



Employee Assessment Applications Using the Graphic Rating Scale and Profile Matching Methods at XYZ University

Kukuh Ujianto⁽¹⁾, Indra Gita Anugrah⁽²⁾

Universitas Muhammadiyah Gresik, Indonesia

E-mail: ⁽¹⁾kukuh_170602@umg.ac.id; ⁽²⁾indragitaanugrah@umg.ac.id

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Abstract

Performance appraisal is an evaluation and assessment carried out to employees to find out what their abilities are and measure productivity during work. XYZ University has an employee performance appraisal which is conducted annually to determine employee promotions. The assessment process is still using the manual method and using the Graphic Rating Scale method. Graphic Rating Scale is a performance appraisal method in which an employee is assessed based on criteria that are considered important and relevant to performance and productivity. To determine a promotion, the Graphic Rating Scale method cannot do it because it takes standard values, core factors and secondary factors that are used as standards to determine promotions. Therefore, In this employee appraisal application there is a combined method used to assist the assessment process, namely the Graphic Rating Scale method and the Profile Matching method. The Profile Matching method is used because there are standard values, core factors and secondary factors that can be used as standards to determine promotions. The results of this study are on testing the Graphic Rating Scale method with the combined method of Graphic Rating Scale and Profile Matching, the combined method of Graphic Rating Scale and Profile Matching has a higher average accuracy of 78,18%, while the Graphic Rating Scale method has an average accuracy of 68,45%.

Keywords: Assessment, Employees, Graphic Rating Scale, Profile Matching

Introduction

Employee performance appraisal is carried out to maintain the quality of human resources (HR) so that an institution, company or organization can maintain the quality of its services so that it remains good. In conducting the assessment, important and relevant criteria are needed for the performance and productivity of an employee, for example attitude, work quality, discipline, etc.

Employee performance appraisal at XYZ University is carried out once a year. So far, the assessment is done by giving a paper form to the appraiser. In the assessment, the Graphic Rating Scale method is used, which is a method

that is able to process assessment data from quantitative data that is converted into qualitative data (Sugiyono, 2017), for example a value of 1 for very poor, 2 for poor, 3 for good and 4 for very good. In this assessment there is an Institutional Standard Value (NSL), which is a standard value that has been set by XYZ University of 700 and an Institutional Work Unit Achievement Average (RNPUKL), which is the average value of each work unit. This assessment is carried out to determine promotions based on employee rank, the Graphic Rating Scale method cannot do it because it takes factors that determine the promotion.

Because of the problems above, an

application for a employee performance appraisal was made for XYZ University. This application uses a combined method of Graphic Rating Scale and Profile Matching, this method is combined so that NSL and RNPUL from XYZ University can be integrated with the calculation of the Profile Matching method and the Profile Matching method can complement the deficiency of the Graphic Rating Scale method. In the case of selecting the best candidate, the use of the Profile Matching method is expected to provide a maximum decision in determining the best candidate among other candidates (Abidin, et al., 2019).

The benefits of this employee performance appraisal application are to facilitate the assessment so that the appraiser can assess it through the application without going through paper forms and help determine employees who are recommended to be promoted through appropriate assessments. The result is a ranking of employees.

Materials and Methods

Performance comes from the notion of performance. There is also a definition of performance as the result of work or work performance. However, actually performance has a broader meaning, not only the results of work, but including how the work process takes place (Anisah, 2017). There are four elements contained in the performance are the results of work functions, factors that affect employee performance, achievement of organizational goals, and a certain period of time (Tika, 2006). Performance is a description of the extent to which the organization's success or failure in carrying out its main tasks and functions in order to realize its goals, objectives, vision and mission. In other words, performance is an achievement that can be achieved by the organization within a certain period (Aprizal, 2018). To find out the results of work or work performance, it is necessary to conduct a performance assessment.

Performance appraisal is evaluating the current and or past performance of employees relative to their performance standards. There are three steps in the performance appraisal process, namely: setting performance standards, assessing employees' actual performance relative

to standards and providing feedback to employees (Saihudin, 2019). The purpose of a performance appraisal system is to measure and quantitatively assess the achievement of organizational goals and tasks (Putri, 2017). Performance appraisal is part of the company's activities in evaluating employee performance behavior and setting policies for the next employee career path (Rosadi & Taufik, 2019). A decision support system is needed to help make decisions in determining employee career paths.

