

## **The constructs that influence students' acceptance of an e-library system in Malaysia**

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### **ABSTRACT**

An e-library system provides convenience and extensive information to users. Although despite the use of advanced technologies and financial investment on electronic resources, previous researches on e-library system has shown that potential users may not use the systems in spite of their availability. In order to find out the causal relationship, this study was conducted to determine the constructs that influence the users' acceptance of e-library system. This case study research, conducted at a private university in Malaysia uses the Technology Acceptance Model (TAM) as a theoretical framework. This study investigates the effect of the system characteristics such as the relevance, screen design and terminology toward the perceived ease of use and perceived usefulness on intention to use the e-library system. There are 140 students participated in this quantitative study. The results can improve the existing e-library system to attract more students to utilize e-library systems in their learning life.

**Keywords:** e-library, digital library, correlation analysis, quantitative study, technology acceptance.

### **INTRODUCTION**

The emergence of an e-library system provides convenience to students during their learning life. The term 'e-library' refers to a library that is ubiquitous and available anytime anywhere, allowing users to access it over the Internet via their personal computers, mobile computers, and mobile devices. Che Rusuli et al., (2013), Miller and Khera (2010), Ramayah (2006) claim that e-library is a collection of information and services that help end users to deal with information objects, available directly or indirectly through electronic or digital devices. Park et al., (2009) and Sheeja (2010) state that the e-library system's functions include searching the books in the library, finding and downloading the e-books and e-journals, ordering and purchasing books, etc. Thong et al., (2002) claim that the major advantages of the e-library over the traditional library are the resources stored in digital form are easier to keep track, it can be fast and equitable for remote access to the e-library collections, and it allows users to use the search engine to search the desired resources.

There are many higher educational institutions that provide e-library services in Malaysia. Among these higher institutions, one of the private university colleges was chosen in this study. This private university college was selected because recently this private university has conducted an internal research regarding the usage of e-library system among each campuses. The results of this internal research concluded that the usage of this e-library system not as expected. Another reason for chosen this private university college is because it is one of the premier institution of higher learning education in Malaysia which offer with lower tuition fees and the graduates have a good word of mouth in the Malaysia society. Established in 1969, it has 44 years of academic excellence. In 2013, it was upgraded to University College. This private university college has a main campus at Kuala

Lumpur and three branches in Johor, Perak, and Penang state. Besides these, it also has two faculties and centres in Pahang and Sabah state.

This private university college's e-library system holds a collection of about 200,000 volumes of books and 10,000 units of electronic or audio-visual materials. It is easy to use from any Internet-connected personal computer or mobile device. This e-library system is shared with each of the branches and faculties. The staff and students have their own account to access and use the functions or services in this system. It is estimated that 24,000 students have used this system. The resources that this e-library system provides include e-books, e-journals, online electronic resources, etc. Students can use the search function in this system to search and save the desired books into a cart, access online database to read and download the e-books and e-journals, search the library holdings, and check the status of their requests.

According to Xie (2006) and Thong et al., (2002), the e-library system has been developed rapidly with substantial investments, but previous research indicates that many users still do not make use of it. Park et al., (2009) claims that research on the factors that affect the user's acceptance of an e-library system has rarely been conducted. The lack of research on these issues raises critical questions on the information system's lack of more users use. Therefore, it is important to examine users' acceptance on this e-library system. To ensure there are same issues happened at this private university college, a simple verbal interview with a library officer has been conducted at the Johor Branch Campus. Findings revealed that students are too dependent on the librarians when accessing the functions on the e-library system instead of trying by themselves. Although the librarians have provided user manual to the students about how to use the e-library system, students still dislike trying it. In addition, a preliminary survey with the students in Johor Branch Campus indicated that the usage of this e-library system was underutilized. 91 out of 100 students stated that they had never tried and used the e-library system. Not more than ten students have tried this system but they were rarely using it. This result indicated that there is a need for research on users' acceptance of e-library system.

