

THE IMPACT OF ENGINEERING LIBRARY ONLINE  
DATABASES ON ACADEMICS IN SELECTED  
UNIVERSITIES IN MALAYSIA

BY

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## **ABSTRACT**

Libraries in most of the academic university always strive to serve the customers research needs. This include by investing on library online databases. Library online databases subscribed by the library were regarded as a main source for researchers. Many researchers investigated on the effectiveness of the electronic resources in the library. However, little is known on the impact of library online databases among academic members in Malaysia. The objective of the research, mainly is to evaluate the library online databases' effectiveness and their impacts on academic members. The participants of the study are from the Faculty of Engineering and Science in University of Malaya (UM), International Islamic University Malaysia (IIUM) and Universiti Teknologi Mara (UiTM). The research used a quantitative descriptive research design using the survey as a principal approach for data collection. A set of questionnaires comprised of three parts are used in the research. The data was analyzed using SPSS. As for data analysis, Descriptive statistics (frequencies, means, percentage, standard deviations) and analytical techniques such as correlation, regression and cross-tabulation were used. In correlation analysis, academic members' satisfaction relationship with each factor was examined separately to measure the direction and strength of each relationship. In the second technique, regression analysis was used to ascertain which of the strongest explanatory power factors has when those factors are combined in a regression model. The findings of this research provide useful information on the impact of library online databases among academic members. Findings from this research can be used by university administrators in planning, evaluating and executing the use of library online databases. The findings conclude that there is a positive relationship between satisfaction and information quality, system quality and service quality.

## خلاصة البحث

تستمر المكتبات في معظم الجامعات الأكاديمية بالسعي إلى تلبية احتياجات أبحاث مستخدميها ويشمل الاستثمار في قواعد بيانات المكتبات على الإنترنت. اعتبرت قواعد بيانات المكتبة على الإنترنت التي اشتركت فيها المكتبة مصدرًا رئيسيًا للباحثين. لقد حقق العديد من الباحثين في فعالية المصادر الإلكترونية في المكتبة. ومع ذلك، قلّت تأثيرها لدى الأعضاء الأكاديميين في ماليزيا. فالهدف من البحث ، بشكل أساسي ، هو تقييم فعالية قواعد بيانات المكتبة على الإنترنت وتأثيرها على الأعضاء الأكاديميين. المشاركون في الدراسة هم من كلية الهندسة والعلوم في جامعة مالايا (UM) والجامعة الإسلامية العالمية ماليزيا (IIUM) وجامعة مارا التكنولوجية (UiTM). استخدم البحث تصميم بحث وصفي كمي باستخدام المسح منهجا أساسيا لجمع البيانات بتقديم مجموعة من الاستبيانات تتكون من ثلاثة أقسام في البحث. ثم تحليل البيانات باستخدام برنامج الحزمة الإحصائية للدراسات الاجتماعية (SPSS). أما بالنسبة لتحليل البيانات، قد استخدم الإحصاء الوصفي (التكرارات ، المتوسطات ، النسبة المئوية ، الانحرافات المعيارية) كما استخدم التقنيات التحليلية مثل الارتباط والانحدار والجداول المتقاطعة. وفي تحليل الارتباط ، بحث عن ارتباط رضا الأعضاء الأكاديميين بكل عامل بشكل منفصل لقياس اتجاه وقوة ارتباط. أما بالنسبة للتقنية الثانية، استخدم تحليل الانحدار للتأكد من أقوى عوامل القوة التفسيرية عندما يتم دمج هذه العوامل معًا في نموذج الانحدار. توفرت نتائج هذا البحث معلومات مفيدة حول تأثير القاعدة البيانية المكتبية على الأعضاء الأكاديميين. ويمكن استخدام نتائج هذا البحث من قبل مسؤولي الجامعات في تخطيط وتقييم وتنفيذ قاعدة بيانات المكتبة على الإنترنت. وخلصت النتائج بتواجد علاقة إيجابية بين الرضا وجودة المعلومات وجودة النظام وجودة الخدمة.

