

Measurement of Reliability as on-line purchase dimension for retail internet sites amongst engineers

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Abstract:

The online purchase in India is evolving fast and has the potential to grow exponentially in the times to come, as the internet penetration reaches far and wide across the country. The breakthrough in the internet technology has actually rendered an exhaustive globe rather a small market place with unparalleled ease in accessibility and comprehensive range of products and services. In order to tap the growing online market, sellers need to fully understand Indian consumers, in particular ones having technical qualification for increasing their market scope. As the engineers have the necessary financial and technical resources to buy the products or services online. The category of products that is purchased by engineers was studied. The 'Reliability' dimension was measured to understand its need and the variables associated with it. Besides the concluding comments, the managerial implications are also suggested to implement the parameters that are affecting the 'Reliability' dimension for engineers. These suggestions are to be used for better survival & profitability of the online retail organizations.

Keywords: Online purchase, Reliability, engineers, Retail internet sites

Introduction

The modern day life is both busier and more demanding. Online shopping or Internet shopping facilitates convenient and speedy transactions. Internet & Mobile Association of India says more than 60 percent of online shoppers would come from beyond the top 8 metros by the end of 2012. Organized retail is hardly a pan-India phenomenon and large chains make up less than 10 percent of the market. As a result, smaller towns often don't have access to the merchandise available in metros such as Bangalore or Mumbai. A new report by the Boston Consulting Group says online retail in India could be an \$84-billion industry by 2016 -- more than ten times its worth

in 2010 --and will account for 4.5 percent of total retail. E-commerce entrepreneurs and experts say small-town India will play a big role in the online bonanza. In terms of internet shopping, a study shows that 78 percent of the Indian respondents have made online purchases and 55 percent have made at least one online purchase in the past one month (Comiskey, 2006). There is also evidence that online transactions are increasing in the smaller cities as a result of their less developed marketing and distribution infrastructure.

India has one of the world's youngest internet populations, with 75 percent of users under 35, and many of them have much more disposable income than their parents did. There is a vast difference in purchasing a particular product in the store or from online. To put it simply, one can say that the most obvious difference is the interaction between human to human shifts to interaction between human to machine. It implies that consumer needs to be able to understand some technology to be able to purchase any product online. In terms of education, India annually produces 2 million college graduates including approximately 200,000 engineers and 300,000 technically qualified graduates. In order to tap the growing online market, sellers need to more fully understand Indian consumers, in particular ones having technical qualification.

Purpose of study

Although internet retailing in India is on the verge of rapid growth, relatively little is currently known about Indian non-store shopping behavior in general and Indian online shopping in particular. The purpose of this study is to fill that knowledge gap by exploring the most important dimension of 'Reliability' in online purchase by consumers with technical qualification that is engineers.



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Literature review

Service quality:

Research pertaining to service quality has focused on developing and verifying not only models of overall service quality (Babakus and Boller, 1992; Bolton and Drew, 1991; Boulding et al., 1993; Cronin et al., 2000; Cronin and Taylor, 1992; Parasuraman et al., 1988; Zeithaml et al., 1996), but also industry-specific service quality. For example, Carman (1990) developed various healthcare models, addressing service quality in such organizations as acute care hospitals and dental clinics. Cronin and Taylor (1992) developed models to explore service quality in the contexts of banking, pest control, dry cleaning, and fast food. Burton (2002) argues that consumer education is a powerful quality strategy in a variety of service contexts and that it is already being used by an increasing number of service organizations. Gwinner (2002) explored consumers' perceptions of Internet retail service quality. The detailed review of service quality is not within the purview of this paper; hence more detailed is covered for on line purchasing

Online purchasing dimensions

The continuous rise in the use of SERVQUAL has been arguably attributed to a practical usefulness in diagnostic analysis for improving service quality. According to Parasuraman et al. (1993), the diagnostic application of SERVQUAL dominates commercial use of the instrument and is one of its primary advantages. Service quality, satisfaction and service value have received most attention in both the academic literature and business practice. Given the importance of consumers' evaluations, an obvious question is what dimensions are most important to consumers in assessing Internet retail service quality? While the service literature is filled with a multitude of articles dealing with service quality in a variety of contexts (e.g. healthcare, professional services, retailing, etc.), it is not clear if the dimensions used to evaluate service in interpersonal service encounters are the most important evaluation criteria for technology-mediated encounters (e.g. Internet shopping) (Bitner et al., 2000; Parasuraman and Grewal, 2000). Some authors have started examining on-line services and associated concepts. For example, Janda *et al.* (2002) examined the link between service quality and intentions; Anderson and Srinivasan (2003) studied the effect of satisfaction on behavioral intentions; and Chen and

Dubinsky (2003) investigated the relationship between service value and intentions. Studies like these have examined concepts such as online service quality and service value in the online service environment and started developing relevant measurement scales. Behavioral intentions have been widely researched in services marketing (Andreassen and Lindestad, 1997; Bobbitt and Dabholkar, 2001; Dabholkar, 1996; Zeithaml *et al.*, 1996). Several concepts have been examined as antecedent factors of behavioral intentions; for instance, service quality (Zeithaml *et al.*, 1996), service value (Cronin *et al.*, 1997), satisfaction (Andreassen and Lindestad, 1997), trust (Gefen and Straub, 2003), corporate image (Andreassen and Lindestad, 1997), and attitudes (Curran *et al.*, 2003; Dabholkar, 1996). Service quality, satisfaction and service value have received most attention in both the academic literature and business practice.