Decision Support System can be regarded as a computer-based information system that combines data and models to solve semi-structured and unstructured problems with broad user involvement (Pattiasina & Sukanti, 2015). Semi-structured problems appear as routine problems but the available SOPs have not been able to overcome or provide solutions to these problems. Unstructured problems are problems that arise relatively recently and are not routine and repetitive so that there is no clear procedure for solving these problems (Limbong, et al., 2020). So, the decision support system is used to assist decision making in semi-structured situations and unstructured situations, where no one knows for sure how decisions should be made (Sanyoto, et al., 2017).

The method used in this research is the Graphic Rating Scale and Profile Matching. In the Graphic Rating Scale method, the steps that must be carried out are determining the criteria and their weights, determining sub-criteria, determining the type of appraiser, determining the assessment period, determining the appraiser and the employee to be assessed and conducting an appraisal of the employee.

In the Profile Matching method, the steps taken are determining the core factor (main factor) and secondary factor (supporting factor) from the predetermined sub-criteria, mapping the gap, weighting the gap (if the employee value is close to the standard value, the value of the weight is greater), calculation and grouping of Core Factor (NCF) and Secondary Factor (NSF) values, calculation of employee achievement values (NPP), calculation of performance values (NK) and ranking of employees based on performance values. Incorporating the Graphic Rating Scale and Profile Matching methods when calculating the performance value (NK).

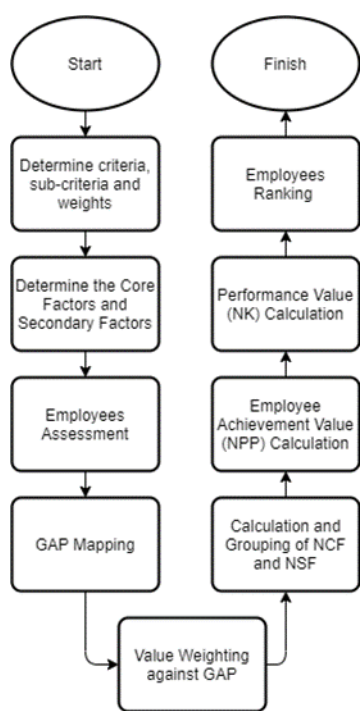


Figure 1. Research Diagram

Figure 1 is a flow chart of the Graphic Rating Scale and Profile Matching that will be used in this study.

The Graphic Rating Scales method is one of the methods used in evaluating employee performance. This method is included in the method that is easy to develop and easy to modify if it is necessary to change the criteria that become the assessment material (Permana, et al., 2016). Rating scales are more flexible, not only to measure attitudes but can also be used to measure respondents' perceptions of environmental phenomena, such as scales to measure social status, economy, knowledge, abilities, and others (Darmanto, et al., 2016).

Profile Matching is one of the decision support methods, the method is used to provide information related to candidate assessment by ranking candidates and providing output in the form of values with predetermined weights, in providing an assessment there are several assessment criteria that will be grouped into secondary factors (supporting factors) and core factor (main factor) (Abidin, et al., 2019). Core factor (main factor), which is the most important or prominent criteria (competence) or most needed by an assessment that is expected to obtain optimal results, while secondary factors (supporting factors), which are items other than those in the core factor. Or in other words,

it is a supporting factor that is less needed by an assessment (Jumadi, et al., 2015). In the Profile Matching process, broadly speaking, it is a process of comparing individual competencies into position competencies so that differences in competence (also called gaps) can be seen. The smaller the resulting gap, the greater the value weight means that it has a greater opportunity for employees to occupy the position (Sherly, 2013). Gap Analysis is a measurement method to find out the gap between the performance of a variable and consumer expectations of that variable (Sari, 2018).

The following are several stages and the formulation of calculations using the Graphic Rating Scale and Profile Matching methods.

