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Simpus and Promem as Library Management System: Quality Measurement

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ABSTRACT

Many libraries have used technology-based management services extensively. However, not all of them can live up to the standards stipulated by the library. This study will use the PIECES method to assess Simpus and Promem's level of excellence. This technique is one of the approaches for evaluating the program's library information system's level of quality. The population of this descriptive research, which uses a quantitative methodology, is 905 people, with a sample size of 90 respondents. The data is collected via online survey as a research tool and accidental sampling. The data analysis procedure used the PIECES analysis method and descriptive statistical analysis. The study's findings show that Simpus and Promem's quality level employs the PIECES analysis method for each indicator, with the performance indicator receiving a score of 4.96 (very high), the information indicator receiving a score of 3.92 (high), the economic indicator receiving a score of 3.98 (high), the control indicator receiving a score of 3.78 (high), the efficiency indicator receiving a score of 3.94 (high), and the service indicator receiving a score of 4.0 (high). Thus, this demonstrates that performance has the best quality of the six indicators, and control has the lowest rate.

Keywords: Library management system; Simpus; Promem; library quality

1. INTRODUCTION

The sophisticated technology today has a tremendous impact. Many industries, which are crucial pillars in driving a nation's development, are impacted by technology. For instance, technology helps to ensure the quality of education by making it convenient to obtain material that can swiftly increase understanding and knowledge. Everyone can now get education and information quickly, anywhere and anytime.

From young children to adults, information is a very basic requirement shared by many different demographic groups. The need for information undoubtedly keeps growing with the times. People consider how they can work more effectively and efficiently as technology

advances. Making a traditional system into a computerized system is one of them. (Yahya, 2020). As has been done by many information and knowledge organization institutions, such as libraries, which have brought themselves closer to their users by utilizing today's technology. In this case, the role of the library as an information provider institution must be continuously improved so that it can provide qualified information services, and can operate more quickly in disseminating actual and reliable information.

According to Law of the Republic of Indonesia Number 43 of 2007 Article 1 Concerning Libraries. The library is an institution that manages written works, printed works, and/or recorded works professionally with a standardized system to meet users' educational, research, preservation and recreational needs (Republic of Indonesia No.43, 2007). A library is a medium, part of a building, that stores library materials and other publications according to a particular classification system for user use, not for sale. A library certainly has a vital role in disseminating information oriented to science and technology (Sulistyo-Basuki, 1993).

Many college libraries use technology to support their operational activities, although it is realized that the process requires a lot of effort to make it happen. For example, when dealing with vendors, stakeholders, and other related parties so that the right decisions can be taken (Gio & Xu, 2023). According to Siregar (2007), a library information system is a system within a public service organization that meets the needs of loan transaction processing, returning and renewing books, and preparing daily, monthly or annual reports to support the operations, managerial, and activities of an organization and provide certain external parties with the necessary reports.

Meanwhile, Abidin (2021) shows increased circulation services through automation systems such as speed in service, well-recorded loan information, and ease of performance for librarians and users. Information systems can provide some advantages. Information systems enable users to quickly and accurately get information. Users can also quickly finish tasks that a computer-based information system originally replaced. The system's convenience will leave a great impression on the library (Ratnasari & Jumino, 2016); (Inawati, 2019). Librarians also profit from it in addition to users (Noviana & Dewi, 2016). Nevertheless, implementing a system is never without its difficulties, such as expenses, human resources, etc.

Library systems generally make it easy for users to search for information by using the OPAC (Online Public Access Catalog), which offers online access to library collections via a computer. Users can search through keywords, titles, authors, subjects, etc. When a library system is able to provide users with the information they need, it might be considered to be of good quality (Pangestika & Dewi, 2018); (Rahmawati, 2018). In the context of this paper, searching through authors, titles, keywords, or subjects can be done precisely and quickly.

