2 is 0.592 which means 59.2% of the variation in the dependent variable can be explained by the regression model by taking 9 independent variables. Table V gives the variance inflation factor.

Table V: VIF values

Independent Variables	VIF
Reliability	4.86
Customer service	5.14
Ease-of-use	4.3
Information content	2.44
Security	3.4
Privacy	3.87
Payment options	1.47
Interactive features	2.9
Online awareness	1.26

From the Table V, it is clear that there is no multi collinearity is present in this data. Hence the model is adequate.

VI. RESULT AND DISCUSSION

The effect of web factors on the purchase behaviour of online customers is analysed in this study. The study was carried out at Kochi with a sample of 100 repsondents. Multiple regression model was used to analyse the data. The following are the results of analysis.

- Reliability factor of website has a positive impact on consumers online purchase decision
- Customer service factor offered by website has a negative impact on consumers online purchase decision
- Ease of use of features factor of website has a positive impact on consumers online purchase decision
- Information content factor of website has a positive impact on consumers online purchase decision
- Security aspects factor of website has a positive impact on consumers online purchase decision
- Privacy aspects factor of website has a positive impact on consumers online purchase decision
- Payment options factor of website has a negative impact on consumers online purchase decision
- Interactive features factor of website has a positive impact on consumers online purchase decision
- Online awareness factor of consumer in the utilization of website has a negative impact on consumers online purchase decision

All the web service factors has an impact on the purchase decision of online customers. These studies would help the website designers to effectively design the website so that online customers can have hassle free online shopping experience. This would also help online companies to identify the areas in which they should put effort to attract customers which would benefit their online sales.

VII. CONCLUSION

Web services or Internet services has emerged as a potential technology that could create an impact on the lives of common man. One of the sought out applications of web services is online shopping or web shopping. In the initial days, common man was not much inclined towards online shopping applications. Subsequently, the reach and acceptance of the technologies have facilitated him to perform online services effortlessly. In this study, sample population from Kochi is selected and the impact of web service factors on online purchase decision is studied. It could be observed that other than customer service, payment options and online awareness, all other factors have a positive impact on online purchase decision.

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