## **APPROVAL PAGE**

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## DECLARATION

I hereby declare that this dissertation is the result of my investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

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# TABLE OF CONTENTS

Abstract .....	ii
Abstract in Arabic .....	iii
Approval Page.....	iv
Declaration.....	v
Copyright .....	vi
Acknowledgements .....	vii
List Of Tables .....	xi
List Of Figures .....	xiii
List Of Abreviatons.....	xiv

## **CHAPTER ONE: INTRODUCTION ..... 1**

1.1 Background Of The Study .....	1
1.2 Statement Of The Problem .....	2
1.3 Purpose Of The Study.....	3
1.4 Research Objectives.....	3
1.5 Research Questions.....	4
1.6 Conceptual Framework.....	10
Relationship between quality aspects and satisfaction .....	10
Relationship User Satisfaction and Actual Use .....	11
Relationship between Task Technology Fit (TTF) and satisfaction .....	12
Relationship between actual use and individual impact .....	12
1.7 Research Hypotheses .....	16
1.8 Significance Of The Study.....	17
1.9 Scope And Limitations Of The Study .....	18
1.10 Chapter Summary .....	19

## **CHAPTER TWO: LITERATURE REVIEW ..... 21**

2.1 Introduction.....	21
2.2 Research On Library Online Databases Subscription .....	21
2.3 Research On Library Online Database Usage And Impact .....	31
2.4 Research Studies Of The Theories .....	34
2.4.1 Delone And Mc Lean Model .....	34
2.4.2 Task Technology Fit .....	36
2.5 Research Studies On User Satisfaction.....	39
2.6 Research Studies On Actual Usage .....	41
2.7 Research Studies On Individual Impact .....	47
2.8 Impact Study Of Online Database In Malaysia .....	48
2.9 Chapter Summary .....	51

## **CHAPTER THREE: THEORETICAL FRAMEWORK AND HYPOTHESES ..... 53**

3.1 Introduction.....	53
3.2 Is Success Model .....	54



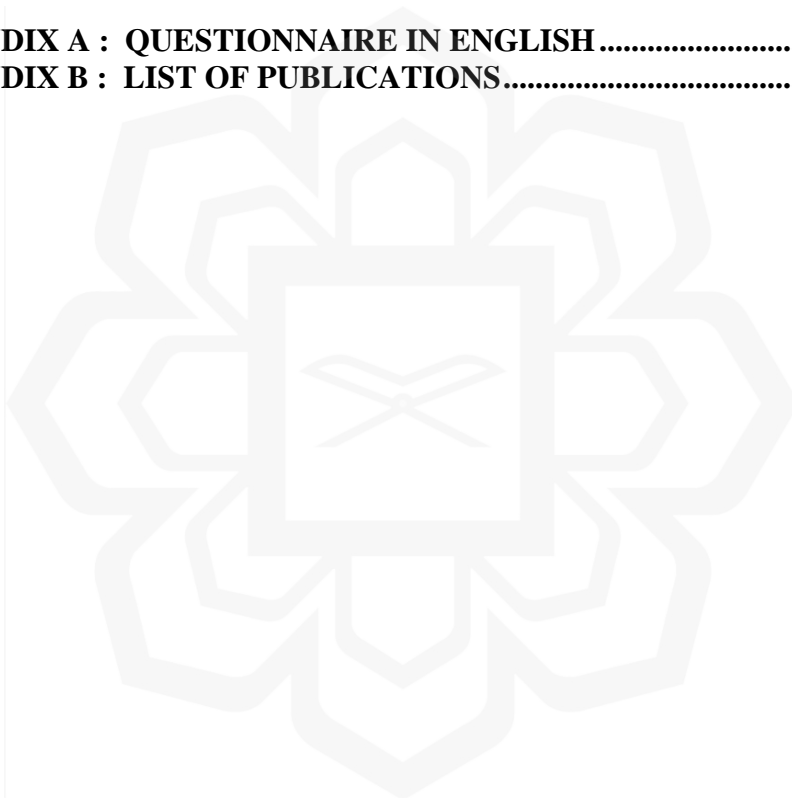
3.3 Task Technology Fit Model.....	57
3.4 Research Framework On The Technology Acceptance In Digital Library .....	59
3.5 Research Framework On The Impact Of Technology.....	62
3.5.1 Information Quality and Hypotheses .....	62
3.5.2 System Quality and Hypothesis .....	63
3.5.3 User satisfaction and Hypothesis .....	63
3.6 Chapter Summary .....	63
<b>CHAPTER FOUR: RESEARCH METHODOLOGY .....</b>	<b>64</b>
4.1 Introduction.....	64
4.2 Research Framework .....	64
4.3 Methods For Data Collection.....	66
4.3.1 Primary Data Collection Method .....	66
4.3.2 Secondary Data Collection Method .....	67
4.4 Sample .....	68
4.4.1 University Of Malaya.....	69
4.4.1 Universiti Teknologi Mara (Uitm).....	70
4.4.3 International Islamic University Malaysia (Iium).....	71
4.5 Development Of Instrument .....	72
4.5.1 Pilot Study .....	72
4.5.2 The Instrument .....	74
4.6 Data Collection .....	80
4.7 Chapter Summary .....	81
<b>CHAPTER 5: DATA ANALYSIS.....</b>	<b>82</b>
5.1 Introduction.....	82
5.2 The Application Of Is Success Model And Task Technology Fit Model.....	82
5.3 Demographic Data .....	83
5.2.1 The Universities That Participated.....	84
5.2.2 Gender .....	84
5.2.3 Age .....	85
5.2.4 Academic Qualification .....	85
5.2.5 Performance Rank.....	86
5.2.6 Use Of Library Online Databases .....	87
5.4 Data Analysis And Result.....	87
5.4.1 Descriptive Analysis .....	88
5.4.2 Correlation Analysis .....	89
5.4.3 Regression Analysis.....	94
5.4.3 Crosstabulation Analysis.....	98
5.4 Chapter Summary .....	100
<b>CHAPTER SIX: DISCUSSION AND CONCLUSION .....</b>	<b>101</b>
6.1 Introduction.....	101
6.2 Brief Summary Of The Results .....	101
6.3 Discussion Of The Findings .....	102