1. Determine the criteria, sub-criteria assessment and weights.
2. Determine the core and secondary factors.
3. Conducting Employee Assessment.
4. GAP mapping calculations. At this stage, the value of a GAP will be determined, where the GAP is obtained based on the Equation (1) : $GAP = Employee Value - Standard Value \dots (1)$
5. Weighting. After obtaining the value of the GAP, each aspect is given a predetermined weight.
6. Calculation and grouping of core and secondary factors. Each sub-criteria is grouped into two groups, core factor and secondary factor, core factor calculation can be done by the Equation (2):

$$NCF = \Sigma NC / \Sigma IC \dots (2)$$

Information:

NCF = Average value of core factor
 ΣNC = Total number of core factor values
 ΣIC = Number of core factor items

As for the secondary factor calculation can be done with the Equation (3):

$$NSF = \Sigma NS / \Sigma IS \dots (3)$$

Information:

NSF = Average value of secondary factor
 ΣNS = Total number of secondary factor values
 ΣIS = Number of secondary factor items

7. Calculation of Criteria Value. The criteria value is calculated based on the percentage of core and secondary factors, which can be calculated by the Equation (4):

$$\text{Criteria Value} = (X)\% \text{ NCF} + (X)\% \text{ NSF} \dots (4)$$

Information:

NCF = Average value of core factor

NSF = Average value of secondary factor

(X)% = percent value entered

8. Calculation of Employee Achievement Value (NPP). NPP can be calculated by Equation (5):

$$= (b\% \times A) + (b\% \times B) + (b\% \times C)$$

$$+ (b\% \times D) + (b\% \times E) \dots (5)$$

Information:

b% = Percentage of weight

A,B,C,D,E = Criteria value

9. Calculation of Performance Value (NK). Before calculating NK, first calculate RNPUKL.

$$RNPUKL = \frac{\sum NPP}{\sum Pegawai} \dots (6)$$

NK can be calculated by the formula:

$$NK = \frac{NSL \times NPP}{RNPUKL} \dots (7)$$

Information:

RNPUKL = Average value of the institution's work unit

NPP = Total employee value in 1 form

Employees = Number of employees in 1 form

NSL = Institution standard value (700)

10. Employee Ranking. After NK is known, ranking is based on NK

Result and Discussion

This chapter discusses the implementation of employee assessment using the Graphic Rating Scale and Profile Matching methods.

Determination of Criteria and Sub Criteria

Table 1, 2, 3 are tables of assessment forms based on existing provisions at XYZ University. There are 3 forms below, form 1 for Echelon IB, IIA, IIB, III and IV, form 2 for Echelon V, and form 3 for Non-Structural Lecturers.

Table 1. Determination of Criteria and Sub Criteria (Form 1)

Criteria	Code	Sub Criteria	Weight
Technical Aspect	A1	Accuracy: Assessment of the quality of work results when compared to targets	15%
	A2	Accuracy: Assessment of the elements of errors made in the implementation of work	
	A3	Speed: Assessment of the time to complete the given job	
Behavioral Aspect	B1	Obedience: Frequency of obedience in carrying out orders/ tasks	15%
	B2	Cooperation: Ability to build relationships with colleagues	
	B3	Loyalty: Putting the interests of the institution above personal interests	
	B4	Honesty: Not abusing the duties, position and name of the institution for personal gain	
Aspects of Employee Potential	C1	Intelligence: The ability to do work and understand problems at work	20%
	C2	Willingness to Learn: Desire to make improvements	
	C3	Creativity: Ability to provide alternative problem solving and development ideas	
Managerial Aspect	D1	Planning: Create, describe, determine the priority scale of work plans and arrange operational steps for their implementation	40%
	D2	Organizing: Coordinating subordinates and coordinating task alignment	
	D3	Leadership: Ability to make decisions, set an example and motivate subordinates	
	D4	Supervision: Supervise so as to detect problems	
Discipline Aspect	E1	Attendance : Frequency of arrival in weekdays	10%
	E2	Activity Participation : Frequency of participation in activities organized by Study Program	

Table 2. Determination of Criteria and Sub Criteria (Form 2)

