Quality Analysis of Dapodik Application Systems in the Department of Education in the City of Palembang Using Delone and Mclean Methods

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Abstract

The Dapodik application is a web-based data collection application that is one of the main sources in the formulation of government policies. In the Dapodik application, there are several data that are managed including school data, infrastructure, students, teachers and education staff. The data or information generated, is influenced by the quality of the Dapodik application itself. Therefore, this study aims to conduct a quality analysis of the Dapodik application system using the Delone and Mclean methods. This research is a quantitative descriptive study. The research used the Delone and Mclean Method which contained 6 variables, namely: 1. System Quality (KS), 2. Quality of Information (KI), 3. Quality of Service (TOS), 4. Usage (P), 5. User Satisfaction (KP), 6. Net Benefit (MB).

I. Introduction

The development of information and communication technology is something that cannot be avoided by all aspects of people's lives. Currently, information technology has been widely used to support business processes in various agencies. Modernization of information and communication technology as a supporter of business processes also has an impact on the progress of an organization (Mega Arianto, 2017). The national education planning program is an important part in the process of realizing the national education development strategic plan (Mega Arianto, 2017). To achieve the national education development strategic plan, various education data collection information systems are used to meet the need for education data, such as Dapodik (Data Principal Education). With the Dapodik application, which is mandatory, it is hoped that every school can easily and orderly collect educational data. In addition, this dapodik application will make it easier for the Ministry of National Education to determine policies based on the data obtained (Mega Arianto, 2017). Communication is the process of delivering messages by someone to other people to tell, change attitudes, opinions or behavior either directly orally or indirectly through the media. In this communication requires a reciprocal relationship between the delivery of messages and recipients namely communicators and communicants (Hasbullah, et al: 2018).

Dapodik is a data collection system managed by the Ministry of Education and Culture that contains data on education units, students, educators and education staff, and educational substance whose data is sourced from educational units which are continuously updated online so that Dapodik becomes a scale data collection system. integrated national education which is the main data source for national education (Cyntia Meok, 2019). Almost all schools in Indonesia have used the Dapodik Application to assist in the data

collection process for students, assist in the allocation of school operational assistance funds according to the number of students in an agency, provide quota allocations for receiving allowances for teachers who have met the requirements, as well as assistance with facilities and infrastructure. infrastructure for schools, submission and improvement of school institutional data (Cyntia Meok, 2019).

To support the success of government programs, each region will implement according to the policies implemented. One of them is the Education Office for the Palembang City area, South Sumatra, which is a government agency that is responsible for all matters relating to education in the region. In charge of carrying out the government affairs of Palembang City in the field of education based on the principle of autonomy and assistance tasks, as well as carrying out other tasks related to education given by the Mayor / Regent in accordance with their field of duty (Lila Setiyani, 2020). Based on data from the Education Office of the City of Palembang, that the Dapodik application has been used at the elementary level, there are 383 schools. There are 249 public elementary schools and 134 private schools. At the junior high school level, there are 206 schools which are divided into 62 public junior high schools and 144 private schools. At the high school level, there are 118 schools consisting of 24 public high schools and 94 private schools. Also, there are 80 vocational schools consisting of 9 public vocational schools and 71 private schools.

The Dapodik application not only helps the data collection process more quickly and accurately but also helps to make the system more organized. However, there are still many weaknesses of this dapodik application, including incomplete data, discrepancies between the input data and the actual situation, if too many people access this application, the server goes down. Not only that, the service quality of the Dapodik application needs to be measured based on user convenience, information quality and interaction service quality to increase the effectiveness and efficiency of the application.

The following are some previous studies that have been carried out and have relevance to this research. These previous studies include (Maria, 2021) with the title "Analysis of the Quality of the Jambi Samsat Website Using the Delone and Mclean Method" which discusses the weaknesses of the Jambi Samsat website. Based on the results obtained from 50 respondents, 82% of them stated that the Samsat Jambi website was less attractive in terms of interface and there were menu errors. The researcher analyzed the success rate of the Jambi Samsat website using the Delone and Mclean methods and found out the independent variables (quality of the system, quality of information, quality of services provided) on the dependent variable (usage, user satisfaction, net benefits) using the SEM method and SmartPLS software. . This study resulted in 7 accepted hypotheses from 9 proposed.

Meanwhile (Deny & Johanes, 2018) conducted a study entitled "Measurement of E-Learning Success by Adopting the Delone & Mclean Model". This study aims to measure the success of e-learning adopted by universities in North Jakarta. In addition, this study wants to test the success model of the updated Delone and Mclean information system (2003) in the case of e-learning. The analysis was carried out using SEM with the help of Lisrel 8.7 software which tested 8 hypotheses. From this study it was found that the Delone and Mclean models cannot be used to explain the causes of the success of the e-learning system whose use is mandatory, but further research needs to be done to get a better level of generalization.

