



## Evaluation of Information Systems at The Library of The University of Sultan Azlan Shah

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### ABSTRACT

A university library is an academic library whose inventory is based on the subjects offered by the university. This is open to external students, teachers, and researchers. The research conducted is about the information system in a University Library. This research aimed to obtain information about the success of an information system in a university library. The researcher carried out this task to identify the aspects that affect the success of the information system and can provide a recommendation that can overcome the weaknesses detected, as well as evaluate the success and shortcomings in the information system of a University Library. The research method used is qualitative. A qualitative approach is a technique used in research activities, namely by producing descriptive data. The research findings received in the implementation of Monitoring and Evaluation at the USAS Library are based on the six dimensions of the Delone & McLean model, which are related to the success of the information system, namely system quality, information quality, service quality, use, user satisfaction, and net benefits.

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## 1. INTRODUCTION

A College library, called a university library, is the same library contained in schools or other school environments which is part of the university. The university library habitually selects, processes, collects, and stores its assets, making them specifically available to the general public and scholars from the parent institution. The educational process in higher education is inseparable from research and development activities, innovation, and scientific engineering. In Malaysia, a college library is an academic library whose inventory is based on the courses offered by the university. It is open to outside students, teachers, and researchers. University library is a library at a university, its subordinate institutions, and university-related institutions whose primary purpose is to help the university achieve its goals (Basuki, 1991). A university library is a work unit that is an integral part of its parent institution and other units but in a different role, namely helping the concerned university implement the Tri Dharma, which has a task (Gakibayo et al., 2013; Littman & Connaway, 2004; Soedibyo, 1987).

The application of information systems in libraries proves that ICT has been widely carried out by existing institutions, including libraries as part of information institutions. The system is a collection of elements that interact with each other to achieve goals (Kuhlthau, 1988; Rusdiana & Irfan, 2014). The system is a group of elements that are joined with the same goal. From the two definitions of this system, we can conclude that it is a collection of features that predetermined goals have integrated to make it easier to achieve these goals (Firman et al., 2016). Using this library information system can improve the library's performance in providing optimum service to the users. A well-managed library information system can improve the library's image in the public's eyes. Therefore, selecting an appropriate monitoring and evaluation model needs to be done to assess the stages applied by the library information system in implementing its activities. Researchers have chosen the DeLone and McLean model because they feel it is an appropriate model to evaluate the quality of library information systems. An information system is a collection of interrelated components or elements that work together to collect and process data to become integrated information to meet user needs. This system is referred to as a library information system in the library itself. A library information system is an organization that brings together needs in data processing and storage that supports activities and provides the necessary reports (Lin et al., 2016; Puspitasari, 2016; Zhou & Liu, 2013). The library information system is a process of processing library data through computerization (Mailasari & Sikumbang, 2019). Thus, we can say that the library information system is a data processing and storage system in the library carried out through a computer or digital device so that certain parties can utilize it. The presence of this library information system can improve the library's performance in providing excellent service to the users.

The DeLone and McLean models can be used or implemented for the success of an information system or information system in a library such as a repository, OPAC, digital library, and so on. The D&M model consists of 6 dimensions related to the success of information systems: system quality, information quality, service quality, usage, user satisfaction, and net benefits (Rahayu et al., 2018). Based on the first dimension, the desired or supposed quality system must have indicators such as ease to use, flexibility, system reliability, and ease of learning the system, as well as intuitive features, sophistication, flexibility, and fast response times. In this case, for example, the OPAC of a library must have some of these criteria where the OPAC of the library must be easy to use so that it is easy for

users to retrieve information in the library (Saha, 2017; Rahayu et al., 2018; Spreafico & Spreafico, 2021).

Second, the quality of information is the knowledge expected by the user and can be appropriately utilized. In this case, it can be implemented in the OPAC library or repository of a library by asking questions on indicators such as information on the OPAC or a complete storage, information that is displayed according to needs, information is not ambiguous or not too many errors, information is always up to date, Information easy to understand. From the results of these questions, it will be known whether the information's quality is good (Rahayu et al., 2018).