Criteria	Code	Sub Criteria	Weight
Technical Aspect	A1	Service Accuracy: Assessment of the elements of errors made in the service	40%
	A2	Speed of Service: Assessment of the speed of service provided	
	A3	Service Accuracy: Conformity of service quality with expectations	
Behavioral Aspect	B1	Attitude: Behavior in providing services	25%
	B2	Appearance : Performance in physique	
	B3	Communication: Ability to communicate	
	B4	Honesty: Not abusing service duties for personal gain	
Aspects of Employee Potential	C1	Intelligence: The ability to master the service material	20%
	C2	Willingness to Learn: Desire to make improvements	
	C3	Skills: Skills in providing services	
Discipline Aspect	D1	Attendance : Frequency of arrival in weekdays	10%
	D2	Activity Participation: Frequency of participation in activities organized by the university	

Table 3. Determination of Criteria and Sub Criteria (Form 3)

Criteria	Code	Sub Criteria	Weight
Teaching Aspect	A1	Fulfillment of face-to-face lectures according to the lecture schedule	50%
	A2	Accuracy in submitting final semester exam scores	
	A3	The results of student feedback/assessment in teaching and learning activities	
Aspects of Research and Service	B1	Active in making scientific work	30%
	B2	Active in community service activities	
Discipline Aspect	C1	Frequency of arrivals in weekdays	20%
	C2	Participation in faculty internal activities	
	C3	Participation in university internal activities	

Determination of Core Factor and Secondary Factor

Sub-criteria that have been determined are classified into two, namely the main factor or the supporting factor. In this case there are 3 assessment forms, with different types of factors in each assessment form. The types of factors

Table 4. Classification of Main Factors and Supporting Factors (Form 1)

Criteria	Code	Factor Type	Weight
Technical Aspect	A1	Main	15%
	A2	Main	
	A3	Supporter	
Behavioral Aspect	B1	Main	15%
	B2	Supporter	
	B3	Supporter	
	B4	Main	
Aspects of Employee Potential	C1	Main	20%
	C2	Main	
	C3	Supporter	
Managerial Aspect	D1	Main	40%
	D2	Main	
	D3	Supporter	
	D4	Supporter	
Discipline Aspect	E1	Main	10%
	E2	Supporter	

Table 5. Classification of Main Factors and Supporting Factors (Form 2)

Criteria	Code	Factor Type	Weight
Technical Aspect	A1	Main	40%
	A2	Supporter	
	A3	Main	
Behavioral Aspect	B1	Main	25%
	B2	Supporter	
	B3	Main	
	B4	Main	
Aspects of Employee Potential	C1	Main	20%
	C2	Main	
	C3	Supporter	
Discipline Aspect	D1	Main	15%
	D2	Supporter	

Table 6. Classification of Main Factors and Supporting Factors (Form 3)

Criteria	Code	Factor Type	Weight
Teaching Aspect	A1	Main	50%
	A2	Supporter	
	A3	Main	
Aspects of Research and Service	B1	Main	30%
	B2	Supporter	
Discipline Aspect	C1	Main	20%
	C2	Supporter	
	C3	Supporter	

Table 7. Employee Assessment Results (Form 1)

No.	Employee Name	A			B				C			D				E	
		A1	A2	A3	B1	B2	B3	B4	C1	C2	C3	D1	D2	D3	D4	E1	E2
1	Kusuma Dewi, S.Si., M.Sc.	4	3	3	3	3	2	2	2	3	4	3	3	2	2	3	4
2	Firdaus Abdullah, S. Hum., M. Hum.	3	3	4	4	4	2	3	3	3	3	3	4	2	2	3	3
...
...
20	Citra Dewi, S.Pd., M.Pd.	3	3	3	2	4	3	3	2	3	3	2	4	3	3	3	4
21	Tirto Krisna, S.Pd., M.Pd.	4	3	3	2	2	3	2	2	4	3	3	2	3	3	4	2

Table 8. Employee Assessment Results (Form 2)

