

## Evaluation of the Quality of Additional Employee Income using the McCall Method

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### Abstract

The use of information technology is a basic need for an organization. Additional Quality of Employee Income ( TPP ) in an agency is very important as a medium for conveying information in every employee activity at the Padang Panjang PUPR Service Office. The quality of the TPP will be known after an evaluation is carried out. The quality of the TPP is included in the good or bad category. TPP quality testing is an important thing to determine the quality of human resources . One way to test quality is to use the McCall method . The McCall method is a method for measuring the quality of TPP implemented at the Padang Panjang PUPR Service Office. This research was carried out by filling out a questionnaire using the PHPMySQL programming language using the McCall method. This evaluation activity is used to measure the attitudes, opinions and perceptions of a person or group of people about an event. The results of this research also show that the results of the evaluation carried out produced a percentage on a scale of 81% - 100% = 84% and were categorized as Good. By carrying out this quality evaluation.

Keywords : McCall Method, Evaluation , Quality, Earnings, Perception .

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method of measuring system quality, namely McCall's theory [4].

### 1. Introduction

Service is an agency within a government which is tasked with carrying out regional government affairs in the field of public works and spatial planning in accordance with applicable laws and regulations, which is the authority of the region and assistance tasks assigned to the region. The Padang Panjang PUPR Service, in its daily activities, uses several systems as tools to assist in activities or storage of important agency data. One of the systems used by the PUPR Service Office is TPP (Additional Employee Income). This TPP functions to assist PUPR Service Office employees in calculating the realization of civil servant data, providing assessments to employees, and establishing annual work targets. It is very important to evaluate the quality of the TPP at the PUPR Service Office to find out the extent of the quality of the applications used so far, so that the quality of the system can be evaluated according to needs or not. Therefore, the evaluation was carried out using the McCall method.

The McCall method is a method used to assess system quality by paying attention to correctness , reliability, efficiency, integrity and usability [1][2][3]. This method is also used to measure software quality from the quality of the products created. and the results of the evaluation will show the quality of the TPP of the Padang Panjang PUPR Service Office using one

Evaluation is an important part of an organization for assessment. Evaluation is also defined as measuring the effectiveness of strategies used to achieve organizational goals [ 5] [6]. The aim is to assess technical capabilities for operational implementation and utilization. And by carrying out an evaluation to determine how well the system is running [7].

Quality does not only emphasize the final result, namely products and services, but also concerns human quality, process quality and environmental quality. In producing quality products and services through quality people and processes [ 8][9][10].

The assessment system uses several stages in completing the assessment[ 11], namely:

1. Determine the criteria used to measure a factor.
2. Determine the weight (w) based on importance.
3. Determine the criteria value scale.
4. Enter a value for each criterion.
5. Calculate the total value using the formula in the equation.
6. Then the Quality Factor value is changed to a percentage (%).

The quality of the McCall model is a basic model that can assess software by dividing McCall's quality factors [ 12], which can be seen in Table 1

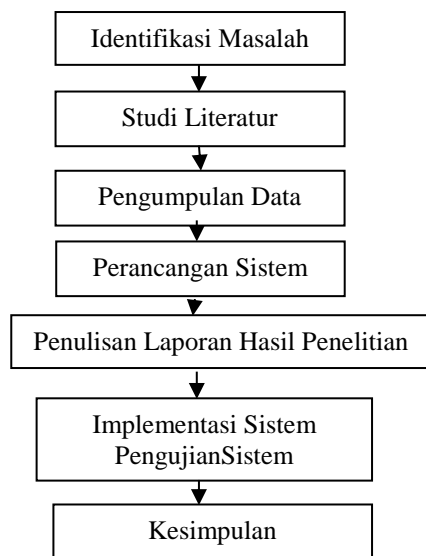
Table 1. McCall Quality Table

Scope	Quality Factor
Product Operations	Correctness
	Reliability
	Usability efficiency
	Integrity
Product Revision	Maintainability
	Flexibility
	Testability
Product Transitions	Portability
	Reusability
	Interoperability

By evaluating the quality of the TPP using the McCall method, it can help the Head of the PUPR Department and Padang Panjang PUPR employees to find out the quality of the system they use so that other users can develop systems based on the results of quality testing.

## 2. Research methodology

Research framework. This framework is the steps that will be taken in solving the problem that will be discussed. The framework for this research is in Figure 1:



Picture 1 Research Framework

Research stages are a sequence of processes or steps that will be carried out in completing this research. The stages of this research are as follows:

### 1. Identification of problems

Problem identification is the first step in conducting research. The research was carried out at the Padang Panjang PUPR Service Office. Aims to help evaluate the quality of the TPP using the McCall method at the Padang Panjang PUPR Service Office with the *PHP programming language and MySql database*.