This study uses the Delone and Mclean model. The Delone and Mclean method is a research model developed to measure the success of an information system based on research conducted by Delone and Mclean (Hidayatullah et al., 2002). The Delone and

Mclean method has 6 variables, namely system quality, information quality, service quality, usage, user satisfaction, and net benefits (Deny, 2018).

Based on the description of the background and research literature above, researchers are interested in conducting research with the title "Analysis of the Quality of the Dapodik Application System at the Palembang City Education Office Using the Delone and Mclean Method" to help analyze the Dapodik Application which is measured based on system quality, information quality, quality service, usage, user satisfaction and net benefits as input to the Palembang City Education Office to improve the existing system and become quality and useful information for users of the information. This type of research is quantitative analysis which is an analysis of data related to numerical data. The data collection technique used in this research is by distributing questionnaires.

II. Research Method

The time of this research was carried out in December 2021. The research location was carried out at the Palembang City Education Office on Jl. Scouts, Srijaya, Kec. Width Reeds, Palembang City, South Sumatra 30151.

The method used in this research is quantitative analysis. The data collection technique used in this study is by distributing questionnaires indirectly through social media by utilizing the Google Form feature. While the sampling technique used in this research is simple random sampling technique. The respondent criteria addressed in this study are junior high school operators.

III. Result and Discussion

3.1 Research Results

The results of this study were to measure the effectiveness of the use of the dapodik data collection system. There are six variables in this method, namely system quality, information quality, service quality, user satisfaction, users, net benefits.

3.2 Test Research Instruments
a. Validity Test

Validity test is usually used to test or measure the validity or invalidity of the questionnaire. If the questions in the questionnaire can or can reveal something that will be measured by the questionnaire, then the questionnaire can be said to be effective (Sunyoto, 2010). Knowing the structural validity of a tool or measuring instrument is to correlate the scores or scores obtained on each question. The significance test is carried out by comparing the calculated R with R table with degrees of freedom (df) = n-2, in this case n is the number of samples. In this study, the number of samples (n) = 70, and the number of df can be calculated as $70 - 2 = 68$. The significance of the product of 5% is shown in table r, and the number rtable = 0.575. Then calculate and compare the value of r obtained from table r with the results of r calculations. If the calculation results in the table r < r, then the statement is valid. The following table shows the correlation of the results of the validity test.

Table 1. System Quality Variable Validity Test Results

		KS1	KS2	KS3	KS4	TOTAL_KS
Correlations						
KS1	Pearson Correlation	1	.649**	.497**	.215	.724**
	Sig. (2-tailed)		.000	.000	.074	.000
	N	70	70	70	70	70
KS2	Pearson Correlation	.649**	1	.629**	.230	.756**
	Sig. (2-tailed)	.000		.000	.056	.000
	N	70	70	70	70	70
KS3	Pearson Correlation	.497**	.629**	1	.266*	.754**
	Sig. (2-tailed)	.000	.000		.026	.000
	N	70	70	70	70	70
KS4	Pearson Correlation	.215	.230	.266*	1	.711**
	Sig. (2-tailed)	.074	.056	.026		.000
	N	70	70	70	70	70
TOTAL_KS	Pearson Correlation	.724**	.756**	.754**	.711**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	70	70	70	70	70
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

Source: SPSS V25,2022 output output

Based on the table above, it can be concluded that all System Quality variables have high scores, and this value indicates that statement 4 is valid, because the value of r table is 0.01982 with an r value > r table.

Table 2. Information Quality Variable Validity Test Results

		KI1	KI2	KI3	KI4	KI5	KI6	KI7	TOTAL_KI
Correlations									
KI1	Pearson Correlation	1	.374**	.470**	.523**	.506**	.657**	.289*	.755**
	Sig. (2-tailed)		.001	.000	.000	.000	.000	.015	.000
	N	70	70	70	70	70	70	70	70
KI2	Pearson Correlation	.374**	1	.095	.142	.179	.379**	.302*	.512**
	Sig. (2-tailed)	.001		.434	.241	.138	.001	.011	.000
	N	70	70	70	70	70	70	70	70
KI3	Pearson Correlation	.470**	.095	1	.644**	.807**	.515**	.499**	.781**
	Sig. (2-tailed)	.000	.434		.000	.000	.000	.000	.000
	N	70	70	70	70	70	70	70	70