6.3.1 Impact Of Information Quality, System Quality And Service Quality On Satisfaction .....	102
6.3.2 User Satisfaction Of Library Online Database Among Academic Members .....	107
6.3.3 The Influence Of Task Technology Fit And Satisfaction .....	110
6.3.4 Test of Hypothesized Relationships Using Multiple Correlation Analysis and Regression Analysis .....	111
6.4 Implications And Conclusion .....	112
6.5 Recommendations.....	114
6.7.1 Future Research.....	114
6.6 Chapter Summary .....	115

<b>REFERENCES.....</b>	<b>116</b>
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<b>APPENDIX A : QUESTIONNAIRE IN ENGLISH.....</b>	<b>135</b>
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<b>APPENDIX B : LIST OF PUBLICATIONS.....</b>	<b>143</b>
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## **LIST OF TABLES**

Table 1.1 Brief Summary of the research	5
Table 1.2 The Dimensions for Task Technology Fit	12
Table 1.3 Frequency of usage and duration of use	13
Table 2.1 Amount of Library online databases	25
Table 2.2 Features of three Academic Universities' Interface Library Online Databases	28
Table 2.3 Studies on Library online database	32
Table 2.4 References on IS Success Model	35
Table 2.5 TTF Construct	37
Table 2.6 Studies on Task Technology Fit	37
Table 2.7 Other Studies on user satisfaction and technology	39
Table 2.8 Studies on Frequency of the technology and usage times	41
Table 2.9 Studies on Actual usage and individual or organizational performance	42
Table 2.10 Problem of Library online database	43
Table 2.11 References for Satisfaction	45
Table 2.12 Library database	46
Table 2.13 Summary of the published documents, citation and patent in Malaysian Universities.	49
Table 2.14 The implication of Library online Database	49
Table 3.1 The Construct of IS Success Model in 1992 and 2003	55
Table 3.2 Task Technology Fit Elements	59
Table 3.3 Construct items of IS Success model	60
Table 4.1 Category of participants	70
Table 4.2 Total of Engineering Academics in International Islamic University	71
Table 4.3 Cronbach' s Alpha	73
Table 4.4 Terms used in questionnaire usage of Library Online Databases	75
Table 4.5 Source of the Questionnaire	76