No.	Employee Name	A			B				C			D	
		A1	A2	A3	B1	B2	B3	B4	C1	C2	C3	D1	D2
1	Yuda Bagus, SE	4	4	3	3	3	2	2	2	3	4	3	4
2	Widya Sari, SH	3	4	3	2	3	3	4	3	2	1	2	4
...
...
7	Nur Widya, SE	3	3	2	3	3	4	2	2	3	4	4	3
8	Muhammad Agus, SE	4	3	3	2	3	2	4	3	2	2	1	4

Table 9. Employee Assessment Results (Form 3)

No.	Employee Name	A			B		C		
		A1	A2	A3	B1	B2	C1	C2	C3
1	Muhammad Wira, S. Kom., M. Kom.	3	4	4	3	3	1	3	2
2	Tirto Mega, S. Kom., M. Kom.	4	2	3	3	1	3	4	2
...
...
11	Yohanes Hidayat, S.Pd., M.Pd.	4	4	2	2	4	3	2	4
12	Ahmad Jusuf, S.Pd., M.Pd.	4	3	1	1	2	3	3	4

are different because each assessment form has its own standard for providing recommendations for promotion. Table 4, 5, 6 are classification table used.

Employee Rating

The next stage is the employee assessment, the employees who are assessed are XYZ university employees. Each assessment form has a different appraiser, the results of the scores from the appraisers are added up for each sub-criteria and then averaged. Table 7,8,9 are table of XYZ university employee assessment results.

In the Graphic Rating Scale method, a scale is used to determine the value of the employee's assessment. The scale used is a scale of 1 to 4, with information such as Table 10.

In the Profile Matching method, a standard value is needed to determine the GAP value. The standard value used is a score with a score of 3 or good. As in Table 10 with a yellow column.

GAP Mapping

Gap is the difference between the value obtained by the employee and the standard value that has been determined or can be shown in Equation:

Table 10. Rating Scale and Standard Profile

Score	Information
1	Very less
2	Less
3	Good
4	Very good

Table 11. Calculation of GAP (Form 1)

N o.	Employee Name	A			B				C			D				E	
		A1	A 2	A3	B 1	B 2	B 3	B4	C 1	C 2	C 3	D1	D 2	D 3	D4	E 1	E 2
1	Kusuma Dewi, S.Si., M.Sc.	4	3	3	3	3	2	2	2	3	4	3	3	2	2	3	4
2	Firdaus Abdullah, S. Hum., M. Hum.	3	3	4	4	4	2	3	3	3	3	3	4	2	2	3	3
...
...
20	Citra Dewi, S.Pd., M.Pd.	3	3	3	2	4	3	3	2	3	3	2	4	3	3	3	4
21	Tirto Krisna, S.Pd., M.Pd.	4	3	3	2	2	3	2	2	4	3	3	2	3	3	4	2
Standard Profile		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
1	Kusuma Dewi, S.Si., M.Sc.	1	0	0	0	0	-1	-1	0	0	1	0	0	-1	-1	0	1
2	Firdaus Abdullah, S. Hum., M. Hum.	0	0	1	1	1	-1	0	0	0	0	0	1	-1	-1	0	0
...
...
20	Citra Dewi, S.Pd., M.Pd.	0	0	0	-1	1	0	0	-1	0	0	-1	1	0	0	0	1
21	Tirto Krisna, S.Pd., M.Pd.	1	0	0	-1	-2	0	-1	-1	1	0	0	-1	0	0	1	-1

GAP = Employee Value – Standard Value

Table 12. GAP Weight

Tables 11, 12, 13 are a table of GAP between the results of employee assessments and the standard values that have been determined. The calculation of GAP as above also applies to form 2 and form 3.

GAP Value Weighting

At this stage the GAP value is converted into a weighted value. The following table is used to convert GAP values to weight values. In Table 11, the GAP calculation has been carried out on the employee assessment results, next is the conversion of GAP values to GAP weights. The conversion of GAP values to GAP weights as above also applies to form 2 and form 3.

