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Online Database Website Usability & Satisfaction

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ABSTRACT

Websites have long become important channels for advertising, sales and service support; and also serve as the platform for information exchange via intranet and extranet. Although websites provide several benefits to the organization, websites need to be usable in order to fulfil the user satisfaction. Besides that, there are growing concerns on how the websites are been developed and the degree of quality delivered. Supposedly, websites should reflect the need of the users, but sadly they have always been by technology and business objectives or organization structure rather than by user need. Therefore, this study is conducted to examine the level of usability and satisfaction and investigate the relationship between website usability and satisfaction of Emerald Online Database website. Usability refers to how easy the website is for every person to use, and incorporate design layout patterns that may be learned by users who then may explore the site and gain value from its content. Meanwhile, website satisfaction is the user's cognitive judgement that occurs after the website visit. It was discovered that, the level of usability and satisfaction of Emerald Online Database website is slightly above average. This study also found the usability has a significant and strong relationship with satisfaction. It can be concluded that usability aspects of the website play important roles in determining the level of satisfaction, and it should be given attention by website developer and administrator. This study also provides empirical evidence on the relationship between website usability and website satisfaction in the context of online database website.

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1. Introduction

Today almost all public and private organizations have embraced the World Wide Web. According to Turban et al. (2004), the exponential growth in the number of websites among the organization is due to the application of the internet as a business channel. Websites have long become important channels for advertising, sales and service support; and also serve as the platform for information exchange via intranet and extranet. Although websites provide benefits as mentioned above, websites need to be usable to achieve a high user satisfaction. Against this background many studies have been conducted

to investigate the usability of websites. Studies on the usability of universities' websites have received much attention among researchers. Nonetheless, studies on the same topic in the context of online database in Malaysian universities are still very scarce. To this effect, this study attempts to address this gap by investigating the usability of the selected academic online database. The conduct of the study is driven by the following objectives which are to measure the level of satisfaction and level of usability assessment of the academic online database website as well as to identify any relationship between usability and satisfaction.

2. Literature Review

2.1 Website Satisfaction

Currently, various literatures show lack of agreement regarding the conceptual definition for website satisfaction. According to Giese and Cote (2002), this concept basically shares a common element in which the satisfaction is a response based on emotions toward a certain object (websites) that appeared after a certain time for example websites browsing. On the other hand, Muylle et al. (2004) provide a simple definition of website satisfaction as the attitude toward the website by a hands-on user of the organization's website. In addition, Imen and Jamel (2010) defined website satisfaction as the user's cognitive judgement that occurs after the website visit. Lu et al. (2009) as mentioned by Ives et al. (1983), described website satisfaction as the extent to which users consider the website meets their needs. According to Norman (2002), satisfactions improve if the website matches the user mental model. For example, the more the users' requirements are fulfilled the more satisfied the users will be. This is particularly critical because satisfaction leads to loyal users and subsequently to a successful website. For this study, web satisfaction will be defined as the extent to which users consider the website meet their needs.

Table 1: Summary of Selected Studies on Website Satisfaction

Study	Objective	Findings
Lu et al. (2009)	To develop web assessment model using an e-auction website based on user satisfaction	Web interactivity and customer satisfaction towards the website are two strong drives for website continuance intention.
Stangl & Dickinger (2010)	To identify the influence of users' preferred communication modes to get an understanding of drivers of website satisfaction	The satisfaction of people who prefer text based communication modes (i.e. verbalizer) is driven by the content followed by the usefulness of a website. While for people favoring visual modes (i.e. visualizer) satisfaction is mainly driven by the design of a website.
Sharma & Lijuan (2015)	To investigate service quality of e-commerce Websites in online platform and their	The findings of this study suggest that information quality and online service quality were the key

	contribution on e-business promotion.	determinants for user satisfaction and sustainability of e-commerce technology.
Ali (2016)	To examine the relationships between hotel website qualities, perceived flow, customer satisfaction and purchase intentions.	The findings confirm that hotel website quality influences customers' perceived flow, which in turn, influences their satisfaction and purchase intention.
	To examines if perceived flow mediates the relationships between hotel website quality, customer satisfaction and purchase intentions.	Moreover, perceived flow also mediates the relationships between hotel website quality, customer satisfaction and purchase intentions.