Based on the observations, it is confirmed that the Library of the Faculty of Psychology, Makassar State University, has been used Simpus and Promem as its information system supported by several units of computer equipment. The software is an information system designed in 2011 by the library with the help of computer science and programming experts. This software can operate properly like other library systems in conducting information searches by entering keywords, author names, subjects, etc. In this case, the study will conduct further research on the information system used in the library. The problem found in this observation is that most students who visit the library are still more dominant in searching for information manually rather than using a computer technology-based information system that the library manager has provided.

2. METHODS

In quantitative research, the approach, subject, and data source are all clearly defined from the outset of the study, indicating that the investigation will need to be properly planned once the preliminary work is over (Arikunto, 2006:13). The population in this study were active students at the Faculty of Psychology, State University of Makassar who were registered as members of 905 people using the accidental sampling to produce a sample of 90 respondents.

The PIECES analysis is an analytical method comprising six assessment indicators: Performance, Information, Economic, Control, Efficiency, and Service (Ragil, 2010). Furthermore, according to Wukil Ragil, the PIECES method is an analytical method for obtaining more specific issues. This analysis is a way to identify and solve problems that occur in a running system. This analysis was carried out to see the weaknesses in the system and to analyze the system's needs that will be developed using the six PIECES indicator approach (Asbar & Saptari, 2017). The information was gathered through online surveys, documentation, and observational techniques. Descriptive analysis, a quantitative approach, and investigation using the analytic methods of the PIECES will be used to investigate the data gathered.

3. RESULTS AND DISCUSSION

The manual, formulas, and assistance from the SPSS Statistics 21 tool were all used in the data analysis for this study. The distribution of questionnaires yielded the study's variable indicators, as described below.

1) Descriptive Analysis

a. Performance

Table 1. Performance indicator

No	Statement	SA	A	D	DA	SDA
1	Available menu and navigation options make it easy for users to access using programs	33,33%	63,33%	3,33%	-	-
2	The menu options and navigation provided can run easily and interactively	22,22%	66,67%	8,89%	2,22%	-
3	Instantly available menus Displays information following the existing menu	22,22%	66,67%	8,89%	2,22%	-
4	Easy order cancellation instructions are available when needed	17,78%	53,33%	23,33%	5,56%	-

b. Information

Table 2. Information Indicator

No	Statement	SA	A	D	DA	SDA
1	The system does not require complicated input data	16,67%	58,89%	22,22%	2,22%	-
2	The information provided has a high degree of accuracy	16,67%	54,44%	21,11%	7,78%	-
3	The output is accessible to read	20%	56,67%	23,33%	-	-
4	The system provides relevant information	19,89%	67,78%	10%	3,33%	-

c. Economic

Table 3. Economic indicator

No	Statement	SA	A	D	DA	SDA
1	Program according to needs	23,33%	64,44%	12,22%	-	-
2	The system saves operational costs	15,56%	58,89%	23,33%	4,44%	-
3	The system maintenance is quite affordable	16,67%	62,22%	20%	1,11%	-
4	The system provides a variety advantage for the organization	20%	65,56%	13,33%	1,11%	-

d. Control

Table 4. Control indicator

No	Statement	SA	A	D	DA	SDA
1	Program never experienced error when used	8,89%	26,67%	42,22%	20%	2,22%
2	The program is free from viruses	5,56%	33,33%	55,56%	4,44%	1,11%
3	The data search process is fast	22,22%	65,56%	11,11%	1,11%	-
4	Existing data cannot be changed by the user (data security is guaranteed)	20%	52,22%	24,44%	3,33%	-

e. Efficiency

Table 5. Efficiency indicator

No	Statement	SA	A	D	DA	SDA
1	The system accelerates the completion of work (time efficiency)	8,89%	26,67%	42,22%	20%	2,22%
2	By using the program work becomes easier resolved (energy and mind efficiency)	5,56%	33,33%	55,56%	4,44%	1,11%
3	The system gives accurate results (target efficiency)	22,22%	65,56%	11,11%	1,11%	-
4	The program is easy to use	20%	52,22%	24,44%	3,33%	-