Zhou et al. (2004) examined specific dimensions of the 'performance-only' measurement of service quality (SERVPERF) as determinants of consumer satisfaction and subsequent behavioral intentions associated with banking services in mainland China. The predictive ability of context-dependent service quality dimensions is presented with empirical support. The results extend and enhance the validity of the performance-only approach to service quality through the focus on the multidimensional facets of the SERVPERF scale, a direct link between context-dependent dimensions of service quality and consumer satisfaction, and its application in an international setting.

Huckman et al. (2006) examined the relationships between behavioral intentions and its antecedent factors in online services settings. A conceptual model linking behavioral intentions and its key antecedents was tested using partial least squares. The results suggest that behavioral intentions are directly influenced by online service quality, online service value and online service satisfaction. Online service satisfaction, in turn, is affected by online service value and quality; whereas online service value is determined by the online service quality and related sacrifice. The study comprehensively addresses an extensive set of factors affecting behavior intentions in online service contexts.

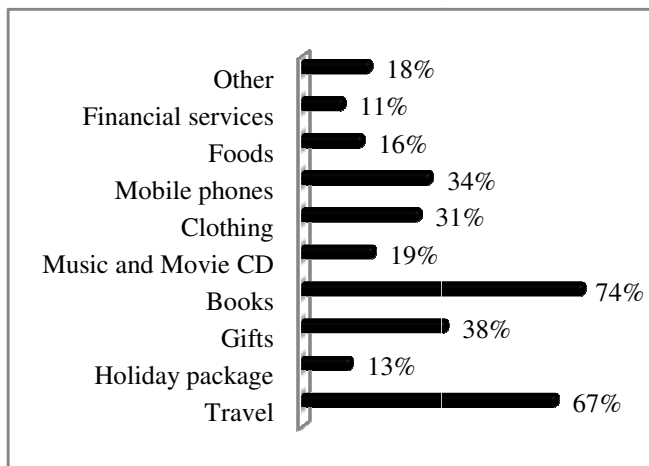
Dabholkar (1996) proposes that expectations of speed of delivery, ease of use, reliability, enjoyment, and

control will impact service quality expectations for technology-based self-service options. Zeithaml et al. (2000) developed a framework consisting of 11 dimensions to be used in evaluating the delivery of electronic service quality". The 11 dimensions include access, ease of navigation, efficiency, flexibility, reliability, personalization, security/privacy, responsiveness, assurance/trust, site aesthetics, and price knowledge. Research into online purchase is emerging in marketing journals. Many researchers have emphasized the "Reliability" dimension in online shopping as important. The adequate research on "Reliability" dimension is not available for Indian consumers in particular. To address the gap in the literature, a conceptual examination of link between online purchase & 'Reliability' dimension amongst engineers is conducted. A proper understanding of "Reliability" dimension can lead to increase in market potential, which in turn can increase the profitability of online retail site.

Methodology

The study was conducted by questionnaire method and data was collected online. A random sample of 580 respondents who are engineers & had purchased at least one product in on-line retail was chosen for mailing a questionnaire. A total of 186 respondents responded, out of which responses from 73 respondents were incomplete. They were excluded from research framework. Hence, the research is based on 113 respondents. The respondents had purchased various categories of products; the results are given in graph 1. *Respondents may select more than one checkbox, so percentages may add up to more than 100%

Graph 1*



A 'Reliability' dimension was studied on 9 variables, out of which 5 variables were finally chosen based on testing of questionnaire. This variable are-

1. When a retail Internet site promises to do something by a certain time, they should do it.
2. Retail Internet sites should provide services without the need to contact the firm.
3. Retail Internet sites should provide easy access and understanding of billing.
4. Retail Internet sites should ship the merchandise I requested.
5. Retail Internet sites should provide their services without the need for e-mailing or phoning employees of the firm.

These variable are similar to the one studied by Long Mary & McMellon Charles. (2004). Financial resources are primarily required to purchase any product online. One hypothesis was tested to assess its relevance with 'Reliability' dimension. A factor analysis was carried out to reduce the data and combine the variables to get a total understanding of the output. A statistical package SPSS was used for data analysis.

Hypothesis:

Hypothesis Ho: There are no significant differences on measurement of 'Reliability' dimension on retail internet site on different incomes.