2.2 Usability

Usability is one of the concepts widely addressed in Human Computer Interaction (HCI) research. The International Standards Organization (ISO) defined usability as the “extent to which a product can be used by specific users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use”. According to Pant (2015), in order to be usable the product and services need to poses several characteristics such as useful, efficient, effective, satisfying, learnable and accessible. Meanwhile, Nielsen (2012) refer to usability as a quality attribute which assesses a user interface for its ease for use. For this study, usability will be defined as how easy the website is for every person to use, and incorporates design layout patterns that may be learned by users who then may explore the site and gain values from its content.

Table 2: Summary of Selected Studies on Website Usability

Study	Objective	Findings
Mustafa & Al-Zoua'bi (2008)	<ul style="list-style-type: none"> To identify the strength and weaknesses of the usability aspects in the design of academic website of Jordan university. 	<ul style="list-style-type: none"> Overall usability level of the studied website is acceptable and there is a weakness in some aspect of design, interface and performance.
Sindhuja&Dastidar (2009)	<ul style="list-style-type: none"> To identify factor s that influence the satisfaction level of users with the usability of the website. To identify gender impact in the relative important of underlying 	<ul style="list-style-type: none"> Information content, format, consistency, and ease of navigation to be significant in identifying the user satisfaction level. Besides that, no difference in gender was found related to the factors influencing web usability.

dimension in assessing website usability

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- Jeong,& Han (2012).
- To analyze the mobile websites of newspapers in terms of their user interface, particularly for the space usage for content.
 - Multiple practices of wasting space were identified such as too large advertisement areas and navigation only first pages. Suggestions to save the space are made, including automatic URL box hiding. Discussions are carried for various issues such as links to desktop versions and search boxes.
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- Shieh, J. (2012)
- To reconstruct the websites to promote their internal find ability.
 - It is shown that the reconstructed websites have better find ability performance in the time spent to complete the tasks than the current one, if focusing much more on the target pages. The result clearly explores that when the parent pages of a page are selected, whether it is a target page is the most important issue to improve website find ability. The target page plays a critical role in website reconstruction.
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2.2.1 Content and Readability

In the web environment, besides the content, website design should also meet user expectations and it is the challenge for libraries to provide access to quality content in electronic form, promoting better visibility for their print resources, as well as offering various value-added electronic services (Pant, 2015). Most of the websites have the primary function of providing information (Masrek & Mohd Helmi, 2013). Flavian et al. (2009) found that organizing and managing the content displayed on the website is an efficient way to achieve user satisfaction. The authors also recommended web administrations to display the content with timely, updated, understandable and relevant information. In order to fulfil user need, academic libraries are making available e-journals, e-books, electronic databases (full-text and bibliographic), digitised collections, OPAC, virtual information about the library and enabling online feedback and requests through their websites (Pant, 2015). The first indicator of website quality is official page rankings which mean if a ranking is low, the owners should pay more attention in their efforts to analyze

site quality and, after evaluation, proceed with changes to the weak elements of the Website (Sharma & Lijuan, 2015). Shieh (2012) also considered that the usability and findability of library websites have become more and more important to patrons.

2.2.2 Navigation and Links

The usability of a website refers to how well users can use the website to achieve their purposes and how satisfied they are with navigation process (Shieh, 2012). According to Buchanan and Salako (2009), navigation refers to the ease with which the user can navigate the interface using available navigation tools such as bars, icons, menus and others at any point of time and how aware they are of their current location. As Jeong & Han, (2012) claimed, some homepages only displayed their navigation or menu system, forcing users to click on a link in order to view actual contents on a second page which means extra time to users. Meanwhile, Sharma & Lijuan (2015) stated the factors affecting user satisfaction of websites included control, efficiency and helpfulness, which are indicated by the ease for the user to navigate through the Website to find the information they need at a reasonable speed and the offering of assistance for finding information and navigating. As Shieh (2012) stated, websites should provide users with easy and smooth navigating architectures in order to help them find what they need.

2.2.3 User Interface Design

User-friendly web interfaces have been discussed since the early stages of the web (Jeong & Han, 2012). Whenever we envisage how to construct user-friendly or user-centered websites, information architecture is an important part of the solution. The website should offer the capability that patrons can find their required information quickly and intuitively (Shieh, 2012). As stated by Alqudsi & Alkhaledi (2015), web designers need to take into consideration the research results in the areas of user interaction with computers and software. It seems that the normal desktop web interfaces have matured enough to provide easy-to-use and pleasing interaction to users due to the richness of user studies, technical developments such as bigger and crisper monitors, and implementation of aesthetic aspects in web design (Jeong & Han, 2012). Meanwhile, Sharma & Lijuan (2015) claimed that websites with a more visually acceptable interface often result in greater service quality and can influence a user's experience and ultimately his or her long-term service provider relationship.

