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Hashim, Husain; Mohamed Shuhidan, Shamila; and Anwar, Norizan, "Measuring the Reliability Analysis of University Students' Utilization of Web-based Library and Information Services in Malaysian Academic Libraries" (2022). *Library Philosophy and Practice (e-journal)*. 6880.

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Measuring the Reliability Analysis of University Students' Utilization of Web-based Library and Information Services in Malaysian Academic Libraries

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Abstract

The purpose of this article is to examine a small sample of data looking at the extent to which the utilization of web-based library and information services has any relationship with library technology, the roles of academic libraries, and the library learning environment. In addition, a moderating variable is introduced, namely, information literacy skills, to investigate its influence on the correlation between library technology and library learning environment factors, and the utilization of web-based library and information services. The sample is designed to involve students at public Malaysian universities. Based on a review of the literature, a 47-item questionnaire was constructed. In order to ensure the validity, reliability, and normality of the data, the instrument was reviewed by a panel of subject-matter experts. A pilot study was also conducted and participated by 49 respondents. Statistical software was used to execute the data analysis. The analysis's output demonstrates that the instrument is reliable and that there are no abnormalities in the data.

Keyword: *Web-based library and information services, library technology, roles of academic library, information literacy skills, utilization, reliability analysis*

INTRODUCTION

Academic libraries in higher education settings across the world, including Malaysia, need to align their services, resources, and activities with the institutional outcomes of their parent institutions (Oakleaf et al., 2017; Perkins and Slowik, 2013). Of course, this is not a new phenomenon. However, the continuous demand on Malaysian universities to improve their global visibility has increased the necessity for an academic library to establish its value even more than ever before, particularly in supporting the accomplishment of quality and productivity of academic and research.

Besides the economic pressure as highlighted in the literature (Kot and Jones, 2015; Perkins and Slowik, 2013; Cox and Jantti, 2012), another obvious reason for this is the challenges of the current digital world, which continue to evolve at a rapid speed due to the high growth rate of technological advancements. Therefore, academic libraries, without exception, have long embarked on the provision of web-based library and information services (WBLIS) through their efforts to manipulate the internet, Web, and mobile technologies (Einasto, 2014; Wawrzaszek and Wedaman, 2008) by providing a digital environment or virtual space for their users (Steward and Newman, 2017; Maceviciute, 2014). In Malaysia, it was reported that academic libraries started to utilize Internet technology as early as the 1990s (Lee and Teh, 2001; Shahar Banun, 1996; Raja Abdullah and Hanafiah, 1996). Over three decades, the use of the Internet has never ended, through which several different types of WBLIS have been developed. With attention given to university students, ultimately, they should be the ones who utilize WBLIS on a regular basis to gain outcomes necessarily associated with their learning and research undertakings.

In the context of this study, its main purpose is to investigate the factors that are predicted to have relationships with the utilization of WBLIS among university students in Malaysian universities. Based on a literature review, three factors have been identified, namely, roles of academic library, library learning environment. Investigating utilization of WBLIS, the study is intended to look into the implicit and explicit perspectives of use, particularly focusing on the frequency of use of WBLIS among students as well as the actual experience and outcomes in relation to their learning and research activities. Furthermore, a moderating variable is introduced, namely, information literacy skills, to investigate its influence on the correlation between library technology and library learning environment factors, and the utilization of web-based library and information services.

METHODOLOGY

A 47-item, four-domain questionnaire was constructed as a result of an extensive review of the literature to elicit the perspectives of students at public Malaysian universities on the utilization of WBLIS provided by their academic libraries. Feedback and suggestions from six subject-matter experts in the library and information management sectors were successfully acquired for pre-testing purposes. A number of points were raised, including the need for more appropriate words and verbs to improve question clarity and the inclusion of examples to aid respondents' understanding of the questions. Based on their insightful feedback, necessary amendments and additions were undertaken. Afterwards, a pilot test was done to verify that respondents understood the questionnaire items and that no questions were ambiguous. The data from this preliminary study, which comprised 49 respondents, was analyzed using SPSS version 26. Finally, Cronbach's alpha was used to assess the scale reliability of the questionnaire.

CONCEPTUAL FRAMEWORK

The review of literature was conducted and has been helpful in the process of developing the conceptual framework. It is concluded that the framework, as shown in figure 1, constitutes the utilization of WBLIS as a dependent variable (Salisbury and Peasley, 2018; Matthews, 2012; Tenopir, 2011; Oakleaf, 2010; Tenopir and King, 2007) with three independent variables, comprising: 1) library technology (Asyraf, Hakimi and Norliana, 2020; Joo and Choi, 2015; Al-Suqri, 2014; Matusiak, 2012); roles of academic library (Hughes, Hall and Pozzi, 2017; Delaney and Bates, 2015; Creaser and Spezi, 2014; Raju and Schoombee, 2013; Bickley and Corral, 2011; Rasul and Singh, 2010); and 3) library learning environment (Stewart and Newman, 2017; Kim, 2016; Montgomery, 2014; Beard and Bawden, 2012; Beard and Dale, 2010). Information literacy skills were added as a moderating variable to investigate its influence on the correlation between library technology and library learning environment factors and the utilization of WBLIS, based on Abunadi, (2018), Yu, Lin and Liao (2017), Mann, 2018, Hughes, Hall and Pozzi (2017), and Ukachi (2015). The instrument developed for this study employed the five Likert scales for all the constructed items.