GAP value	Information	GAP Weight
0	There is no difference between the value of the employee and the value of the standard profile	5
1	Employee Value 1 Point Higher Than Standard Profile Score	4.5
-1	Employee Value is 1 Point Lower Than Standard Profile Score	4
2	Employee Value is 2 Points Higher Than Standard Profile Score	3.5
-2	Employee Value is 2 Points Lower Than Standard Profile Score	3
3	Employee Value is 3 Points Higher Than Standard Profile Score	2.5
-3	Employee Value is 3 Points Lower Than Standard Profile Score	2
4	Employee Value is 4 Points Higher Than Standard Profile Score	1.5
-4	Employee Value is 4 Points Lower Than Standard Profile Score	1

Calculation of NCF and NSF

After the conversion of GAP value weights, then the calculation of NCF, NSF and criteria

Table 13. Conversion of GAP Values to GAP Weights (Form 1)

No.	Employee Name	A			B				C			D				E	
		A1	A2	A3	B1	B2	B3	B4	C1	C2	C3	D1	D2	D3	D4	E1	E2
1	Kusuma Dewi, S.Si., M.Sc.	4.5	5	5	5	5	4	4	5	5	4.5	5	5	4	4	5	4.5
2	Firdaus Abdullah, S. Hum., M. Hum.	5	5	4.5	4.5	4.5	4	5	5	5	5	5	4.5	4	4	5	5
...
...
20	Citra Dewi, S.Pd., M.Pd.	5	5	5	4	4.5	5	5	4	5	5	4	4.5	5	5	5	4.5
21	Tirto Krisna, S.Pd., M.Pd.	4.5	5	5	4	3	5	4	4	4.5	5	5	4	5	5	4.5	4

values is then carried out. NCF is obtained from the average value of the sub-criteria (blue color) while the NSF is obtained from the average value of the sub-criteria (yellow color) and the criteria value is obtained from the sum of 70% NCF and 30% NSF. Shown in Table 14. Here is an example of the calculation.

NCF (Kusuma Dewi)

$$= \frac{A1 + A2}{2} = \frac{4,5 + 5}{2} = 4,75$$

NSF (Kusuma Dewi)

$$= \frac{A3}{1} = \frac{5}{1} = 5$$

Criteria Value A (Kusuma Dewi)

$$= (70\% \times NCF) + (30\% \times NSF)$$

$$= (70\% \times 4,75) + (30\% \times 5) = 4,825$$

There are three assessment forms with different types of factors in this calculation. The calculation of NCF and NSF as above also applies to form 2 and form 3 by taking into account the main factors and supporting factors.

Calculation of Employee Achievement Value (NPP)

After calculating the NCF, NSF and criteria values, the next step is to calculate the Employee Achievement Value (NPP) of each employee. NPP is obtained by calculating as below.

NPP (Kusuma Dewi)

$$= (15\% \times A) + (15\% \times B) + (20\% \times C) + (40\% \times D) + (10\% \times E)$$

$$= (15\% \times 4,825) + (15\% \times 4,5) + (20\% \times 4,5) + (40\% \times 4,7) + (10\% \times 4,85)$$

$$= 4,664$$

The percentage on the value of A, B, C, D and E is the weight on the criteria value. The calculation above also applies to form 2 and form 3 by taking into account the weights on the criteria values. Table 15 is a table of the results of the NPP calculation.

Calculation of Performance Value (NK)

After calculating the employee achievement value (NPP), the next step is to calculate the performance value (NK). In this calculation, the Graphic Rating Scale method from XYZ University is combined with the Profile Matching method. Before calculating NK, first calculate the Average Performance of Institutional Work Units (RNPUKL), then calculate NK as below.

RNPUKL (Table 15)

$$RNPUKL (PM) = \frac{\sum NPP}{\sum Employee} = \frac{98,244}{21} = 4,678$$

$\sum NPP$ is the number of NPP of all employees in Table 15 and $\sum Employee$ is the number of employees in Table 15. There are two RNPUKL in this study, first RNPUKL (GRS) whose NPP is from the Graphic Rating Scale method, the second is RNPUKL (PM) whose NPP is from the Profile Matching method, for example, as the calculation above.