2.2.4 Performance and Effectiveness

The information architecture of the website (what information is located where), particular information that users want, individual skills of users to search and technical issues, such as network availability, presence of dead links, missing links or inappropriate links, can all cause errors while using the website (Pant, 2015). In order to measure the effectiveness of the website performance, Shieh (2012), highlighted that findability is related to the quality of being locatable or navigable, or the degree to which a particular object is easy to discover or locate. In other words, the findability is the capability that the website provides to users to find the information needed. Meanwhile, Tarafdar and Zhang (2005) added that

download delay will lead to users feeling anxiety and losing satisfaction with the website if they need to wait for too long in accessing the website.

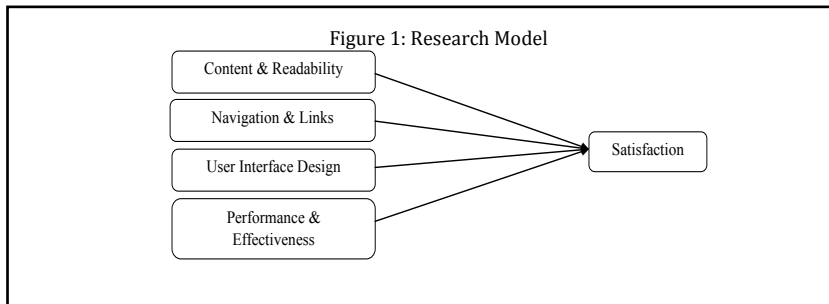


Figure 1 demonstrates the research model that will be used in this study. The model is conceptualized mainly based on the works by Mustafa & Al-Zoua'bi (2008), Sindhuja & Dastidar (2009), Sharma & Lijuan (2015) and Ali (2016).

The research model is developed based on five major components of usability key criteria based on previous researches by Mustafa & Al-Zoua'bi (2008), Sindhuja & Dastidar (2009), Sharma & Lijuan (2015) and Ali (2016). As mentioned before, the aims of this research are to identify the level of usability assessment, level of user satisfaction and the relationship between usability and satisfaction of an academic online database website. The following hypotheses are formulated for this study.

Hypothesis 1: Content and readability are significantly correlated with satisfaction

Hypothesis 2: Navigation and links are significantly correlated with satisfaction

Hypothesis 3: User Interface design is significantly correlated with satisfaction

Hypothesis 4: Performance and effectiveness are significantly correlated with satisfaction

3. Research Method

For collecting the research data, this study used the survey research methodology in which the choice of this methodology is based on the research problem and research objective. Gray (2004) noted that survey is the most common methodology in research, because it allows for the collection of significant amount of data from sizeable population. A set of questionnaire has been used as the instrument for collecting the data. Sekaran and Bougie (2016) mentioned that a researcher should adopt well validated and reliable measures to ensure that the research is scientific and escape the labourious efforts in developing a new measure. To this effect, in this study, measures that had been used by previous researchers were adapted as shown in Table 3. Nevertheless, to suit the need and context of the study, the researcher had made appropriate amendments to some of the measures in terms of number of items, wording of sentences and scaling of the items. All measures for the variables shown in Table 1 were using Likert Scale anchored with two extremes with 1 for “Strongly Disagree” and 5 for “Strongly Agree”. The population of the study was the students studying in Universiti Teknologi MARA Cawangan Kedah.

Table 3: Measurement of the questionnaire

Variables	Source of measurements
Content & Readability	Mustafa & Al-Zoua'bi (2008)
Navigation & Links	Mustafa & Al-Zoua'bi (2008)
User Interface Design	Mustafa & Al-Zoua'bi (2008)
Performance & Effectiveness	Mustafa & Al-Zoua'bi (2008)
Education Purposes	Mustafa & Al-Zoua'bi (2008)
Satisfaction	Masrek et al. (2010)

4. Findings

4.1 Demographic Profile of Respondents

Table 4: Demographic profile of respondent

Characteristics	Items	Frequency	Percentage
Gender	Male	5	12
	Female	37	88
Semester of study	Part 3	14	33.3
	Part 4	7	11.1
	Part 5	7	11.1
	Part 6	14	33.3
Mode of study	Full-Time	42	100
	Part-Time	0	0
	Flexible Learning Program	0	0
Program of study	IM244	42	100

Table 4 showcases the demographic profiles of the respondents. Out of 42 respondents, 88% were female while the remaining 12% were male. In term of semester of study, the highest percentage is from Part 3 and Part 6 which stood at 33.3 while the lowest is from Part 4 and Part 5 which is only 11.1%.