The third is the quality of service, namely the service of displaying information following user requests quickly and accurately, services that seriously prioritize users' interests, and services that foster trust in users, in this case, the users. These quality services can attract users to use information systems in libraries and of course users get satisfaction when looking for information in the library (Chowdhury, 2016; Okike, 2019; Rahayu et al., 2018).

Next is usage, which is an indicator of this usage variable, namely the frequency and nature of use. The quality of this information affects the frequency of use of information systems. Then, there is user satisfaction related to service satisfaction that can lead to user satisfaction (Delone & Mclean, 2003). With the success of service quality and user satisfaction, it becomes a significant factor in the success of an information system. The last dimension is a net benefit, related to acquiring knowledge and saving time in searching for information.

Several studies have been carried out on the Delone & McLean (D&M) Model in the Library. Among them is research on the Success of the Application of Information Systems in the Integrated Service Information System (SIPT) Online. The study results from the editorial show differences in using voluntary and mandatory information systems (Laumer et al., 2016; Wanchai et al., 2012). Also, some studies find that information quality, system quality, service quality, perceived net benefits, user satisfaction, and intention to reuse are essential factors in determining the success of the Library 2.0 system (Kwanya et al., 2013; Lwoga, 2013). The use of the D&M model has helped them identify existing information systems deficiencies and improve on them.

Based on the statements above, this research aimed to obtain information about the success of an information system in a university library. The researcher carried out this task to identify the aspects that affect the success of the information system and can provide a recommendation that can overcome the weaknesses detected, as well as evaluate the success and shortcomings in the information system of a University Library.

## **2. METHODS**

Researchers have decided to choose a qualitative approach. A qualitative approach is a technique used in research activities, namely by producing descriptive data. The complexity of qualitative content analysis depends on the volume of data collected, the researcher's task to conduct in-depth dissection, and provide concise but comprehensive and logical results (Mahajan et al., 2018). Generally, qualitative research consists of investigations that seek answers to any problems or questions.

For the data collection technique, the researcher cites the results of the data through a questionnaire filled out by the users and librarians of a library so that the data obtained is primary data. Before that, researchers need to ensure that the questions in the questionnaire are easily understood by respondents and can provide explanations in advance if necessary. The questionnaire variables distributed should cover the six crucial

elements of the D&M Model itself. The answers to the collected questionnaires can be processed using descriptive statistics. In this study, the researcher chose only to look at the six crucial elements of the D&M model. Based on the results of the data obtained, the researcher observed positive responses and assessed the excellent reactions left by respondents in statistics as a triumph for the information system in the library under study.

### 3. RESULTS AND DISCUSSION

This section describes the results of data analysis based on the monitoring and evaluation of respondents to a questionnaire related to information systems in the university library conducted at the Raja Ashman Shah Library, Sultan Azlan Shah University (USAS).

#### 3.1. Gender

**Table 1.** Demographics of respondents by gender

Gender	Respondent	Percentage(%)
Male	9	22
Female	32	78

Based on the data above, as many as 9 men and 32 women have filled out the questionnaire forms distributed through Google Forms during Monev. The percentage values are both equal to 22% for men and 78% for women, as shown in the pie chart above.

#### 3.2. Occupation

**Table 2.** Demographics of respondents by Occupation

Occupation	Respondent	Percentage(%)
Student	38	92.7
Librarian	3	7.3

Based on the data above, a total of 38 university students and 3 librarians filled out the questionnaire. The percentage value of both equals 92.7% for males and 7.3% for females, as shown in the pie chart above.

The implementation of this Monitoring and Evaluation has involved librarians and university students. A total of 41 respondents successfully filled out the completed questionnaire and helped the writer to monitor and evaluate the university library. According to Universiti Malaysia Library Standards, the number of staff for campus development, especially for branch campuses, is a minimum of only 3 to 5 librarian positions involving management, procurement, cataloging, lending, reference, and systems. Based on the questionnaire a total of 3 librarians have filled out the questionnaire form, proving that the selected tertiary care library complies with the standards set by the government.