Table 4.6 Details on the questionnaires used in the research	77
Table 5.1 Demographic Profile	84
Table 5.2 Universities participated in the questionnaire	84
Table 5.3 Gender of the respondents	85
Table 5.4: Age of the participants	85
Table 5.5 Qualification of the participants	86
Table 5.6 Job Position/ Designation of Participants	86
Table 5.7: Usage of Library online databases	87
Table 5.8 Descriptive statistics	89
Table 5.9 Hypotheses for quality aspects and satisfaction	90
Table 5.10 Correlation Analysis of information quality, system quality and	91
Table 5.11 Correlation between Task technology fit and satisfaction	92
Table 5.12 Correlation between Satisfaction and Actual Usage	93
Table 5.13 Correlation between Actual usage and individual impact	93
Table 5.14 The correlation coefficient of Information quality, service quality and task technology fit and satisfaction	95
Table 5.15 Correlation coefficient of system quality and satisfaction	96
Table 5.16 Correlation coefficient of satisfaction and actual usage	97
Table 5.17 Correlation coefficient of actual usage and impact	97
Table 5.18 Summary of the result on satisfaction	98
Table 5.19 Summary of the result on individual impact	98
Table 5.20 Crosstabulation of University and Duration	99
Table 5.21 Crosstabulation of University, Qualification and Usage	99
Table 6.1 References of Information quality affects satisfaction	103
Table 6.2 References for System Quality	104
Table 6.3 References for Service Quality	105
Table 6.4 References for Satisfaction	109
Table 6.5 References for Satisfaction	110

## LIST OF FIGURES

Figure 1.1	Conceptual Framework	16
Figure 2.1	List of Library Online Databases Subscribed by University of Malaya	26
Figure 2.2	List of Library Online Databases Subscribed by Teknologi MARA (UiTM)	26
Figure 2.3	List of Library Online Databases Subscribed International Islamic University Malaysia (IIUM)	27
Figure 2.4	Literature Review Diagram	52
Figure 3.1	DeLone and Mclean IS success Model	55
Figure 3.2	Task Technology Fit	58
Figure 4.1	Research Framework	65

## LIST OF ABBREVIATIONS

IS	IS Success Model
TTF	Task Technology Fit
LOD	Library online database
MCMC	Malaysian Communication and Multimedia Commission
ODL	Open and Distance Learning
UM	Universiti Malaya
IIUM	International Islamic University
UiTM	Universiti Teknologi MARA
SPSS	Statistical Package for the Social Sciences



# CHAPTER ONE

## INTRODUCTION

### 1.1 BACKGROUND OF THE STUDY

A library plays an important role in the learning and teaching in a university, Thus, without a library, teaching and learning at a university will be difficult. This is because a library is a gateway to knowledge and resources to students, academicians, researchers and also the university staff (Reyes, 2019).

Library impacted the users by providing facilities and services to them such as by providing digital library services which is the main source of learning, teaching and research. Among the library's digital services are the subscribed online databases. The subscribed online databases are the main source of reference especially to educators and researchers (Iroaganachi & Izuagbe, 2018a). A library must always evaluate and ensure that the facilities and services provided have quality and effective to the users.

A library should always ensure that users always use the services provided in ensuring quality services, Thus, a library has to allocate a certain budget to continue the database subscription. Academic libraries make large investments in acquiring library online databases expecting a positive return of investments to the university. They are pressured to rationalize their spending budget (Markus, ML and Axline, S and Petrie, D and Tanis, 2003). However, library online databases investments are seldom assessed on the impact of library online databases on research productivity. The past studies are often measuring the effectiveness only but lack comparability among the samples.

This research focuses on the effects of library online databases among academic members. After in-depth research, two important models are seen suitable for the research which were developed by W. H. DeLone & Mclean (1992, 2003) and D. Goodhue & Thompson (1995). The two theories were the most prominent theoretical framework in the research of the impact. IS Success Model and Task Technology Fit model theory covers a comprehensive aspect of impact.

## 1.2 STATEMENT OF THE PROBLEM

Library online databases are highly valued in academic settings. They increased the academic members' research productivity, output and also increased university status (Izuagbe, 2021; Gathoni & Van der Walt, 2019; Rafi et al., 2019; Hughes et al., 2018; Razilan et al., 2013; Noh, 2012b; Razilan & Diljit, 2012; Egberongbe, 2011; Sharma, 2009). Thus, the information and system quality of library online databases are essential to the successful research productivity of academic members in Malaysia.

