

## Trust and Usability in Online Business: Intelligent Websites and Satisfaction

Abdulhamid Faraj Elhamali and Sellappan Palaniappan

Department of Information Technology, School of Science and Engineering,  
Malaysia University of Science and Technology, Petaling Jaya, Malaysia

---

**Abstract:** Information and communication technology drive for websites and online platforms such as intelligent sites and blogs have been part of the daily engagement of attaining users trust and satisfiability. The need to represent the needed information, particularly in business domains has proven to benefit firms and the large establishment that perceived qualities, privacy and usability as the key to satisfaction and loyalty of use. Usability study has long been explored; however, user's attainments of certain factors have made it better to measure and project the intention of frequent use, trust of information, ease of use, freshness and updates, image representation and general website intelligent to attain loyalty. This study presents a wide range of website test of usability through some listed factors to better user's perception in gaining trust for doing business online. The study, therefore, proposes a conceptual inclusion of some key factors such as social media navigation and vital satisfiability. Nibbler web tester tool was used in the study to investigate the strength and weakness of the popular sites of news and flight booking. This proves that customer usability, trust and satisfaction are the key elements for customer loyalty. The results are therefore significant for firm managers and the customer's expectation in the future.

**Key words:** Online booking, satisfaction, nibbler, trust, loyalty

---

### INTRODUCTION

Internet engagements and usability are vital and mostly debated as a concept in the domain of human and computer interaction. Its wide interactivity in inculcating meaning and intelligent to sites makes it a metric to measure user's satisfaction. The satisfaction on websites and computer blogs, manifest into frequent visitation through customer's trusts that build to loyalty. Recent studies by Alawneh *et al.* (2013), Chang and Chong (2011) has provided and submitted the need to make websites particularly in businesses, trustworthy in relations to customer's privacy, safety and sensitivity of information. The banking sector has received the wide acceptability and sensitivity of data exchange platforms.

However, customer satisfaction has now cut across other business outfits such as flight booking systems, online shops, real estate's among others. Customer's usability encompasses interdisciplinary creativity in design, engineering, imaging, display and overall ease of activities. Information Communication Technology (ICT) is agreed as the main platform for organizational successes (Deng *et al.*, 2010; Lee *et al.*, 2012). Online services are thus provided through its applicability in firms to improve basic activities and enhance the

effectiveness and efficiency of information and service delivery among organizations, firms, business and customers alike (Lee *et al.*, 2012). Online services are termed as new channels for faster and efficient forms of service delivery to customers. Online services are not a full replacement for physical services, rather it complements online activities as services (Lee *et al.*, 2012). According to Chin and Lee (2000) mobile telecommunication industries using Internet and exploring business are much becoming more tied. Now, the concern has been shifted on how to retain customers by reducing payment burden, improving the performance and usability. Clearly, it can be seen as a vital point of creating a trade-off between the usability, satisfaction, ease of use, trust and loyalty (Fig. 1). Studies such as Susanto *et al.* (2012) discussed ways to create balance between payment of use and performance of service provision. It is therefore, worthy to note that according to a recent study by the findings by Deng *et al.* (2010) as depicted in Fig. 1 service quality, corporate image and price were predictors of customer satisfaction. The customer satisfaction played a mediating role on the link among service quality, corporate image and price towards service loyalty (Deng *et al.*, 2010). Service quality measures the gains in the service rendered by the business firm and

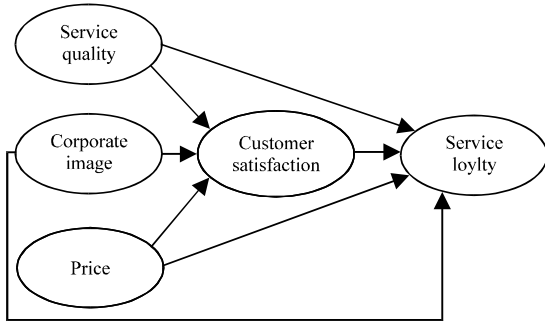


Fig. 1: Users satisfaction and loyalty model (Deng *et al.*, 2010)