NK (Kusuma Dewi)

$$= \frac{NSL \times NPP}{RNPUKL(PM)} = \frac{700 \times 4,664}{4,678} = 697,827$$

NSL is the Institutional Standard Value that has been set at XYZ University. The calculation above also applies to form 2 and form 3 by taking

Table 14. Calculation of NCF and NSF on Criteria A (Form 1)

No	Employee Name	A			NCF	NSF	Criteria Value A
		A1	A2	A3			
1	Kusuma Dewi, S.Si., M.Sc.	4.5	5	5	4.75	5	4,825
2	Firdaus Abdullah, S. Hum., M. Hum.	5	5	4.5	5	4.5	4.85
...
...
20	Citra Dewi, S.Pd., M.Pd.	5	5	5	5	5	5
21	Tirto Krisna, S.Pd., M.Pd.	4.5	5	5	4.75	5	4,825

Table 15. Calculation of NPP (Form 1)

No	Employee Name	A	B	C	D	E	NPP
1	Kusuma Dewi, S.Si., M.Sc.	4,825	4.5	4.5	4.7	4.85	4,664
2	Firdaus Abdullah, S. Hum., M. Hum.	4.85	4.6	5	4,525	5	4,728
3	Ali Jusuf, S. Sos, M. Sos.	4.85	4,925	4.7	4.3	4.65	4,591
4	Ratu Yuliana, SIP	4,825	4.85	4.35	4,675	4.85	4,676
5	Agung Bima, SS	4,825	4.1	4,475	4.65	5	4,594
6	Dian Citra, S. Hum.	4,825	5	4.15	4.6	5	4,644
7	Aminah Latifah, SIP	4,675	4.15	5	5	4.35	4,759
8	Idris Imran, S.SI.	5	4	5	4,775	4.85	4,745
9	Ridwan Rahman, S. Kom., M. Kom.	4.5	4.65	5	4.65	4.35	4,668
10	Iman Anwar, ST, MT	4.5	4.35	4.85	4.65	4.65	4,623
11	Mega Rose, SM, MM	4,825	4.175	4.65	4.65	4.65	4,605
12	Cahya Amir, S.Ak., M.Ak.	4.65	4.5	5	4,825	4.7	4,773
13	Intan Vina, S.Pd., M.Pd.	5	4.5	4,825	4.5	4.85	4,675
14	Darma Adi, S.Pd., M.Pd.	5	4,925	4.65	4.5	4.7	4,689
15	Mahmud Mansur, ST	4,675	4.65	5	4.85	4.3	4,769
16	Ali Daud, S. Kom., M. Kom.	4,675	4.5	4,825	5	4.05	4,746
17	Hidayat Kusuma, ST, MT	4.65	4,325	4.35	4,925	4.3	4,616
18	Anisa Kusuma, SM, MM	4.65	4.5	4.7	4,825	4.5	4,693
19	Raja Firdaus, S.Ak., M.Ak.	4,825	4.35	4.85	5	4.65	4,811
20	Citra Dewi, S.Pd., M.Pd.	5	4,575	4.65	4,475	4.85	4,641
21	Tirto Krisna, S.Pd., M.Pd.	4,825	4.15	4,475	4.65	4.35	4,536

into account Σ NPP and Σ Employees. Table 16 is a table of performance values (NK).

Ranking

After calculating the performance value (NK), then from the results of Table 16 values, ranking is carried out. Tables 18, 19, 20 is a table of employee rankings from three different forms. Based on the Tables 17, 18, 19, employees with NK scores above 700 on forms 1, 2 and 3 will be recommended for promotion. This is in accordance with the provisions at XYZ University.

System Implementation

Figure 2 is a display of the assessment form in the employee appraisal system. This assessment form is used by the appraiser to assess one employee or more than one employee. After the appraiser has assessed all employees, the employee ranking display will display an employee ranking order. Figure 3 is a display of employee rankings.