KI4	Pearson Correlation	.523**	.142	.644**	1	.608**	.498**	.370**	.729**
	Sig. (2-tailed)	.000	.241	.000		.000	.000	.002	.000
	N	70	70	70	70	70	70	70	70
KI5	Pearson Correlation	.506**	.179	.807**	.608**	1	.515**	.585**	.816**
	Sig. (2-tailed)	.000	.138	.000	.000		.000	.000	.000
	N	70	70	70	70	70	70	70	70
KI6	Pearson Correlation	.657**	.379**	.515**	.498**	.515**	1	.455**	.794**
	Sig. (2-tailed)	.000	.001	.000	.000	.000		.000	.000
	N	70	70	70	70	70	70	70	70
KI7	Pearson Correlation	.289*	.302*	.499**	.370**	.585**	.455**	1	.692**
	Sig. (2-tailed)	.015	.011	.000	.002	.000	.000		.000
	N	70	70	70	70	70	70	70	70
TOTAL_KI	Pearson Correlation	.755**	.512**	.781**	.729**	.816**	.794**	.692**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	
	N	70	70	70	70	70	70	70	70
**. Correlation is significant at the 0.01 level (2-tailed).									
*. Correlation is significant at the 0.05 level (2-tailed).									

Source: SPSS V25,2022 output output

Based on the table above, it can be concluded that all Information Quality variables have high scores, and this value indicates that statement 7 is valid, because the value of r table is 0.01982 with an r value > r table.

Table 3. Service Quality Variable Validity Test

Correlations				
		KL1	KL2	TOTAL_KL
KL1	Pearson Correlation	1	.719**	.726**
	Sig. (2-tailed)		.000	.000
	N	70	70	70
KL2	Pearson Correlation	.719**	1	.719**
	Sig. (2-tailed)	.000		.000
	N	70	70	70
TOTAL_KL	Pearson Correlation	.726**	.719**	1
	Sig. (2-tailed)	.000	.000	
	N	70	70	70
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: SPSS V25,2022 output output

Based on the table above, it can be concluded that all Service Quality Variables have high scores, and this value indicates that statement 2 is valid, because the value of r table is 0.01982 with r value > r table.

Table 4. Use Validity Test Results

Correlations		P1	P2	TOTAL_P
P1	Pearson Correlation	1	.500**	.900**
	Sig. (2-tailed)		.000	.000
	N	70	70	70
P2	Pearson Correlation	.500**	1	.828**
	Sig. (2-tailed)	.000		.000
	N	70	70	70
TOTAL_P	Pearson Correlation	.900**	.828**	1
	Sig. (2-tailed)	.000	.000	
	N	70	70	70
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: SPSS V25,2022 output output

Based on the table above, it can be concluded that all Usage Variables have high scores, and this value indicates that statement 2 is valid, because the value of r table is 0.01982 with a value of r arithmetic > r table.

Table 5. User Satisfaction Validity Test Results

Correlations		KP1	KP2	KP3	TOTAL_KP
KP1	Pearson Correlation	1	.753**	.437**	.873**
	Sig. (2-tailed)		.000	.000	.000
	N	70	70	70	70
KP2	Pearson Correlation	.753**	1	.513**	.891**
	Sig. (2-tailed)	.000		.000	.000
	N	70	70	70	70
KP3	Pearson Correlation	.437**	.513**	1	.766**
	Sig. (2-tailed)	.000	.000		.000
	N	70	70	70	70
TOTAL_KP	Pearson Correlation	.873**	.891**	.766**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	70	70	70	70
**. Correlation is significant at the 0.01 level (2-tailed).					

Source: SPSS V25,2022 output output

Based on the table above, it can be concluded that all User Satisfaction variables have high scores, and this value indicates that statement 3 is valid, because the value of r table is 0.01982 with an r value > r table.

Table 6. Net Benefit Variable Validity Test Results

Correlations		MB1	MB2	MB3	TOTAL_MB
MB1	Pearson Correlation	1	.538**	.420**	.816**
	Sig. (2-tailed)		.000	.000	.000
	N	70	70	70	70

MB2	Pearson Correlation	.538**	1	.359**	.783**
	Sig. (2-tailed)	.000		.002	.000
	N	70	70	70	70
MB3	Pearson Correlation	.420**	.359**	1	.773**
	Sig. (2-tailed)	.000	.002		.000
	N	70	70	70	70
TOTAL_MB	Pearson Correlation	.816**	.783**	.773**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	70	70	70	70
**. Correlation is significant at the 0.01 level (2-tailed).					