ANOVA was conducted to test the hypothesis. The significance of all the variables is more than .05, hence null hypothesis is rejected. This indicates that there is a significant difference in the variables of 'reliability' dimension and all the variables are independent. The results are given in Table 1. For efficient performance and profitability by any online retail organization, it is essential that they have a focus approach in assigning their resources.

Table 1: ANOVA

	F	Sig.
(1) Do as promised in certain time	0.193	0.901
(1) Without the need to contact the firm	1.125	0.342
(1) Easy access and understanding of billing	0.117	0.95
(1) Ship the merchandise, requested	0.41	0.746
(1) No need for e-mailing or phoning firm	0.542	0.655

It is imperative that it focuses on only those parameters which are having large commercial implications. To achieve the same, it is essential to reduce the data, a factor analysis was performed. The result of the factor analysis helps to combine variables such that it reduces the number of parameters to be analyzed for any vital decision to be taken by an organization.

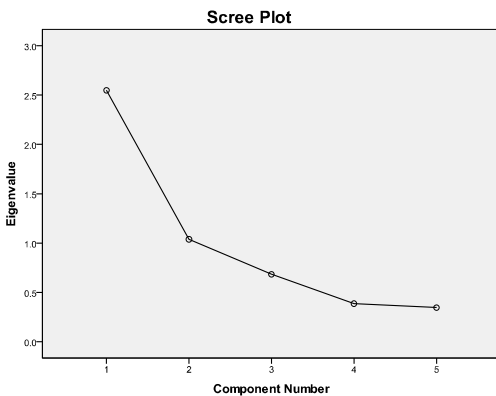
A factor analysis was done for the same. KMO and Bartlett's test result in Table 2, indicates that the reliability of data is 0.738, which is reasonably good to accept the sampling adequacy.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.738
Bartlett's Test of Sphericity	Approx. Chi-Square	156.027
	Df	10
	Sig.	0.000

Total variance explained for two factor solution is expressed by 71.72% of sample respondents, which is a statistically significant value, for Eigen value as 1. It was performed using Principal Component Analysis for extraction. A scree plot was drawn to also understand the number of expected factors, based on Eigen value 1. A graph 2 indicates that it has two expected factors.

Graph2



A factor analysis was performed, by using Eigen value as 1. A rotated component matrix using varimax rotation was prepared, using principle component analysis for extraction. The results in Table 3, indicates that it is two factor solutions. The variables 'Ship the merchandise requested'; 'Easy access and understanding of billing' and 'Do as promised in certain time' are included in one factor. These three variables express 'Performance' of on-line retail site. How the company performs in providing information, ease of purchase and delivering timely product is determined

by 'Performance'. The last two variables 'No need for e-mailing or phoning firm' and 'Without the need to contact the firm', forms the second factor. It denotes as 'Dependability' of the online retail site. It implies that a customer tries to depend on the performance of the company provided they do their promised tasks without any further follow up.

Table 3: Rotated Component Matrix^a

	Component	
	1	2
(1) Ship the merchandise, requested	0.855	0.086
(1) Easy access and understanding of billing	0.853	0.189
(1) Do as promised in certain time	0.835	0.197
(1) No need for e-mailing or phoning firm	0.087	0.849
(1) Without the need to contact the firm	0.21	0.76

*Extraction Method: Principal Component Analysis.

*Rotation Method: Varimax with Kaiser Normalization.

The result of the factor analysis confirms that 'Reliability' dimension on which the consumer decides to shift to online retail has 'Performance' and 'Dependability' parameters. The online retail sites should give focused efforts on these parameters, to maximize its revenue.

Conclusion: The online retail sites in India are showing growing pattern of purchase. The consumers give adequate importance to 'Reliability' dimension, as it is not having any direct human interaction while placing an order. They decide to buy from any particular retail site based on their information from various sources. Once they decide to purchase from a particular on line retail site, they would develop 'Reliability' on their services based on 'Performance' and 'Dependability'. Performance is based on shipping the merchandise requested; easy access & understanding of billing and timely completion of tasks. It means that providing proper and timely services with utmost ease. While 'Dependability' is based on no need for any follow up by mail or contacting the firm. It means that the system and process should be so versatile that a customer has no hassle in getting services from on line retail site.

Managerial Implications: A company should have proper online and offline backup of resources to execute their business. The 'performance' in terms of ease of giving order and executing the order timely, will determine the satisfaction by performance of online retailer. The online retailer should provide proper information to understand various products available in different categories and they should have proper logistical support to execute the same. The consumers are directly dealing with machine that is 'computers' in online purchasing. The absence of any person, who can be contacted, can deter a person to 'depend' on online retail. The system & procedure should be robust enough such that consumer does not face any difficulty in placing order or getting delivery of the product, such that he is not required contacting the firm. These proper actions will enhance the 'Reliability' dimension among customers, who are engineers, which will ultimately enhance the profitability of the online retailer.

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