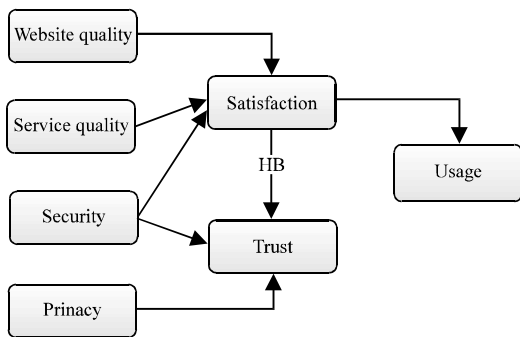


Fig. 2: Websites satisfaction, trust and usage

organizations. This encompasses certain criteria such as the responsiveness of queries, the security and privacy policies, the general promptness in service delivery, the cost management and durability, the package representation and ease of access. The resulting trusts alongside confident builds the customer loyalty to the service. Additionally, imagery and representation of graphics mainly on websites and online services returns a sense of satisfaction and confident also to the users. A well meaning, non-blurred image on an online platform depicts the carefulness of the business outfit and the message caption of the business. Careless selection of illustration of sites returns the psychological lack of satisfaction to the user thus, building the impression of carelessness in the business. More so, it is commonly believed that customer loyalty is the result of customer satisfaction accorded to him during purchase and that could lead to repurchase. However, some researchers considered that associating customer loyalty with only repurchase is a problem because this measurement does not completely distinguish spuriously loyal customers.

Interestingly to note from Fig. 2 in wider perspectives, satisfaction also influenced both

consumer’s trust and usage significantly when better forms of engagements are preserved and served to the consumer. Among the most interesting part of attaining better usage that brings about satisfaction and trust are the quality of what has been hosted or portrayed on the websites. This includes code quality, validation and the conformance with W3C.

Most websites that provide better adversity or customer lack of confidence involves lots of errors in code, non-respondents of tags and links, bad validation and poor code inheritance. Service quality defines the effectiveness of the service provided which include the ease of use, readability, navigability, response to metadata coding and the overall confidence from the customers. Security and privacy builds on the trust due to the preservation and protection of the user’s sensitive information.

This study shall explore this items and variables by testing to investigate the design issues of some popular websites that provide web services through news, sports information, online flight bookings, shopping and hotel reservation. From the study, we shall calculate the customers trust and usability that normally grant full loyalty of the user. Thus, it would serves as a guiding approach to building and managing better websites to achieve user’s satisfaction, trust and loyalty.

**Related studies:** Usability has widely been explored on different platforms and also on varying variables. Websites for online businesses proved to be on the leading interest. Satisfaction and trust are vital in every fold or category of website exploration. User satisfaction is thus, considered a critical factor that determines the success or failure of any website (Lee *et al.*, 2012). User satisfaction is therefore a potentially significant factor for continual usage of online services with high proportionality to the cause of success or failure of online projects and services (Alawneh *et al.*, 2013). User satisfaction as submitted by Keoduang sine and Goodwin (2009) is seen as a function of perceived service performance (or quality) and confirmation of performance expectations. However, according to Alawneh *et al.* (2013) user satisfaction must meet with the following factors: security and privacy trust, accessibility, awareness and quality. Firms spend a lot of investment through time and resources in the development and hosting of websites. Information technology has turn out to be an essential approach for policy formulators and researchers alike for finding better ways of managing resources and coordinating their investments. Managers need to have a priori understanding about business return in investments

and whether that investment brings more customers and satisfy the current customer (Zhou, 2013). Performance evaluation of Information System (IS) has thus necessitated a priority for businesses and serve as an important research direction in IS (Zhou, 2013). Currently, websites have become the major source of business, considering the magnitude and size of these developments through large information sharing, there is a great need and worthiness to increase the customer satisfaction by identifying the design principles and features that could enhance user satisfaction and loyalty. The measurement of satisfaction had a long history within the IS discipline (Keoduangsine and Goodwin, 2009). User satisfaction is a common measure of IS success, due to its importance to user satisfaction, many several standardized instruments developed and tested (Klein and Nejc, 2013; Lee *et al.*, 2012; Susanto *et al.*, 2012; Zhou, 2013). User satisfaction is critical for business field. Its worthwhile promise has led to an increased effort to explore how to measure and model customer satisfaction (Deng *et al.*, 2010; Keoduangsine and Goodwin, 2009; Klein and Nejc, 2013). Many studies on user satisfaction conducted in many fields of IT resolves the extent to which an available service meets user needs. In this regards, satisfaction is defined as the “perception of the pleasurable fulfillment of a service”. In another definition, satisfaction is “the overall affective evaluation an end user has regarding his or her experience related with the information system” (Keoduangsine and Goodwin, 2009). The term “experience” in a more specific form could be related to different aspects with regards to information system (e.g., computing, training, etc.) (Keoduangsine and Goodwin, 2009).