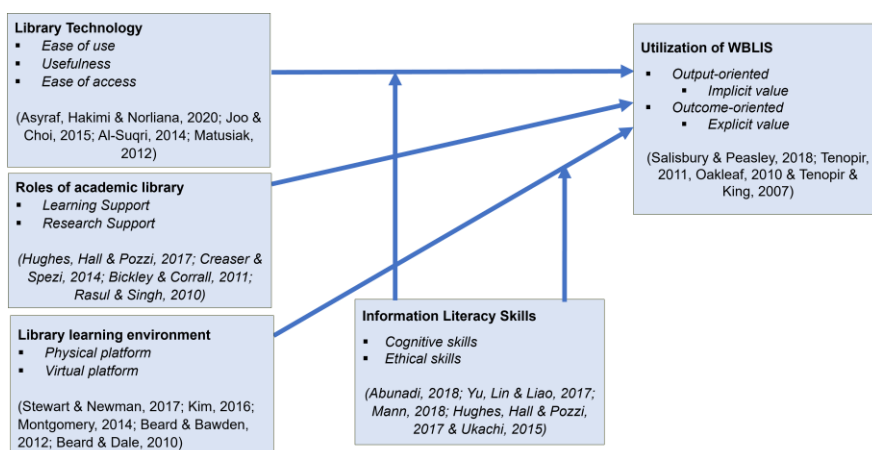


Figure 1: Conceptual Framework

PRE-TESTING AND VALIDITY AND RELIABILITY OF RESEARCH INSTRUMENT

The questionnaire was distributed to seven experts in the field of library and information management in order to review and identify potential issues with the questions. Eventually, only six of them responded and provided appropriate reviews. The six experts are comprised of three experienced library professionals from Malaysia's university libraries and three academicians who are PhD holders, consisting of an associate professor and two senior lecturers. Several concerns were highlighted, including the need for more precise and specific alternatives when giving respondents options, the use of more suitable words and verbs to increase the clarity of questions, and the inclusion of examples to help respondents' understanding of the questions. Their reviews were highly valuable since they allowed for the incorporation of all pertinent comments and suggestions into the current questionnaire, with appropriate modifications and additions.

The questionnaire was then validated in a pilot study, which allowed for the investigative questions to be answered and the verification of collected data could be done accordingly (Saunders, Lewis and Thornhill, 2012). The pilot study was conducted to ensure that respondents understood the questionnaire items and that there were no ambiguous questions. This initial study included 49 participants, which the data were analyzed using SPSS version 26. Finally, Cronbach's alpha was used to determine the questionnaire's scale reliability, or how closely related a group of questions is.

Four parts were included in the questionnaires. The first section has ten items pertaining to demographic data. The second section has 29 items that cover three topics: library technology, the roles of academic library, and the library learning environment. Information literacy skills were added as a moderating variable in section three of the

questionnaires, consisting of nine items. Following that, the fourth section emphasizes the utilization of WBLIS to add nine more items. As a result, 47 items were eventually included in the instrument prior to the actual study's execution. Additionally, two open-ended questions were added to the questionnaire's fifth section to allow respondents to respond subjectively.

RELIABILITY TEST RESULTS

As demonstrated in Table 1, Cronbach's alpha coefficients were used to determine the reliability and internal consistency of the scales employed in the study. All factors had Cronbach's alpha values greater than 0.6, suggesting that the reliability level was appropriate and acceptable (George and Mallery, 2003). According to the SPSS analysis results, the overall consistency, or Cronbach's Alpha values, of all 47 items for each dimension contained in the instrument was between 0.639 and 0.932. The usefulness dimension was found to attain the highest value of 0.932. The lowest value of 0.639 was obtained by research support and based on George and Mallery (2003), this dimension is retained as the decision to drop any of its items will not significantly increase the value. This result implies that, particularly at this point of the investigation, the overall index of the scale's internal consistency within the instrument is reliable with no unexpected abnormalities found in the data.

Table 1: Reliability Analysis Result

Variables		Number of items	Cronbach's Alpha
Library Technology	Ease of Use	4	0.896
	Ease of Access	4	0.857
	Usefulness	4	0.932
Roles of Academic Library	Learning Support	5	0.795
	Research Support	4	0.639
Library Learning Environment	Physical Space	4	0.857
	Virtual Space	4	0.861
Information Literacy Skills	Cognitive Skills	5	0.910
	Ethical Skills	4	0.711

Utilization of Web-based Library and Information Services	Output	5	0.722
	Outcome	4	0.913

CONCLUSION

The purpose of this article is to provide an overview of an ongoing research project on the utilization of WBLIS in Malaysian academic libraries. It is intended that the research findings will offer substantial evidence and insights in understanding the crucial factors, namely, library technology, roles of academic library, library learning environment and information literacy skills that will help academic libraries to improve the utilization of the WBLIS among university students in fulfillment of their learning and research needs.

Prior to the actual investigation, the instrument was initially pre-tested to identify any possible issues as well as to determine the degree of understandability of its items. Six subject-matter experts have reviewed the instrument and provided meaningful feedback. A pilot study was also conducted and participated by 49 respondents among university students. The analysis result of the collected data suggests that the overall index of the scale's internal consistency within the instrument is reliable, with no unexpected abnormalities discovered in the data. Thus, the instrument retains all 47 items for use in the following phase of data collection.

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