### 2. Data collection

At this stage what is done is to design the architecture of the decision support system that will be built. In this

architectural design, it will be determined what objects are needed and how they are related. The objects of this decision support system architecture are *knowledge, database, inference engine, user interface, explanation facilities and user*.

### 3. Planning

At this stage, what is done is designing the system that will be run using UML as a tool in explaining the flow of program analysis. UML ( *Unified Modeling Language* ) is one of the most reliable tools in the world of object-oriented system development .

### 4. Analysis

Research analysis is a series of methods/activities for carrying out research based on scientific steps that are arranged systematically *and* logically *so* that they can be used as clear and easy guidelines for solving a problem. In evaluating the quality of TPP using the MCALL method. Collecting data about system operations, system equipment, system control, as well as input and output used by the system is carried out by means of observation , interviews and questionnaires .

### 5. Implementation System

At this stage, what is done is implementation, which is the stage of putting the system in place so that it is ready to be operated and run. Explain the system that was designed and how to use it. And began to prepare a questionnaire for the results of the TPP quality evaluation at the Padang Panjang PUPR Service Office in accordance with the questionnaire assessment standards.

## 3. Results and Discussion

In carrying out this research, data was collected by interviewing members and employees of the Padang Panjang PUPR Service office and distributing questionnaires to system users. To obtain appropriate data and information regarding measuring the quality of a system, which has several indicators as benchmarks for carrying out measurements.

Determining the criteria value can be done by first converting the questionnaire filling into a Likert scale as shown in Table 1. Then dividing by the number of respondents. The search criteria values are as follows:

Table 2 . Criterion value

No	Indicator	Statement	Weight	Criterion Value
1	Correctness (Accuracy)	a. Completeness (Completeness)	0.4	4.33
		1. This application is capable carry out data processing (data display)		
		2. The features contained in this	0.4	3.83

No	Indicator	Statement	Weight	Criterion Value	No	Indicator	Statement	Weight	Criterion Value				
2	Usability (Usability) 0.3	system are all functional			5	Efficiency 0.2	this system is accurate and error-free						
		<i>b. Consistency</i> (Consistency)					20. Users can get the information they need in a timely manner	0.4	3.55				
		3. The features and table design on each page are the same	0.2	3.61			<i>b. Error Tolerance</i> (Error Tolerance)						
		4. The features and design of the forms and buttons on each page are the same	0.2	4.00			21. Access to applications and data cannot be used by parties who are not entitled to use them	0.4	4.61				
		5. The language used is consistent on each page	0.3	3.88			<i>a. Simplicity</i> (simplicity)	0.3	3.16				
		6. The form and structure of data processing reporting are the same	0.2	3.83			22. The information in this system is easy to understand without any difficulty						
		<i>c. Traceability</i> (Tracking)					23. The menu in this system can be easily understood without any difficulty	0.3	3.38				
		7. Can track data import	0.4	3.72			<i>a. Execution Efficiency</i> (Ease of Execution)	0.3	3.72				
		<i>a. Communicativeness</i> (Communicative)	0.4	4.18			24. The service menu functions and data are in accordance with needs						
		8. The language used is easy to understand	0.4	3.88			25. The function of the content in the system is to accommodate the delivery of all information regarding the TPP Information System Quality Evaluation	0.4	3.77				
		9. The writing on each page can be read clearly	0.4	3.83									
		10. The function of each button is clear	0.4	3.83									
		<i>b. Operability</i>											
		11. The menu options and buttons on the system are easy to use	0.4	3.83									
		12. Users easily understand the existing coding system	0.4	3.44									
		<i>c. Training</i> (Training)											
		13. There is a hint service provided by the system to help new users	0.4	4.00									
		3	Integrity (Integrity) 0.3	<i>a. Security</i> (Security)					<p>The quality factor (Fa) value is the stage of finding the value of each sub-indicator and indicator, which will later produce a value and percentage. The formula used to find the value of each sub-indicator is:</p> $Fa = w1c1 + w2c2 + w3c3 + \dots + wncn$ <p>Where :</p> <p>Fa: total value of factors</p> <p>w : weight of each interest</p> <p>c : value of the average matrix (criterion value)</p> <p>The calculation of each quality factor is carried out as follows:</p> <p><i>Correctness</i></p> <p><i>Completeness</i></p>				
				14. The login process can run correctly and as expected			0.3	3.72					
15. This application can control user access by limiting access rights	0.4			4.66									
4	Reliability (Reliability) 0.3	<i>a. Accuracy</i>											
		16. This application is easy to enter the input required by the system	0.4	3.33									
		17. This application can display the right data according to the user's needs precisely according to the keywords being searched for	0.4	3.88									
		18. This application provides data and information that suits user needs precisely	0.3	3.83									
		19. Information from	0.4	3.16									

$$= (w1c1) + (w2c2) = (0.4 * 4.33) + (0.4 * 3.83) = 1.73 + 1.53 = 3.26$$

Consistent y

$$\begin{aligned} &= (w3c3) + (w4c4) + (w5c5) + (w6c6) \\ &= (0.2 * 3.61) + (0.2 * 4.00) \\ &\quad + (0.3 * 3.88) + (0.2 * 3.83) \\ &= 0.72 + 0.80 + 1.16 + 0.76 \\ &= 3.44 \end{aligned}$$