However, limited usage of library online databases for academic purposes generated a worrisome situation (Rafi et al., 2019). The problem aroused as faculty members are not satisfied with the subscription of online databases as they encounter problems in accessing online resources. A survey done at the universities in Bangladesh found that faculty members had problems in gaining suitable online resources and information, difficulty accessing online resources from home and a limited number of online titles suitable for their research (Habiba & Ahmed, 2020). Furthermore, Kalankesh et al. (2020) reported that the aspects of information accuracy, timeliness and relevancy are important attributes in information quality.

In the aspect of system quality, ease of use, accessibility and response time are the important attributes. Therefore, each library needs to evaluate the library online databases provided to library users by following per the needs of users in terms of information, online database system, as well as services offered, usage, customer satisfaction and impact of usage to customers.

Customer satisfaction surveys have become an essential aid for planning and management in academic libraries. Various studies have been conducted on a library satisfaction survey. Chandrasekar & Murugathas (2013) affirmed that many academic libraries conducted surveys on library users. Prominent library research on the use of academic libraries has frequently been surveyed. But not many studies have surveyed the impact of library online databases in an academic setting. The quality of LOD and performance impact of academic members on the usage of library online databases usage is the main emphasis of this research. Thus, limited studies on the impact of library online databases in an academic setting explore and understand technology utilization and information systems (IS), several well-known theories and models have been developed.



### **1.3 PURPOSE OF THE STUDY**

This research sought to identify the impact of the quality of library online databases in an academic environment in academic universities in Malaysia. The study focused on public universities in Malaysia and on the viewpoint of engineering academic members. This research aims at getting a better understanding of the effectiveness of library online databases and the impact of library online databases on user satisfaction. This research adopts a theoretical model for this, based on the DeLone and McLean IS Success Model and Task Technology Fit, which considers the specific requirements of library online databases' effectiveness. The research tested the relationship between the different dimensions of the model's successes using 151 academic members' responses. These responses were collected in a survey of three universities in Malaysia from different backgrounds. The study applied SPSS version 25<sup>th</sup> to perform the causal analysis. The findings of the causal analysis indicate that apart from the variables that typically lead to IS success model, other dimensions – like the task technology fit have to be considered when aiming for the effectiveness of the subscribed library online databases. The findings of the study allow the practitioners to understand the impact of the library's online databases and to allocate their investments accordingly. By empirically validating an extensive success model for the online library database the study results advance the theoretical advancement in this field and provide the foundation for further research in this field.

### **1.4 RESEARCH OBJECTIVES**

The main objective of this research is to determine the impact of library online databases on academics in selected universities in Malaysia. Specifically, the study aimed to achieve the following objectives:

- i. To determine the impact of the information quality of library online database on academic members 'satisfaction.
- ii. To determine the impact of the system quality of library online database on academic members 'satisfaction.

- iii. To determine the impact of the service quality of library online database on academic members 'satisfaction
- iv. To determine the impact of task technology fit of library online database on academic members 'satisfaction
- v. To determine the impact of academic members 'satisfaction of LOD on actual use.
- vi. To determine the impact of actual use of library online databases effect on individual academic performance impact of academic members.

## 1.5 RESEARCH QUESTIONS

The main research question of this research is as below:

What is the impact of library online databases on academics in Malaysian universities?

- i. Does information quality of library online database have any impact on academic members 'satisfaction?
- ii. Does system quality of library online database have any impact on academic members 'satisfaction?
- iii. Does service quality of library online database have any impact on academic members 'satisfaction?
- iv. Does task technology fit have any impact on academic members 'satisfaction?
- v. Does academic members 'satisfaction with LOD has any impact on actual use?
- vi. Does actual use of LOD has any impact on academic performance of academic members?