Source: SPSS V25,2022 output output

Based on the table above, it can be concluded that all Price Value variables have high scores, and this value indicates that statement 3 is valid, because the value of r table is 0.01982 with an r value > r table.

b. Reliability Test

The reliability test is used to find out how far the measurement or assessment can give results that are not said to be different if the same subject is re-measured, or the reliability test is a criterion for the level of stability or consistency of a measuring instrument (questionnaire). This test was carried out using the Cronbach's Alpha method.

Table 7. System Quality Variable Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.660	4

Source: SPSS V25,2022output output

Table 8. Information Quality Variable Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.803	8

Source: SPSS V25,2022 output output

Table 9. Service Quality Variable Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.539	3

Source: SPSS V25,2022 output output

***Table 10.** Use of Variable Reliability Test Results*

Reliability Statistics	
Cronbach's Alpha	N of Items
.778	3

Source: SPSS V25,2022 output output

Table 11. User Satisfaction Variable Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.843	4

Source: SPSS V25,2022 output output

Table 12. Net Benefit Variable Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.821	4

Source: output SPSS V25,2022

Based on the results of the above calculations, the results of the reliability test in this study all variables were declared reliable because the System Quality variable had a Cronbach Alpha value of 0.660. The results of the reliability test in this study were all variables declared reliable because the Information Quality variable had a Cronbach Alpha value of 0.803, test results reliability in this study, all variables were declared reliable because the Service Quality variable had a Cronbach Alpha value of 0.539. The results of the reliability test in this study were all variables declared reliable because the use variable had a Cronbach Alpha value of 0.778. The results of the reliability test in this study all variables were declared reliable because User Satisfaction variable has a Cronbach Alpha value of 0.843, The reliability test results in this study all variables are declared reliable because the Net Benefits variable has a Cronbach Alpha value of 0.821.

c. Classical Assumption Test

The normality test is used to see the distribution of the data on the variables used in the study, regardless of whether the data is feasible for analysis. Seeing the results of the analysis of the average normality of respondents' answers used as data. In research, you can check the results of the spread of data (points) on the diagonal axis of the graph or by looking at the graph of the residuals, you can see whether the data (dots) are spread out or not. The basis of the decision is around the diagonal and along the diagonal, or the host graph presents a normal distribution. Mode, the regression model meets the assumption of normality. In this study, the table below can be seen:
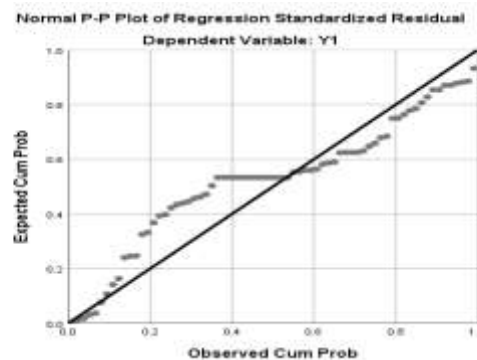

Figure 1. Source: SPSS V25,2022 output output

By looking at the histogram or normal graph above, it can be concluded that the histogram gives a normal distribution pattern (not far from the diagonal). Because if the diagonal does not follow the direction of the diagonal line or does not show a normal distribution pattern, then the regression does not meet the assumption of normality.

3.3 Discussion

After the researchers distributed the questionnaires and got the results, the researchers processed the data obtained. Before discussing the test results, the researcher will conduct a recapitulation of the results of the questionnaire to obtain measurements to strengthen the test results. The results of the recapitulation of respondents' answers in the questionnaire obtained can be seen in the table below:

Table 13

Variable	Code	Statement	SS	S		RR	TS	STS
System Quality (KS)	KS 1	Dapodik application is easy to understand and operate	20	47		2	1	0
	KS 2	The Dapodik application can serve my information needs without any problems	15	52		3	0	0
	KS 3	I don't have to wait long to get information after accessing the Dapodik App	21	47		2	0	0
	KS 4	I can access the Dapodik Application anywhere as long as there is internet either through a smartphone or a computer	14	41		2	13	0
Information quality (KI)	KI 1	I got complete information on the Dapodik Application	21	40		8	1	0
	K1 2	The information I'm looking for and getting from the Dapodik Application fits my needs	19	43		6	1	1
	KI 3	The information I get from the Dapodik App is unambiguous and error-free	12	47		9	2	0
	KI 4	The information I get from the Dapodik Application is always up to date	9	52		7	2	0
	KI 5	I easily understand the information presented on the Dapodik Application	14	47		8	1	0
	KI 6	I feel safe in accessing the information I need on the Dapodik Application	20	44		4	2	0