## MATERIALS AND METHODS

Usually, customer satisfaction is measured by constituting it into two distinctive parts: transactional satisfaction and overall satisfaction (Lee *et al.*, 2012). Transactional satisfaction refers to the satisfaction derived from a specific individual transaction. The quality of these may differ from one transaction to the other. However, very positive specific transaction could lead to overall satisfaction (Lee *et al.*, 2012). Thus, adopting online services requires that customers experience high levels of satisfaction with online services to increase the rate of implementation (Lee *et al.*, 2012). It is reported that user satisfaction with EC applications has been found to be considerably associated with the usability and design features. The features such as download delay, navigation, content, interactivity and responsiveness are reported as characteristics that may satisfy customer

(Zhou, 2013). Also among the investigated factors proposed as a measurement indicator of user satisfaction particularly in business fields are attractiveness of the site, site usability, design features, information and web site quality, user characteristics and fundamental objectives (Keoduangsine and Goodwin, 2009; Zhou, 2013). Similarly, Deng (Klein and Nejc, 2013) tested user satisfaction with Mobile Instant Messages (MIM) and found that trust, perceived service quality, perceived customer value (functional value and emotional value, contribute) are the major factors that positively relate to customer satisfaction. In the study, Chin and Lee (2000) developed a model for user satisfaction with broader perspectives. Their model differentiates between the notions of user’s expectations and their desires. However, both had an impact on overall satisfaction. Conclusively, these two types of satisfaction have both direct and multiplicative impact on overall satisfaction.

Consequently, the literature relationship shall be covered within the following subheadings as it relates the satisfaction and trust achieved on sites; viz: consistency, navigability, supportability, learnability, simplicity, interactivity, telepresence, credibility, content relevance, readability, social service integration.

**Trust, usability and loyalty:** Some of the necessary criteria are hereby required to guarantee and increase user’s trust in accessing sites, usability and flexibility and the importance of juxtaposing the aforementioned variable to gain full customer loyalty. Below are some of the important factors for loyalty and trust in website management and services.

### **Consistency:**

- The site retained the same structure along its components and the general overall of the pages are consistent
- The site was found to contain similar components for all web pages

### **Navigability:**

- The website keeps the user oriented as they shop
- The site has multiple search features such as menu bars, back and forward navigation button, search engines for obtaining target information

### **Supportability:**

- There is conveniently the acquiring of supports in the options provided on a website
- This can be seen as the vital support in the interaction and live support during web services

Table 1: News channels metrics and analysis score

Sites/metrics	Code quality	Headings	Popularity	Server	Content	Links	Meta tags	Printability	URL format	Site age	Facebook	Images	Mobile	Analytics	Page title	Freshness	Incoming	Social internet
CNN	2.1	5.0	5.8	7.1	7.3	7.7	8.4	10	10	10	10	10	10	10	10	10	10	x
BBC	4.0	9.0	10	8.2	8.9	9.8	5.2	0.0	10	10	10	9.4	10	-	10	10	10	x
Press TV	2.2	10	9.4	6.6	8.4	8.6	10	10	10	10	10	10	10	10	10	10	10	x
Aljazeera	3.4	9.8	10	9.2	9.3	6.4	8.4	0.0	6.0	10	10	9.9	10	10	10	10	10	x
Channels	1.2	8.0	8.6	10	7.5	3.7	5.2	10	10	10	10	9.9	10	10	10	10	10	x

**Learnability:**

- There should exist an easy understanding of the overall contents on the site
- The website should be designed to grant ease of understanding

**Simplicity:**

- Some element of the site is redundant
- The semantics of the website is clear
- Easy for the comprehension of users

**Interactivity:**

- The website should give room for a good deal of interactive components such as graphics and sounds, pop-up windows, few animations and effects and music
- The website must possess components that help in the interaction between the consumers

From the aforementioned characteristics that could result into web satisfaction, few among the most popular is the inclusion of the social media platform. This has motivated a lot of users by adding to their updates, status and connection with close associates. For this reason, this study shall present 5 websites each of the evaluation (Table 1) criteria using the free websites usability assessment tool. The tool provides the extension of checking web quality, printability of the side, code verification and correctness, URL formats, along link access, mobile site inclusion and clarity, meta tags and contents, server behavior, age of the sites, popularity, social media (facebook) inclusion, analytics, freshness of content as it relates to frequency of updates among others. In the case 1: news sites are analyzed with the tool nibbler ([http://nibbler.silktide.com/en\\_US](http://nibbler.silktide.com/en_US)).