f. Service

Table 6. Service indicator

No	Statement	SA	A	D	DA	SDA
1	Manuals/operational guides can be learned easily	17,78%	62,22%	15,56%	4,44%	-
2	The system can be used easily	21,11%	66,67%	12,22%	-	-
3	Each menu can be accessed easily	17,78%	72,22%	8,89%	1,11%	-
4	Information can be accessed easily	20%	70%	8,89%	1,11%	-
5	Using the filter feature in searching library materials	20%	68,89%	7,78%	3,33%	
6	The system equipped system autocorrect (auto-correct) for each typed keyword	16,67%	57,78%	17,78%	4,44%	3,33%

2) PIECES Analysis

Based on the results of the questionnaire assessment on the use of the application, in measuring the quality level of Simpus and Promem as a library information system using a Likert scale, to obtain an average level of satisfaction using the formula:

$$\mathrm{RK} = \frac{JSK}{JK}$$

RK = Average satisfaction
JSK = Total questionnaire score
JK = Number of questionnaires

Meanwhile, to determine the level of the library system quality, the study uses Kaplan

and Norton' model with the following groups:

Table 7. Quality level

Range Score	Level
1 - 1,79	Very low
1,8 - 2,59	Low
2,6 - 3,39	Medium
3,4 - 4,91	High
4,2 – 5	Very high

The steps in looking at the quality level of Simpus and Promem are as follows:

a. Performance

Table 7. Performance indicator

	Performance				
Statement	**SA**	**A**	**D**	**DA**	**SDA**
Score	**5**	**4**	**3**	**2**	**1**
P1	30	57	3	0	0
P2	20	60	8	2	0
P3	20	60	8	2	0
P4	16	48	21	5	0
Counts	86	305	40	9	0

$$\boldsymbol{RK} = \frac{(5*86)+(4*305)+(3*40)+(2*9)+(1*0)}{360}$$

$$\boldsymbol{RK} = \frac{\mathbf{1788}}{\mathbf{360}} = \mathbf{4.96}$$

Based on the results of calculating the average number of quality levels, a value of 4.96 is obtained on the performance indicator, and when combined with the quality level according to Kaplan and Norton, it can be concluded that the quality level according to users of the system is included in the category 'very high'. So this indicates that the user is delighted with the system's performance.

b. Information

Table 8. Information indicator

	Information				
Statement	**SA**	**A**	**D**	**DA**	**SDA**
Score	**5**	**4**	**3**	**2**	**1**
P1	15	53	20	2	0
P2	15	49	19	7	0
P3	18	51	21	0	0

P4	17	61	19	3	0
Counts	65	214	69	12	0

$$\boldsymbol{RK = \frac{(5*65)+(4*214)+(3*69)+(2*12)+(1*0)}{360}}$$

$$\boldsymbol{RK = \frac{1412}{360} = 3.92}$$

Based on the results of calculating the average number of satisfaction levels obtained a value of 3.92 on the information indicator, and when combined with the level of satisfaction according to Kaplan and Norton, it can be concluded that the level of user satisfaction with the system is included in the category 'high'. So this indicates that the user is satisfied with the data processed up to the information generated by the system.

c. Economic

Table 9. Economic indicator

	Economic				
Statement	**SA**	**A**	**D**	**DA**	**SDA**
Score	**5**	**4**	**3**	**2**	**1**
P1	21	58	11	0	0
P2	14	53	19	4	0
P3	15	56	18	1	0
P4	18	59	12	1	0
Counts	68	226	60	6	0

$$\boldsymbol{RK = \frac{(5*68)+(4*226)+(3*60)+(2*6)+(1*0)}{360}}$$

$$\boldsymbol{RK = \frac{1436}{360} = 3.98}$$

Based on the results of calculating the average number of satisfaction levels obtained a value of 3.98 on the economic indicator and when combined with the level of satisfaction according to Kaplan and Norton, it can be concluded that the level of user satisfaction with the system is included in the category 'high'. So this shows that the user is satisfied with the system's economic value.