4.2 Reliability Analysis

Table 5: Results of the reliability analysis

Variables	No. of Items	Cronbach's Alpha
Content & Readability	5	0.911
Navigation & Links	6	0.922
User Interface Design	5	0.898
Performance & Effectiveness	6	0.929
Satisfaction	3	0.937

To determine the scale’s internal consistency strength reliability analyses have been performed. The results as shown in Table 5 indicated that all variables are above the recommended cut-off value which is 0.7 (Hair et al., 2006), hence suggesting that the scale used in the study was highly reliable. Prior to the actual data collection, the questionnaire underwent rigorous pre-testing and pilot testing so as to ensure that the study produced valid and reliable results.

4.3 Correlation Analysis

For investigating the relationship between usability i.e. navigation and links, content, user interface, performance and effectiveness, education purpose, design, with the satisfaction, correlation analysis has been conducted. For that case, bivariate correlation analysis has been performed among the variables that were mentioned above with the satisfaction.

	[1]	[2]	[3]	[4]	[5]	Mean
Content & Readability [1]	1					4.01
Navigation & Links [2]		1				4.02
User Interface Design [3]			1			4.04
Performance & Effectiveness [4]				1		3.92
Satisfaction [5]					1	
	0.861**	0.834**	0.850**	0.874**	1	4.08

Notes: ** Correlation is significant at 0.01 level

The results as showed in Table 6 indicate that the values of Pearson correlation are between 0.834 and 0.8741. Wong and Hiew (2005) noted that value above between 0.5 and 1.0 is considered strong relationship. As all the Pearson correlation values are less than 0.9, hence suggesting that the variables are not experiencing the problem of multicollinearity.

5. Discussion

It was found that that the level of usability of the Emerald online database website is quite high. It also revealed that there are four factors reflecting the level of website usability of Emerald online database website and the average mean for all usability criteria is 3.99 out of 5. Based on the responses from the respondents, the level of usability criteria is almost similar with each of the usability criterion used for this study, ranging between 3.92 and 4.04. This study also discovers that user interface design has the highest values, which is 4.04 out of 5, followed by navigation, content and performance. In addition, this study also supports the statement by Duncan and Durrant (2015) which stated the website provider must ensure their website user interface are functional, easy to use, user friendly and navigable. This study reveals that navigation becomes the second usability criterion that has a high level after the user interface. According to Flavian et al. (2009) the possibility of controlling in which place and moment

the user is during the navigation has become the key factor in improving the use of the website. In addition, it is vital for the website designer and developer to do check and balance for all usability criteria to ensure the website has high usability.

On the other hand, throughout this study, the researcher also found that the level of satisfaction toward Emerald online database is also high, which is 4.08 out of 5. The satisfaction level of Emerald online database website is measured by four usability criteria in the earlier stage of study namely content and readability, navigation and link, user interface design, and performance and effectiveness. Joo (2010) mention that, satisfaction is basically dependent relative on other usability attributes such as effectiveness and efficiency. Therefore, if one of the usability criteria is not meeting the user requirements or needs then it will reflect on the satisfaction level toward the website.

In addition, the aim of this research also is to identify any relationship that exists between usability and satisfaction. This study discovered that all the four usability criteria namely navigation and links, content and readability, user interface design, and performance and effectiveness, have a positive correlation and strong relationship with satisfaction. According to Zviran, Glezer, and Avni (2006) website with higher degree of usability tends to achieve greater user satisfaction. In addition, performance and effectiveness has the highest value among the others with the Pearson correlation value of 0.874. Meanwhile, navigation and link has the lowest Pearson correlation value of 0.834. On the other hand, the researcher has transformed (compute variable) all the four usability criteria into one variable namely usability, after that the researcher analysed the correlation between usability and satisfaction and found out it has a very strong relationship with a value of 0.913 and the significant value is 0.000 ($p \leq 0$). These indicate that usability has a strong influence in determining the satisfaction level, especially for the Emerald online database website.

6. Conclusion

The purpose of this study has been to identify the usability level, satisfaction level and relationship between usability and satisfaction of Emerald online database website. In order to achieve the objectives, an empirical based framework consisting four independent variables which are navigation and link, content and readability, user interface design, and performance and effectiveness, and one dependent variable which is satisfaction has been developed. Based on the analyses of the collected data, the usability level and satisfaction level of Emerald online database website is slightly above average. It also can be concluded that usability aspects of the website play important roles in determining the level of satisfaction, and it should be given attention by website developers and administrators.

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