The summary of the research comprised of the problem statement, research objectives, research questions, methodology, data analysis and expected findings of the research were depicted in

Table 1.1 Brief Summary of the research

Title	Problem Statement	RO	RQ	Methodology	Data Analysis	(Expected)Findings	Contributions	
							Theoretical	Practical
The Impact of Engineering Library Online Databases on Academics	The quality of library online databases has impacted the user satisfaction	RO1: To determine the impact of the information quality of library online database on academic members 'satisfaction	RQ1: Does information quality of library online database have any impact on academic members 'satisfaction?	Survey Questionnaire (Part III Category A, B & C)	Quantitative data analysis using descriptive statistics and also correlation analysis	Quality effect satisfaction	Combination of the three qualities (information, system and service quality) to access quality aspects	Library administrator's role in acquiring more quality online databases to the users

in Selected Universities in Malaysia		RO2: To determine the impact of the system quality of library online database on academic members 'satisfaction	RQ2: Does system quality of library online database have any impact on academic members 'satisfaction?	Survey Questionnaire (Part III Category A, B & C)	Quantitative data analysis using descriptive statistics and also correlation analysis	Quality effect satisfaction	Combination of the three qualities (information, system and service quality) to access quality aspects	Library administrator's role in acquiring more quality online databases to the users
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		RO3:. To determine the impact of the service quality of library online database on academic members 'satisfaction	RQ3:Does service quality of library online database have any impact on academic members 'satisfaction	Survey Questionnaire (Part III Category A, B & C)	Quantitative data analysis using descriptive statistics and also correlation analysis	Quality effect satisfaction	Combination of the three qualities (information, system and service quality) to access quality aspects	Library administrator's role in acquiring more quality online databases to the users
	Task technology on satisfaction	RO4: To determine the impact of task technology fit of library online database on	RQ4: Does task technology fit has any impact on academic members 'satisfaction?	Survey Questionnaire (Part III Category A, B & C)	Quantitative data analysis using descriptive statistics and also	Task Technology fit impact satisfaction	Combination of IS Success Model and Task Technology Fit Model	

		academic members 'satisfaction			correlation analysis			
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<b>Title</b>	<b>Problem Statement</b>	<b>RO</b>	<b>RQ</b>	<b>Methodology</b>	<b>Data Analysis</b>	<b>(Expected)Findings</b>	<b>CONTRIBUTION</b>	
Impact of Library Online Databases in Selected University	Satisfaction and actual use	RO5: To determine the impact of academic members 'satisfaction of LOD on actual use.	RQ5: Does the academic members 'satisfaction with LOD has any impact on actual use?	Survey Questionnaire (Part III Category E)	Quantitative data analysis using descriptive statistics and also correlation analysis	satisfaction impact actual use	Satisfaction doesn't lead to actual use	Library administrator need to focus more on activities to gain actual use

Libraries In Malaysia	Actual use and performance	RO6: To determine the impact of actual use of library online databases effect on individual academic performance impact of academic members	RQ6: Does the actual use of LOD has any impact on academic performance of academic members?	Survey Questionnaire (Part II Item , 7-11)	Quantitative data analysis using descriptive statistics and also correlation analysis	actual use impact Individual impact of academic members	Actual use	Promotion to increase the usage as it impact the academic members' work
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## **1.6 CONCEPTUAL FRAMEWORK**

A modified conceptual framework was designed to conduct this research. As the research aim to determine the impact of library online databases on academics in selected universities in Malaysia. The research model expects a relationship between quality aspects, satisfaction, task technology fit, actual use and individual impact of engineering academic members.

### **Relationship between quality aspects and satisfaction**

DeLone & McLean (2003) had stated three major areas of quality:

- i. Systems quality,
- ii. Information quality
- iii. Service quality

The original model had measured the quality in these three aspects. With regards to this research, all three qualities are measured under one term that is library online databases quality. These qualities will affect user satisfaction. Library online database are no longer just an online collection of information resources but have become a digital community for e-learning and user search especially during open and distance learning (ODL) (Xie & Stevenson, 2019).

The first aspect of quality as mentioned by DeLone & McLean (2003) were system quality. DeLone & Mclean (1992: 2003) defined system quality as the total quality of performance shown in a system, and it can be measured by users' perspectives. First glance of library online databases is important as system quality acts as the "online storefront", This is because users are faceless when they interact with the system (Lin et al., 2011).

P. Seddon & Kiew (1996) observed that there was a significant relationship between user satisfaction and system quality. While Sung et al., (2009) and DeLone and McLean (1992) claimed that system quality was one indicator for predicting user satisfaction. The original IS success model was re-specified by Seddon (1997) provides a direct path from system quality to perceived value as well as user satisfaction. In fact, system quality also found to influence perceived usefulness and ease of use (Lin et al., 2011). From the studies that examined system quality and user satisfaction, showed that the system quality of library online database will affect user satisfaction.