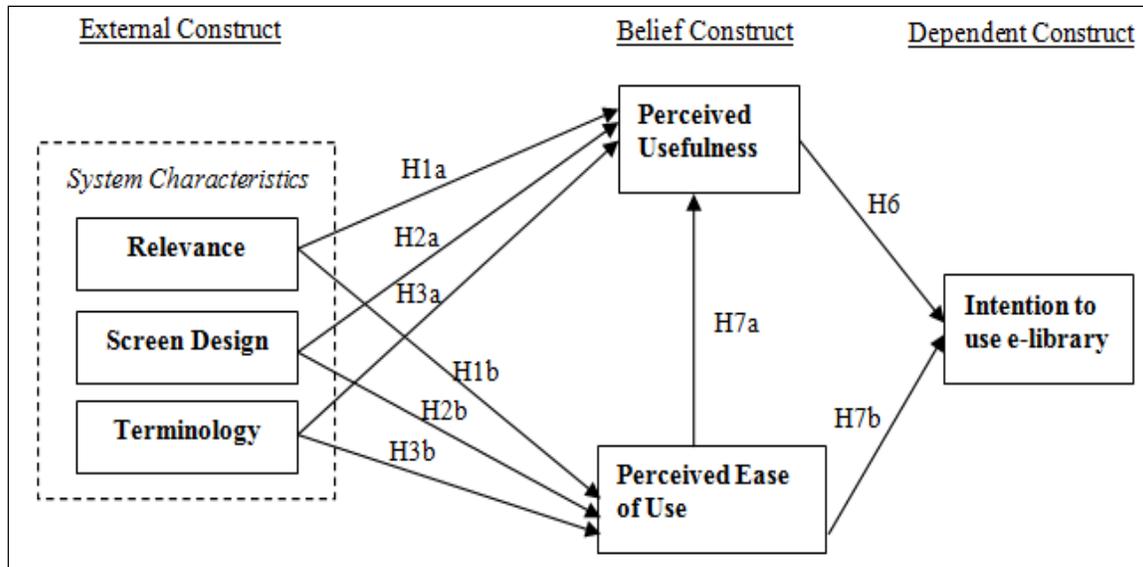
The objective of this study is to identify the constructs that influence users' acceptance of e-library system through a proposed conceptual research model. This study investigates the constructs of the system characteristics such as the relevance, screen design and terminology toward the perceived ease of use and perceived usefulness on intention to use the e-library system. This study will focus on the e-library system of Johor Branch Campus of this private university college. The target audiences are the diploma level students from different programmes of each faculty at this campus.

## **MATERIALS AND METHODS**

By adopt the Technology Acceptance Model (TAM) which proposed by Ajzen and Fishbein in year 1980, a proposed model was created to examine a series of hypothesized relationships that are relevant to users' acceptance of e-library system. The proposed model is depicted in Figure 1. The external constructs that were chosen and applied in this proposed model focused on the system characteristics which included relevance, screen design and terminology.

"Relevance" refers to the degree to which the digital library provides the user with the information they are requesting. "Screen design" refers to how the system displays and presented information and makes it as easy as possible for the user to both navigate the system and quickly retrieve the desired information. Vaidyanathan et al., (2005) claim that "Terminology" refers to the words, sentences, and abbreviations used by the system. The belief constructs included perceived usefulness and perceived ease of use. The dependent construct was the behaviour intention

(intention to use). The relationship of the hypotheses in the proposed model was shown in the Table 1.