#### 3.3. Library Infrastructure

**Table 3.** Library Infrastructure

Question	Score					
	Yes	No	Unsatisfactory	Satisfactory	Good	Excellent
Is the library's location in a strategic and accessible area for users to present themselves?	39	1	1	12	14	14

Question	Score					
	Yes	No	Unsatisfactory	Satisfactory	Good	Excellent
Is the size of the library suitable for the number of library users?	37	4	2	15	13	11
What is the estimated number of users who can enter the library once? Number of user = 50-100 Users.	-	-	0	12	17	8
Does the library have a reading room?	38	2	0	14	16	10
Does the library have a reading collection space by type?	34	5	1	11	15	12

Based on the library space indicator, five questions have been listed for respondents to fill in through a Google Form. The data above shows that for question A, 39 people answered "Yes," and only one answered "No." The percentage value of both equals 97.5% and 2.5%. Based on the scale value, only one person expressed "Unsatisfactory" because the library is located in a strategically accessible area for users to present themselves. In contrast, another 12 people said "Satisfactory," and 14 people gave a positive reaction by stating "Good" and "Very Good."

For question B, 37 people answered "Yes," and only four answered "No." The percentage value of both equals 90.2% and 9.8%. Based on the scale value, only two people expressed "Unsatisfactory" with the size of the library space according to the number of library users. In comparison, another 15 people spoke "Satisfactory," 13 people gave a positive reaction by saying "Good," and another 11 people said "Very Good."

For question C, the average respondent stated that approximately 50 to 100 people are the estimated users who can enter the library at one time. Based on the scale value, no one said "Unsatisfactory," but there were 12 people who said "Satisfactory," 17 people said "Good," and eight people said "Very Good."

Based on question D, 38 people answered "Yes," and only two answered "No" for the question about whether the library has a reading room. The percentage values are both equal to 95% and 5%. Based on the scale value, no one said "Unsatisfactory," but there were 14 people who said "Satisfactory," 16 people said "Good," and another ten people said "Very Good."

The last question for the library space indicator is about having a reading collection space by type. Based on question E, 34 people answered "Yes," and only five answered "No." The percentage value of both equal 87.2% and 12.8%. Based on the scale value, one person stated, "Unsatisfactory." In contrast, another 11 people said "Satisfactory," 15 people gave a positive reaction by stating "Good," and another 12 people stated "Very Good."

Based on the reading room in the university library that was studied, in particular, the floor space requirement for the library building is based on several factors, such as the number of users, library function, and type (Persatuan Pustakawan Malaysia, 2018). So, according to the data obtained, the respondents gave feedback by stating that the location and the library space provided were satisfactory for the users present in the library. The matter also refers to the Guidelines and Regulations for Building Planning by JK Standard and Cost, Economic Planning Unit, JPM (An et al., 2019; Kylin & Bodelius, 2015).

### 3.4. System Quality

**Table 4.** System Quality

Question	Score					
	Yes	No	Unsatisfactory	Satisfactory	Good	Excellent
Is there an information system used in the library?	40	1	-	-	-	-
What information system is used in the library?	41	0	-	-	-	-
Is the information system provided easy to use?	41	0	0	10	20	11
Is the information system provided flexible?	40	1	0	13	18	10
Does the information system provide facilitate learning the system?	40	0	0	11	20	10

Based on the quality system indicators, five questions have been listed below. The data above shows that for question A, 40 people answered "Yes," and only one answered "No." The percentage value of both equals 97.6% and 2.4%.

For question B, all respondents answered "Yes" to the question about the information system used in the library, and none answered "No." So, the percentage value is 100%.

As for question C, all respondents answered "Yes" to the question about the information system provided that is easy to use, and none answered "No." Based on the scale value, no one said "Unsatisfactory," but there were ten people who said "Satisfactory," 20 people said "Good," and 11 people said "Very Good."

Based on question D, 40 people answered "Yes" to the information system question provided flexibly, and only one answered "No." The percentage value of both equals 97.6% and 2.4%. Based on the scale value, no one said "Unsatisfactory," but there were 13 people who said "Satisfactory," 18 people said "Good," and another ten people said "Very Good."

The last question for the quality system indicator is whether or not the information system facilitates learning the system. Based on question E, everyone answered "Yes," and no one answered "No." So, the percentage value is 100%. Based on the scale value, no one said, "Unsatisfactory." However, 11 people said "Satisfactory," 20 people gave a positive reaction by saying "Good," and another ten people said "Very Good."