d. Control

Table 10. Control indicator

	Control				
Statement	**SA**	**A**	**D**	**DA**	**SDA**
Score	**5**	**4**	**3**	**2**	**1**
P1	8	24	38	18	2
P2	5	30	50	4	1
P3	20	59	10	1	0
P4	18	47	22	3	0
Counts	51	160	120	26	3

$$\boldsymbol{RK = \frac{(5 * 51) + (4 * 160) + (3 * 120) + (2 * 26) + (1 * 3)}{360}}$$

$$\boldsymbol{RK = \frac{1360}{360} = 3.78}$$

Based on the calculation of the average number of satisfaction levels, which yielded a value of 3.78 on the control indicator, along with the level of satisfaction as determined by Kaplan and Norton, it can be said that system users are generally satisfied to high levels. Therefore, this indicates that the user is content with system control and security.

e. Efficiency

Table 11. Efficiency indicator

	Efficiency				
Statement	**SA**	**A**	**D**	**DA**	**SDA**
Score	**5**	**4**	**3**	**2**	**1**
P1	17	62	11	0	0
P2	12	60	17	1	0
P3	14	54	18	4	0
P4	14	58	16	2	0
Counts	57	234	62	6	0

$$\boldsymbol{RK = \frac{(5 * 57) + (4 * 234) + (3 * 62) + (2 * 7) + (1 * 0)}{360}}$$

$$\boldsymbol{RK = \frac{1421}{360} = 3.94}$$

Based on the results of calculating the average number of satisfaction levels, a value of 3.94 is obtained on the efficiency indicator and when combined with the level of satisfaction according to Kaplan and Norton, it can be concluded that the level of user satisfaction with the system is included in the category 'high'. So this indicates that the user is satisfied with the level of system efficiency.

f. Service

Table 11. Service indicator

	Service				
Statement	**SA**	**A**	**D**	**DA**	**SDA**
Score	**5**	**4**	**3**	**2**	**1**
P1	16	56	14	4	0
P2	19	60	11	0	0
P3	16	65	8	1	0
P4	18	63	8	1	0
P5	18	62	7	3	0
P6	15	52	16	4	3
Counts	102	358	64	13	3

$$\boldsymbol{RK = \frac{(5 * 102) + (4 * 358) + (3 * 64) + (2 * 13) + (1 * 3)}{540}}$$

$$\boldsymbol{RK = \frac{2163}{540} = 4.00}$$

It can be deduced that the level of user satisfaction with the system falls under the 'high' category based on calculations that determined the average number of satisfaction levels obtained a value of 4.0 on the service indicator when combined with the level of satisfaction as determined by Kaplan and Norton. Therefore, this shows that the user is satisfied with the service offered by the system.

According to the results of calculating the average number of satisfaction levels, which gave the control indicator a value of 3.78, and combined with the level of satisfaction determined by Kaplan and Norton, it can be concluded that users of the system are very satisfied with it. Simpus and Promem need to be reviewed, even though the control indication has a value of 3.78 overall, which is the lowest value when compared to other indicators..

4. CONCLUSION

Based on the 90 respondents who were students at the Faculty of Psychology, Makassar State University, and analysis of the level of quality or satisfaction of users on Simpus and Promem as library information systems, it can be concluded into several parts, namely: based on the PIECES framework analysis method in measuring the level of quality or satisfaction of each indicator i.e. Performance obtained a score of 4.96 (very high), Information received a score of 3.92 (high), Economic obtained a score of 3.98 (high), Control got a score of 3.78 (high), Efficiency obtained a score of 3.94 (high), and Service received a score of 4.0 (high). Based on the quality level analysis according to Kaplan and Norton, if calculated from the six indicators, Simpus and Promem are in the high category. Simpus and Promem have some advantages, but they still need to be developed and improved to make up for the flaws and shortcomings discovered in the library.

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