**RESULTS AND DISCUSSION**

In the case 1: news sites are analyzed with the tool nibbler (<http://nibbler.silktide.com/en-US>).

**Scenario #1 (analysis on NEWS channels):**

- CNN site: <http://edition.cnn.com/>
- Aljazeerasite site: <http://www.aljazeera.com/>
- BBC site: <http://www.bbc.com/>
- PressTV site: <http://www.presstv.com/>
- Channelstv site: <http://www.channelstv.com/>

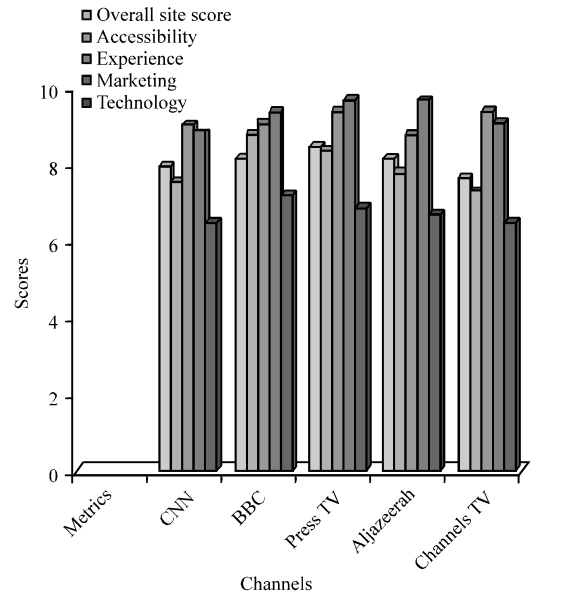


Fig. 3: Graph news

The visitation is thus, attributed to the large number of customers trusting the products on the site; direct proportionality is therefore reached that the user’s trust the site and becomes loyal subscriber to the domain. As earlier submitted in content freshness through constant updates as recorded highest on all the tested sites proves the service quality to be efficient. The summary presents the overall site score, accessibility, experience, marketing and the technology for the sites. Press TV was found to be more efficient with higher scores. This could intimate the willingness and loyalty of customers to trust the information obtained from the site (Fig. 3 and 4) (Table 2).

Thus, adding to the satisfaction and overall loyalty to the site. It is therefore important for site developers and users to take into consideration some of these variables and metrics of evaluation.

**Scenario #2: Analysis on flight booking sites:** In the second scenario, booking sites are tested for efficiency and guarantee of usability to attain trust, loyalty and efficiency of business commitments to the site. Three popular flight booking sites are evaluated using the Nibbler tool. The following results were obtained as the metrics are widely explained for the news channels in case#1. From the general report from Nibbler analysis

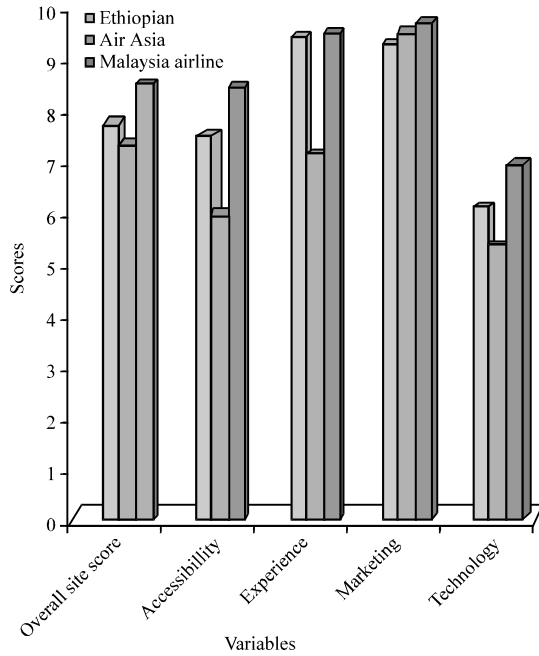


Fig. 4: Airline result

Table 2: News sites summary analysis

Sites/Metrics	OSC	ACC	Ex	Mkt	Tech
CNN	8.0	7.6	9.1	8.9	6.5
BBC	8.2	8.8	9.1	9.4	7.2
Press TV	8.5	8.4	9.4	9.7	6.9
Aljazeera	8.2	7.8	8.8	9.7	6.7
Channels TV	7.7	7.3	9.4	9.1	6.6