System quality indicates how well a system works when someone uses the system, both in terms of software and hardware. Therefore, the quality of an exemplary system can be seen from the ease, flexibility, superiority, and smooth access of a method used by users. Referring to the quality system provided by the Raja Ashman Shah Library at Universiti Sultan Azlan Shah, most respondents agreed that the information system used, namely OPAC (Online Public Access Cataloging), is easy and flexible by choosing "Good" as the highest score value. So, we can conclude that the quality system at Azlan Shah University Library has a sound quality system.

### 3.5. Information Quality

**Table 5.** Information Quality

Question	Score					
	Yes	No	Unsatisfactory	Satisfactory	Good	Excellent
Does the information obtained from the information system meet the requirements?	41	0	0	10	20	11
Does the information obtained from the information system satisfy you?	41	0	0	12	19	10

Based on the information quality indicator, only two questions have been listed below. The data above shows that for question A, whether the information obtained from the information system meets the requirements, all respondents have answered "Yes," and none have responded "No." The percentage value is 100%. Based on the scale value, no one said "Unsatisfactory," but there were ten people who said "Satisfactory," 20 people said "Good," and 11 people said "Very Good."

For question B, all respondents also answered "Yes" to the question about whether the information obtained from the information system was satisfactory, and no one answered "No." So, the percentage value is the same as in question A, which is 100%. Based on the scale value, no one said "Unsatisfactory," but there were 12 people who said "Satisfactory," 19 people said "Good," and another ten people said "Very Good."

The quality of information is complete information easy to understand, and the format of the information provided is to the user's needs and the information's accuracy (Kayser et al., 2015; Restuccia et al., 2017). If the quality of the information received can be used by users accurately, then the quality of information can be said to be good. Based on the data obtained, all respondents, namely 41 (100%), agreed that the information obtained from the information system provided meets their needs and satisfies them. So, this matter proved to show that the quality of the information provided in the Raja Ashman Shah Library meets the demands of users.

### 3.6. Service Quality

**Table 6.** Service Quality

Question	Score					
	Yes	No	Unsatisfactory	Satisfactory	Good	Excellent
Are services displaying information according to user requests quickly and accurately?	41	0	0	11	19	11
Is the information system provided flexible?	40	1	0	13	22	6
Does the featured service or service instill trust in the user?	41	0	0	12	21	8

Only three questions have been listed below based on the service quality indicators. The data above shows that for question A, which is about services that display information according to user requests quickly and accurately, all respondents answered "Yes," and no respondents answered "No." The percentage value found is 100%.

For question B, 40 people answered "Yes," and only one answered "No." So, the value of both equals 97.6% and 2.4%. Based on the scale value, no one said "Unsatisfactory," but there were 13 people who said "Satisfactory," 22 people said "Good," and six people said "Very Good."

For question C, which is about the services or services that are displayed to foster trust in users or not, all respondents answered "Yes," and none responded "No." Based on the scale value, no one said "Unsatisfactory," but there were 12 people who said "Satisfactory," 21 people said "Good," and eight people said "Very Good."

The quality of service is the quality service provided by the library to attract users to take advantage of the information system available in the library. Its mission is to ensure that users are satisfied when looking for the desired information in the library. Based on the data obtained, all respondents, namely 41 (100%), agreed that the service or service that displays information according to user requests is fast and accurate. The average leaves a positive perception when the highest score is written "Good." This shows that the quality of service provided at the Sultan Azlan Shah University Library has received a positive response from users.

### 3.7. Library Usage

**Table 7.** Library Usage

Question	Score					
	Yes	No	Unsatisfactory	Satisfactory	Good	Excellent
Is the use of information systems in the library satisfactory?	41	0	0	15	16	10
What is the estimated number of users who use the information system in one day? Number of users = 30 to 50 people	-	-	0	14	18	6

Based on usage indicators, there are only two questions listed below. The data above shows that for question A, which is about whether the use of the information system in the library is satisfactory, all respondents answered "Yes," and no respondent answered "No." The percentage value found is 100%. Based on the scale value, no one said "Unsatisfactory," but there were 15 people who said "Satisfactory," 16 people said "Good," and another ten people said "Very Good." For question B, the average respondent stated that approximately 30 to 50 people are the estimated users who use the information system in one day. Based on the scale value, no one said "Unsatisfactory," but there were 14 people who said "Satisfactory," 18 people said "Good," and six people said "Very Good."