**Figure 1:** Proposed conceptual research model for users' acceptance of e-library system. (Ajzen and Fishbein 1980)

**Table 1:** Relationship of the hypotheses

H1a:	Relevance will have a positive effect on perceived usefulness of the e-library system.
H1b:	Relevance will have a positive effect on perceived ease of use of the e-library system.
H2a:	Screen design will have a positive effect on perceived usefulness of the e-library system.
H2b:	Screen design will have a positive effect on perceived ease of use of the e-library system.
H3a:	Terminology will have a positive effect on perceived usefulness of the e-library system.
	Terminology will have a positive effect on perceived ease of use of the e-library system.
H6:	Perceived usefulness will have a positive effect on intention to use of use of the e-library system.
H7a:	Perceived ease of use will have a positive effect on perceived usefulness of use of the e-library system.
H7b:	Perceived ease of use will have a positive effect on intention to use of use of the e-library system.

This study used an online Google Form questionnaire as the instrument. Invitation to participate in this survey was sent through the email and social network media such as Facebook. The questionnaire was distributed in this way because each of the student has his or her personal student email account and most of the students in this campus have their own Facebook account as well. Therefore, using online Google Form to reach each student in this campus is the best choice. The target respondents are the junior and senior year diploma level students from different

programmes. After collecting the data, a quantitative software was used to analyze all the collected data in order to understand the relationship among the hypotheses.

The questions in the developed questionnaire are measured based on the five scales items of Likert-type scales. After the content validity and expert review, the results indicated that the questionnaire was suitable to conduct a pilot test to test the reliability of this study. An amended questionnaire was distributed for this pilot test. A total of 30 samples from the Penang Branch Campus of this private university college were collected. The Penang Branch Campus was selected for this pilot test because the population of student is more than other campuses. The Cronbach alpha technique has been applied to test for the reliability of the pilot study on each construct. Santos (1999) claims that Cronbach's alpha is one of the most popular reliability statistics to determine the internal consistency or average correlation of items in questionnaire. The Table 2 shown the results of the reliability of each construct. According to the results, all of the constructs are reliable to be useful in this study.

**Table 2:** Reliability statistics of each construct

No.	Constructs	Cronbach's Alpha	N of Items
1	Relevance	0.777	4
2	Screen Design	0.745	3
3	Terminology	0.720	3
4	Perceived Usefulness	0.712	4
5	Perceived Ease of Use	0.800	4
6	Intention to Use	0.805	4

The population for this study is 250 students. According to Krejcie and Morgen (1970) claim that if the population size is 250 students, the number of sample size should be at least 152. Therefore, to ensure the data accuracy and avoid any possible issues in the future, a total 160 of sample sizes were collected in this study. According to Chua (2012), the convenience sampling procedure was suitable in this study because the population does not have equal chances to be selected as the research respondents. Thus, in order to collect a total 160 sample sizes from the population of 250 students, the convenience sampling was applied. The 160 sample sizes were collected via students who are currently studying at Johor Branch Campus of this private university college.

The Pearson's Correlation Analysis was used to analyze the data collected. According to Ahlgren et al., (2003), the correlation is a technique for measuring the relationship between two quantitative and continuous variables. The most common measurement of correlation is the Pearson's Correlation. The Pearson's Correlation analysis is used to determine whether there is an association between two variables and also measure the strength and direction of that association. Pearson's correlation coefficient ( $r$ ) is to measure the strength of the association between two variables. Stephanie (2015) claims that for interpreting the strength of Pearson's Correlation coefficients one should follow is the  $r$  value. If the  $r$  value is more than zero, then the result is more trend to positive relationship else if the  $r$  value is less than the zero then the relationship is more trend to negative relationship. According to Siegle (2009), the Sig. (2-tailed) value is less than or equal to 0.05 can conclude that there is a statistically significant correlation between two variables. Otherwise, there is not a statistically significant correlation between two variables.

## RESULTS

The questionnaire was distributed and only a total of 149 responds out of the possible 160 replied. Furthermore, from these 149 responses, 9 sets of the responses were incomplete. Therefore, only 140 responses were taken for analysis in this study and the response rate was 87.5%.