Traceability

$$= w7c7 = 0.4 * 3.72 = 1.48$$

So the value of Fa1 is solved in the following way :

Fa1

$$\begin{aligned} &= \frac{\text{Completeness} + \text{Consistency} + \text{Traceability}}{3} \\ &= \frac{3.26 + 3.44 + 1.48}{3} = 2.72 \end{aligned}$$

From the results obtained from the calculations, the quality factor value is converted into a percentage using the equation:

$$\begin{aligned} \text{Persentase} &= \frac{\text{Nilai yang didapat}}{\text{Nilai Maksimum}} \times 100\% \\ &= \frac{2.72}{5} \times 100\% = 54\% \end{aligned}$$

Usability

Communicativeness

$$\begin{aligned} &= (w1c1) + (w2c2) + (w3c3) = (1.4 * 4.18) + \\ &\quad (0.4 * 3.88) + (0.4 * 3.83) = 1.67 + 1.55 + 1.53 = \\ &4.75 \end{aligned}$$

Operability

$$\begin{aligned} &= (w4c4) + (w5c5) = (0.4 * 3.83) + (0.4 * 3.44) \\ &= 1.53 + 1.37 = 2.87 \end{aligned}$$

Training

$$= (w6 * c6) = 0.4 * 4.00 = 1.60$$

So the value of Fa2 is solved in the following way :

$$\begin{aligned} \text{Fa2} &= \frac{\text{Communicativeness} + \text{Accuracy} + \text{Simplicity}}{3} = \\ &\frac{4.73 + 2.87 + 1.60}{3} = 3.06 \end{aligned}$$

From the results obtained from the calculations, the quality factor value is converted into a percentage using the equation:

$$\begin{aligned} \text{Persentase} &= \frac{\text{Nilai yang didapat}}{\text{Nilai Maksimum}} \times 100\% = \\ &\frac{3.06}{5} \times 100\% = 61\% \end{aligned}$$

Integrity

Security

$$\begin{aligned} &= (w1c1) + (w2c2) = (0.3 * 3.72) + (0.4 * 4.66) \\ &= 1.11 + 1.86 = 2.97 \end{aligned}$$

So the value of Fa3 is solved in the following way :

$$\text{Fa3} = \frac{\text{Security}}{1} = \frac{2.54}{1} = 2.97$$

From the results obtained from the calculations, the quality factor value is converted into a percentage using the equation:

$$\begin{aligned} \text{Persentase} &= \frac{\text{Nilai yang didapat}}{\text{Nilai Maksimum}} \times 100\% = \\ &\frac{2.97}{5} \times 100\% = 59\% \end{aligned}$$

Reliability

Accurac y

$$\begin{aligned} &= (w1c1) + (w2c2) + (w3c3) + (w4c4) + \\ &\quad (w5c5) = (0.4 * 3.33) + (0.4 * 3.88) + (0.3 * \\ &\quad 3.83) + (0.4 * 3.16) + (0.4 * 3.55) = 1.33 + 1.55 + \\ &\quad 1.49 + 1.27 + 1.42 = 7.06 \end{aligned}$$

Error Tolerance

$$= (w6c6) = (0.4 * 4.61) = 1.84$$

Simplicity

$$\begin{aligned} &= (w7c7) + (w8c8) = (0.3 * 3.16) + (0.3 * 3.38) \\ &= 0.94 + 1.01 = 1.95 \end{aligned}$$

So the value of Fa4 is solved in the following way :

$$\begin{aligned} \text{Fa4} &= \frac{\text{Accuracy} + \text{Error Tolerancy} + \text{Simplicity}}{3} = \\ &\frac{7.06 + 1.84 + 1.95}{3} = 3.61 \end{aligned}$$

From the results obtained from the calculations, the quality factor value is converted into a percentage using the equation:

$$\begin{aligned} \text{Persentase} &= \frac{\text{Nilai yang didapat}}{\text{Nilai Maksimum}} \times 100\% = \\ &\frac{3.61}{5} \times 100\% = 72\% \end{aligned}$$

efficiency

Execution Efficiency

$$= (w1c1) + (w2c2) = (0.3 * 3.72) + (0.4 * 3.77) \\ = 1.11 + 1.50 = 2.61$$

So the value of Fa5 is solved in the following way :

$$Fa5 = \frac{Execution\ Efficiency}{1} = \frac{2.61}{1} = 2.61$$

From the results obtained from the calculations, the quality factor value is converted into a percentage using the equation:

$$Persentase = \frac{Nilai\ yang\ didapat}{Nilai\ Maksimum} \times 100\% = \\ \frac{2.61}{5} \times 100\% = 52\%$$

functionality aspect of the questionnaire results obtained from the 18 respondents was calculated using the following formula

$$Persentase\ Fungsionalitas = \\ \frac{Nilai\ yang\ didapat}{Nilai\ Maksimum} \times 100\%$$