Varia ble	Code	Statement	SS	S		RR	TS	STS
		because the information can be accounted for						
		I can contact the App manager when there is a problem	15	49		4	1	1
Service quality (KL)	KL 1	The Dapodik application provides useful and adequate information for my needs	16	47		6	1	0
	KL 2	The Dapodik application displays information according to what I need quickly and precisely	14	51		4	1	0
Use (P)	P 1	In a week, I often access the Dapodik Application	12	35		13	10	0
	P 2	I often access the Dapodik Application to get information according to my needs	18	43		6	3	0
User satisfa ction (KP)	KP 1	I am satisfied that the Dapodik application helps in finding the information I need quickly	17	48		4	1	0
		I am satisfied with the information presented by the Dapodik Application as expected to meet my needs	14	51		5	0	0
	KP 2	I am satisfied with the quality and service provided by the Dapodik Application	17	47		5	1	0
Net Benef it (MB)		Dapodik application improve my knowledge	19	43		7	1	0
	MB 1	The Dapodik application allows me to easily share the information I get	21	43		5	1	0
	MB 2	The Dapodik application reduces the time I spend looking for information.	16	42		7	1	1

a. Discussion of Descriptive Statistics

The results of the research will be presented by looking at the condition of the respondents in responding to the questionnaires that have been distributed. To see the tendency of respondents' answers to each variable, it will be based on the range of answer scores as attached in the questionnaire. If included in the range of score category values, the average score can be categorized as follows:

Score Min = 1

$$\text{Range } sK = \frac{5-1}{4} = 1$$

Score Max = 5

Table 14. Category Range

Skor	Information
1.00 – 2.00	Very bad
2.01 – 3.00	Bad
3.01 – 4.00	Currently
4.01 – 5.00	Well

Below is a table of descriptive statistics on the questionnaire recapitulation.

Table 15

	N	Min	Max	Mean	Std. Deviation	Information
			Descriptive Statistics			
			System Quality			
KS 1	70	2	5	4.23	.569	Good
KS 2	70	3	5	4.17	.481	Good
KS 3	70	3	5	4.20	.604	Good
KS 4	70	2	5	3.80	.972	fair
			Information quality			
KI 1	70	2	5	4.16	.673	Good
Ki 2	70	1	5	4.11	.733	Good
KI 3	70	2	5	3.99	.648	Fair
KI 5	70	2	5	4.06	.611	Good
KI 6	70	2	5	4.17	.659	Good
KI 7	70	1	5	4.09	.676	Good
			Service Quality			
KL 1	70	1	5	4.10	.663	Good
KL 2	70	2	5	4.11	.553	Good
			Use			
P 1	70	2	5	3.70	.922	Fair
P 2	70	2	5	4.09	.717	Good
			User Satisfaction			
KP 1	70	1	5	4.14	.643	Good
KP 2	70	3	5	4.13	.509	Good
KP 3	70	2	5	4.14	.597	Good
			Net Benefits			

MB 1	70	2	5	4.14	.643	Good
MB 2	70	2	5	4.20	.628	Good
MB 3	70	1	5	4.06	.720	Good
Valid N (Listwis)	70					

From the results of the descriptive statistical table above, it can be seen that the maximum value is 5, the minimum value is 1, and the mean and Std values are also obtained. deviation so that it can be concluded that the calculation results are if the result description is 'Good' then the application can be accepted by the user, if the result statement is 'Medium' then the application may or may not be accepted, if the result statement is 'Poor' or 'Very Bad' it means that the application is not acceptable to the user, so the application must be further improved in certain aspects.

IV. Conclusion

Based on the results of the analysis and discussion in the previous chapters, the following conclusions will be drawn:
1. From the results of the calculation of the answers to the distributed questionnaires, it can be concluded from the table that the number of respondents based on male sex is 30 respondents, while the number of female respondents is 40 respondents. Regarding the number of respondents by gender, it shows that most of the respondents in this study were respondents with female operators.
2. On the results and processing of each indicator of each variable such as System Quality, Information Quality, Service Quality, Usage, User Satisfaction, Net Benefits. almost all indicators get an average value of satisfaction or predicate "Good", so that all indicators that have received an average score or predicate "Good" must be maintained. Meanwhile, there are several indicators that get an average value or the predicate of "MEDIUM" with indicators KS 4, KL 3 and P 1.
3. The results of data processing from each of the indicators that exist in each of the variables contained in the Delone and Clean method to measure the level of satisfaction of application system users by comparing the expectations and reality of an information system, where all the variables in the Delone and Clean method mclean is included in the "GOOD" category

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