From the results of Pearson's Correlation Analysis, the relevance constructs has a significant relationship with perceived usefulness construct in the user acceptance of e-library system with correlation coefficient value of 0.521. Besides this, the relevance construct also has a significant relationship with perceived ease of use construct in the user acceptance of e-library system with correlation coefficient value of 0.473.

In addition, the screen design construct has a significant relationship with perceived usefulness construct in the user acceptance of e-library system with correlation coefficient value of 0.530. Besides this, the screen design construct also has a significant relationship with perceived ease of use construct in the user acceptance of e-library system with correlation coefficient value of 0.570. The terminology construct has significant relationship with perceived usefulness construct in the user acceptance of e-library system with correlation coefficient value of 0.491. Additionally, the terminology construct has significant relationship with perceived ease of use construct in the user acceptance of e-library system with correlation coefficient value of 0.527.

The perceived usefulness construct has a significant relationship with intention to use construct in the user acceptance of e-library system with correlation coefficient value of 0.524. In addition, the perceived ease of use construct has significant relationship with perceived usefulness construct in the user acceptance of e-library system with correlation coefficient value of 0.566.

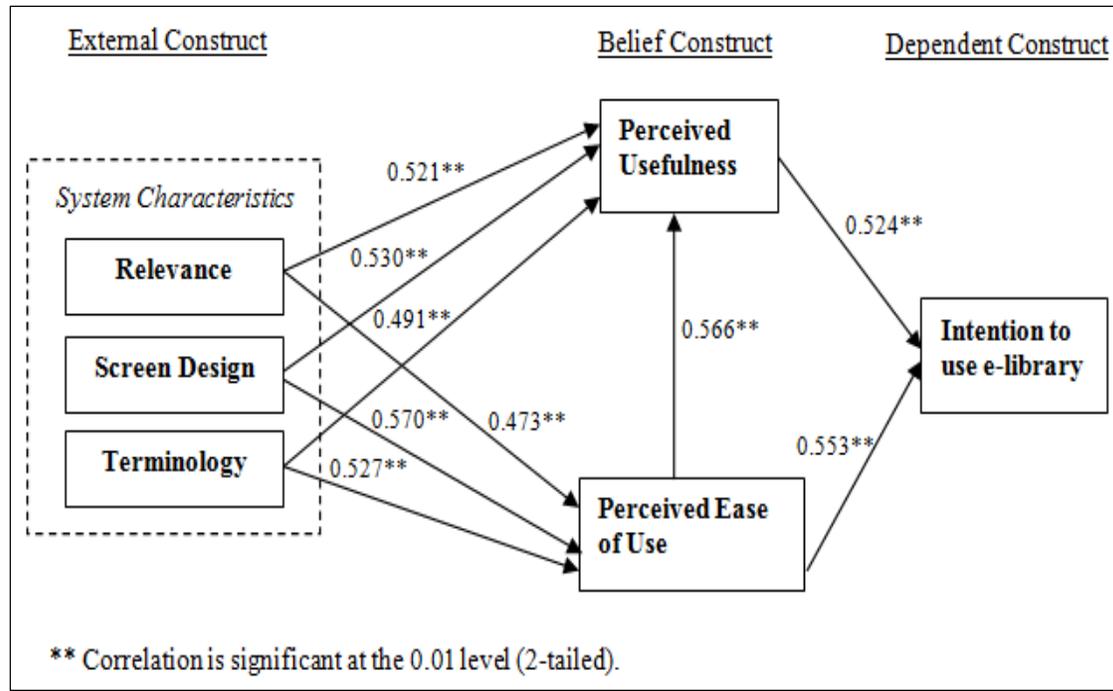
Furthermore, the perceived ease of use construct also has a significant relationship with intention to use construct in the user acceptance of e-library system with correlation coefficient value of 0.553. From the results of Pearson's Correlations Analysis, each of the hypotheses in this study has been summarized. The Table 3 has shown the summary of hypothesis for this research.