So, the calculation of the percentage of functionality is like this:

$$\Sigma = \frac{(0,3 * Fa1) + (0,3 * Fa2) + (0,3 * Fa3) + (0,2 * Fa4) + (0,2 * Fa5)}{Nilai\ Maksimum} \times 100\% \\ = \frac{(0,3 * 2,72) + (0,3 * 3,06) + (0,3 * 2,97) + (0,3 * 3,61) + (0,2 * 2,61)}{5} \times 100\% \\ = \frac{0,816 + 0,918 + 0,891 + 1,083 + 0,522}{5} \times 100\% \\ = \frac{4,23}{5} \times 100\% = 84\%$$

The percentage results above are then compared with the *Likert scale* , which is a scale used to measure the attitudes, opinions and perceptions of a person or group of people about an event. Grouping the percentage levels according to categories . So it can be concluded that the total TPP Quality is at a level between 81% - 100% = 84% and is included in the GOOD category.

### 3.1 Implementation

Implementation is a process to ensure the implementation of a policy and the achievement of the policy. It can also be interpreted as implementation or application. System Implementation is a process for putting new information into operation.

### 1. Page Login

login page functions as a user login page, where the user must log in by filling in the username, password and level. If the login is successful the user will enter a website page with the words welcoming admin or respondent. The login page is as shown below:



Figure 2. Login page

### 2. Indicator Contents Page

indicator contents page is a page that contains a display used to input new indicator data, which is accessed by the admin. Where is the indicator contents page can be seen as in the image below This:

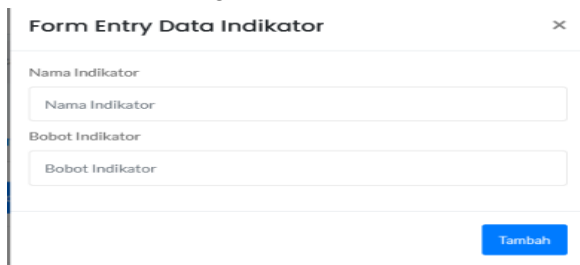


Figure 3. Indicator Contents Page

### 3. Question Contents Page

The question content page is a page that contains a display used to input new questions, which is accessed by the admin. Where is the question content page can be seen as in the image below This:



Figure 4 . Question Contents Page .

#### 4. Index Page

The index page is a page that contains a display of the entire process. This display contains input from indicator data, indicator types, question data, respondent data and the McCall process, which is used to display data that will be processed using the McCall method.

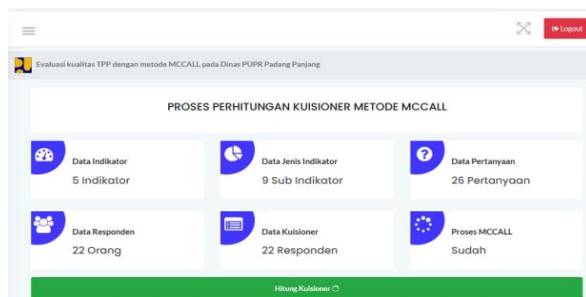


Figure 5 . Index Page .

#### 5. Calculation Page

The calculation page is a page that contains a display that is used to display data calculations that are processed using the MCCALL method. To find out the quality of TPP for agencies.

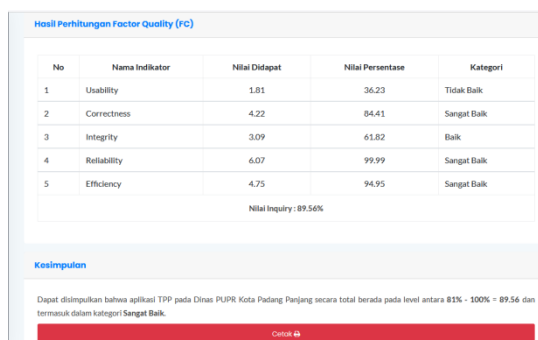


Figure 6 . Calculation Page .

#### 4. Conclusion

Based on the results of evaluations carried out using McCall factors, the quality of the TPP at the Padang Panjang PUPR Service Office in increasing the reality of civil servant activities, employee assessment and annual work targets is included in the GOOD category. By assessing the quality of the TPP using the McCall method which was built with the PHP programming language and the database used was Mysql. Can help employees find out the results of TPP quality evaluations.

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