tools, printability on BBC.com and Aljazeera.com recorded 0.0. This means the site is not printable to a good clarity and style inclusion. Various style sheets are therefore needed to improve its printability. For internal link, it was noted that most links are weakly assigned thus making it a bit tasking to achieve the links when needed. Meta tags aid in indexing and the general searching on various platforms and sites. For most of the tested sites, except Press TV, the server returns of error should it occur was catered for. This makes, it easy for users to refer to admins for complaints and necessary action demanding. Images on all the tested sites proved efficient as it projects the definitive idea of the sizing and variations. This also aid in gaining users trust and confidence building on business sites. Domain age and popularity returns the idea of greater trust in transacting business or loyalty allegiance to the sites. If the values returns are high, it shows the site has been on for a long time. This therefore provides users confidence on the content and the services provided on the site. The popularity index provides the world site rank in terms of searches and constant visitation.

Current studies have proven that more users are tending towards using the smart tablets like pads and mobile phones more that notebooks, desktop and laptop computers. Therefore, there is always the need to have a mobile version of all the sites, regardless of the product and services offered. Results obtained from proves that user loyalty and trust lies mostly on the services of sites with better provision of quality, security, years and age of business, overall simplicity and mostly mobile phone friendliness of the site. It is therefore evident that mobile quality is weaker than the tested sites. This shall have implications to users confidence and message understanding about the firm.

**CONCLUSION**

In this study, a descriptive analysis process of reporting was used to analyze the basic features of various sites to acquire data. Thus, providing users with a quantitative synopsis of the collected data using various scores to the point of 10 as the highest. With the consideration on how the values are distributed for each distinct measure. Descriptive analysis was conducted in this study, in order to enable customers have the full understanding of what the services are like. By so doing future designs and site consultants could significantly use the simple statistics to investigate any missing or incorrect sections and metrics to attain better user trust loyalty and satisfaction.

**RECOMMENDATIONS**

Our recommendation is thus submitted as an extension of the previous model by with the unique inclusion of social media and enhanced mobile applicability. It is our goal that other studies can explore the potential of our findings and recommendation.

**REFERENCES**

Alawneh, A., H. Al-Refai and K. Batiha, 2013. Measuring user satisfaction from e-Government services: Lessons from Jordan. *Govt. Inform. Quart.*, 30: 277-288.

Chang, P.K. and H.L. Chong, 2011. Customer satisfaction and loyalty on service provided by Malaysian telecommunication companies. *Proceedings of the 2011 International Conference on Electrical Engineering and Informatics (ICEEI)*, July 17-19, 2011, IEEE, Bangi, Malaysia, ISBN:978-1-4577-0753-7, pp: 1-6.

- Chin, W.W. and M.K. Lee, 2000. A proposed model and measurement instrument for the formation of IS satisfaction: The case of end-user computing satisfaction. Proceedings of the 21st International Conference on Information Systems, December 10, 2000, Association for Information Systems, Atlanta, Georgia, USA., pp: 553-563.
- Deng, Z., Y. Lu, K.K. Wei and J. Zhang, 2010. Understanding customer satisfaction and loyalty: An empirical study of mobile instant messages in China. *Int. J. Inform. Manage.*, 30: 289-300.
- Keoduangsine, S. and R. Goodwin, 2009. User satisfaction model for mobile e-government service. Proceedings of the 11th International Conference on Information Integration and Web-based Applications & Services, December 14-16, 2009, ACM, New York, USA., pp: 609-612.
- Klein, A. and J. Nejc, 2013. Consumers willingness-to-pay for mobile telecommunication service bundles. *Telematics Inf.*, 1: 1-12.
- Lee, Y.K., J.H. Park, N. Chung and A. Blakeney, 2012. A unified perspective on the factors influencing usage intention toward mobile financial services. *J. Bus. Res.*, 65: 1590-1599.
- Susanto, A., R.B. Bahaweres and H. Zo, 2012. Exploring the influential antecedents of actual use of internet banking services in Indonesia. Proceedings of the 2012 IEEE Conference on Control, Systems and Industrial Informatics (ICCSII), September 23-26, 2012, IEEE, Daejeon, South Korea, ISBN: 978-1-4673-1022-2, pp: 244-249.
- Zhou, T., 2013. An empirical examination of continuance intention of mobile payment services. *Decis. Support Syst.*, 54: 1085-1091.