**Table 3: Hypothesis Summary**

Hypothesis No.	Hypothesis	Pearson's Correlations	Remark
H1a	Relevance will have a positive effect on perceived usefulness of the e-library.	0.521	Supported
H1b	Relevance will have a positive effect on perceived ease of use of the e-library.	0.473	Supported
H2a	Screen design will have a positive effect on perceived usefulness of the e-library.	0.530	Supported
H2b	Screen design will have a positive effect on perceived ease of use of the e-library.	0.570	Supported
H3a	Terminology will have a positive effect on perceived usefulness of the e-library.	0.491	Supported
H3b	Terminology will have a positive effect on perceived ease of use of the e-library.	0.527	Supported
H6	Perceived usefulness will have a positive effect on intention to use of use of the e-library.	0.524	Supported
H7a	Perceived ease of use will have a positive effect on perceived usefulness of use of the e-library.	0.566	Supported
H7b	Perceived ease of use will have a positive effect on intention to use of use of the e-library.	0.553	Supported

Therefore, the results can be summarized that all of the constructs that applied in this study were significant with the hypothesized relationship in the proposal model. The result indicated that the screen design construct has the strongest positive effect on perceived ease of use of e-library

system. The finalized proposed model based on the Pearson's Correlations Analysis has been explained in Figure 2.



**Figure 2:** Finalized proposed model based on the Pearson's Correlations Analysis.

## DISCUSSION

Although the response rate is high but there has several argued points in this study. The respondents' answers in the survey might be not the answers that expected. One of the reasons is because some of the participants were the new intake. They might had difficulties in grasping the idea of e-library system and lack of the experiences in use of e-library system in this private university college. Thus, this group of participant cannot answer the questionnaire as they experienced. On the other hand, those who understood the concept of e-library and had experienced with it might face the Internet access problem and this caused the method of distribution the questionnaire might not reached to the target audiences. This was happened because the Johor Branch Campus of this private university college was located in rural area and the Internet access coverage not as expected fast in this area and caused the limited or slow speed of Internet use. In this study, the Google Form was used as a media to distribute the questionnaires. Participants who access the questionnaire via the Internet of campus or hostel might take long time for loading the questionnaire further caused some of the the participants waive to answer this questionnaire. Furthermore, given that these were answered online, who was answering the questionnaire might not know. Thus, the questionnaires may not answered by the target audiences themselves might happened. This might cause the results of this study not reliable and accurate.

## CONCLUSIONS

As an objective of this study, this paper presented as a guideline for identify the constructs that influence the user acceptance of e-library system. The results indicated that the screen design construct had the strongest positive effect on the perceived ease of use of e-library system. A good screen design can be contributes greatly to the productivity and satisfying effort. A poor screen design will be frustrating and make the user difficult in use. Additionally, it will prevent the users from accomplish the goals. Thus, screen design must be considered by system developers when they design and develop an e-library system. Besides, the screen design provides the first impression to the user. It same like the first impression that given by a person who first met. If the first impression not that good, then it will cause a bad development of relationship in the future. Same like this case, if the screen design of e-library system does not attractive such as the interface design not match with the theme, the navigation buttons difficult to find, the contents full with the words and so on, the users would not perceived it is ease of use and unwilling to give a chance for try it. In order to encourage more students to use the e-library system, college administration could improve the screen design of this system by follow the user interface guideline such as the 10 usability heuristics for user interface design by Nielsen (1995). The sampling was conducted in the Johor Branch Campus of this private university college. This has inevitably engenders a limitation of responses and caused the results not accurate. Thus, in the future of sampling, should be carried out in the other campuses of this private university college in order to get a more accurate results.

The chosen constructs in this study were the constructs previously used by researchers. In the future, there may be new constructs that would also be relevant to users' acceptance of e-library system. To be able to identify the constructs that influence users' acceptance of e-library system, more user tests needs to be done and a long term study may need to be implemented.

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