The quality of this information will affect the frequency with which the information system is used (Delone & Mclean, 2003). If the information provided is of good quality, the frequency of using the information system will increase. Based on the data obtained, all respondents, namely 41 (100%), agreed that the service or service that displays information according to user requests is fast and accurate. Most respondents leave a positive and proven perception when the highest score is "Good." This point shows that the words of Delone & Mclean were successfully confirmed by the estimated number of users using the information system in one day at the USAS Library, which is as many as 50 to 100 people.



### 3.8. User Satisfaction

**Table 8.** User Satisfaction

Question	Score					
	Yes	No	Unsatisfactory	Satisfactory	Good	Excellent
As a user, do you want to revisit the library to use the information system provided?	39	1	-	-	-	-
Is the information system provided as expected?	38	1	0	13	12	7
What suggestions can be given for the information system provided in this library?	-	-	-	-	-	-
What weaknesses can you identify after using the information system provided?	-	-	-	-	-	-

Based on the user satisfaction indicator, there are four questions listed below. The data above shows that for question A, which is a question of opinion as a user, do they want to revisit the library to use the information system provided, 39 respondents answered "Yes," and only one respondent answered "No." So, the value of both equals 97.5% and 2.5%.

For question B, 38 people answered "Yes," and only one answered "No." So, the value of both equals 97.4% and 2.6%. Based on the scale value, no one said "Unsatisfactory," but there were 13 people who said "Satisfactory," 12 people said "Good," and seven people said "Very Good."

For question C regarding the suggestions we can give for the information system provided in this library, the average respondent stated that the library should add reference books and improve the information system, especially on the website.

For question D regarding weaknesses, you can identify after using the information system provided, the respondent stated that the integration system is not complete and different book positions are not as shown.

User satisfaction Indicators include repeat visits as expected by users and the effect of satisfaction when the quality of service is good. The success of the information system can be proven by service quality and user satisfaction. Based on the data obtained, almost all respondents, namely 38 (99%), agreed to revisit the library to use the provided information system because they felt it met their expectations. This can be seen when seven people said "Very Good" for the information system available at the USAS Library. This shows that user satisfaction is successfully achieved when seen to leave a positive perception in the questionnaire answers. Respondents also left suggestions and weaknesses that we could give to the information system to improve service quality further and meet user satisfaction. This result can be used as a recommendation to improve the library's information system's success in overcoming the information system's weaknesses (Aghayev, 2017; Xia et al., 2012).

### 3.9. Net Benefit

**Table 9.** Net Benefit

Question	Score					
	Yes	No	Unsatisfactory	Satisfactory	Good	Excellent
Is it possible for you to forward or disseminate information obtained from the information system?	38	2	-	-	-	-
Can use the information system save time spent searching for information?	40	0	-	-	-	-

Based on the net benefit indicator, only two questions have been listed below. The data above shows that for question A, 38 respondents answered "Yes," and only two people answered "No." The percentage values are both 95% and 5%.

For question B, all respondents also answered "Yes" to the question "Does using the information system save the time used to find information," and none answered "No." So, the percentage value is 100%.

We can measure this net benefit by the time saved during knowledge acquisition and information search. Based on the data obtained, almost all respondents said "Yes" and agreed that the information system at the USAS Library could help them search for information more quickly. They may be able to disseminate the information received to other parties (Ahmad, 2016). Therefore, we can see that the library's net benefit was successfully obtained by visiting the respondents' constructive responses.

## 5. CONCLUSION

Implementation of Monitoring and Evaluation in the College Library is expected to help regarding the success of an information system or an existing information system in the College Library as well as about librarians and services to users and find out about problems and solutions in the implementation and management of the university library. Based on the results obtained from the implementation of Monitoring and Evaluation at the USAS Library, we can see that the information system there satisfies the hearts of the users present, and there are several weaknesses that they must improve so that the information system always functions well and meets the needs of users. Thus, these monitoring and evaluation results are hoped to contribute to the management information system.

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