Table 16. Calculation of Performance Value (Form 1)

No	Employee Name	NPP	NK
1	Kusuma Dewi, S.Si., M.Sc.	4,664	697,827
2	Firdaus Abdullah, S. Hum., M. Hum.	4,728	707,366
3	Ali Jusuf, S. Sos, M. Sos.	4,591	686,979
4	Ratu Yuliana, SIP	4,676	699,697
5	Agung Bima, SS	4,594	687,353
6	Dian Citra, S. Hum.	4,644	694,834
7	Aminah Latifah, SIP	4,759	712,041
8	Idris Imran, S.SI.	4,745	709,984
9	Ridwan Rahman, S. Kom., M. Kom.	4,668	698,388
10	Iman Anwar, ST, MT	4,623	691,655
11	Mega Rose, SM, MM	4,605	689,036
12	Cahya Amir, S.Ak., M.Ak.	4,773	714,099
13	Intan Vina, S.Pd., M.Pd.	4,675	699,510
14	Darma Adi, S.Pd., M.Pd.	4,689	701,568
15	Mahmud Mansur, ST	4,769	713,538
16	Ali Daud, S. Kom., M. Kom.	4,746	710,171
17	Hidayat Kusuma, ST, MT	4,616	690,720
18	Anisa Kusuma, SM, MM	4,693	702,129
19	Raja Firdaus, S.Ak., M.Ak.	4,811	719,897
20	Citra Dewi, S.Pd., M.Pd.	4,641	694,460
21	Tirto Krisna, S.Pd., M.Pd.	4,536	678,749

Table 17. Ranking of Employees (Form 1)

No	Employee Name	NK	Rank
19	Raja Firdaus, S.Ak., M.Ak.	719,897	1
12	Cahaya Amir, S.Ak., M.Ak.	714,099	2
15	Mahmud Mansur, ST	713,538	3
7	Aminah Latifah, SIP	712,041	4
16	Ali Daud, S. Kom., M. Kom.	710,171	5
8	Idris Imran, S.SI	709,984	6
2	Firdaus Abdullah, S. Hum., M. Hum.	707,366	7
18	Anisa Kusuma, SM, MM	702.129	8
14	Darma Adi, S.Pd., M.Pd.	701.568	9
4	Ratu Yuliana, SIP	699,697	10
13	Intan Vina, S.Pd., M.Pd.	699,510	11
9	Ridwan Rahman, S. Kom., M. Kom.	698,388	12
1	Kusuma Dewi, S.Si., M.Sc.	697,827	13
6	Dian Citra, S. Hum.	694,834	14
20	Citra Dewi, S.Pd., M.Pd.	694,460	15
10	Iman Anwar, ST, MT	691,655	16
17	Hidayat Kusuma, ST, MT	690,720	17
11	Mega Rose, SM, MM	689,036	18
5	Agung Bima, SS	687,353	19
3	Ali Jusuf, S. Sos, M. Sos.	686,979	20
21	Tirto Krisna, S.Pd., M.Pd.	678,749	21

Table 18. Ranking of Employees (Form 2)

No	Employee Name	NK	Rank
1	Yuda Bagus, SE	718,025	1
3	Sri Intan, S. Sos	716,474	2
7	Nur Widya, SE	716,345	3
4	Widya Putri, SIP	713,890	4
2	Widya Sari, SH	703,166	5
6	Vina Purnama, SM	691,149	6
8	Muhammad Agus, SE	685.593	7
5	Rustam Firdaus, S. Sos	655,358	8

Table 19. Ranking of Employees (Form 3)

No	Employee Name	NK	Rank
8	Indah Mega, S.Ak., M.Ak.	751,894	1
2	Tirto Mega, S. Kom., M. Kom.	723,588	2
1	Muhammad Wira, S. Kom., M. Kom.	721,993	3
3	Dewi Cinta, ST, MT	710,033	4
7	Aditya Tirta, S.Ak., M.Ak.	707.243	5
5	Arif Wibowo, SM, MM	702,458	6
11	Yohanes Hidayat, S.Pd., M.Pd.	695,681	7
4	Asih Putri, ST, MT	688,505	8
6	Faisal Wibawa, SM, MM	687,708	9
9	Fatimah Intan, S.Pd., M.Pd.	684,120	10
10	Firdaus Imran, S.Pd., M.Pd.	682,924	11
12	Ahmad Jusuf, S.Pd., M.Pd.	643.854	12

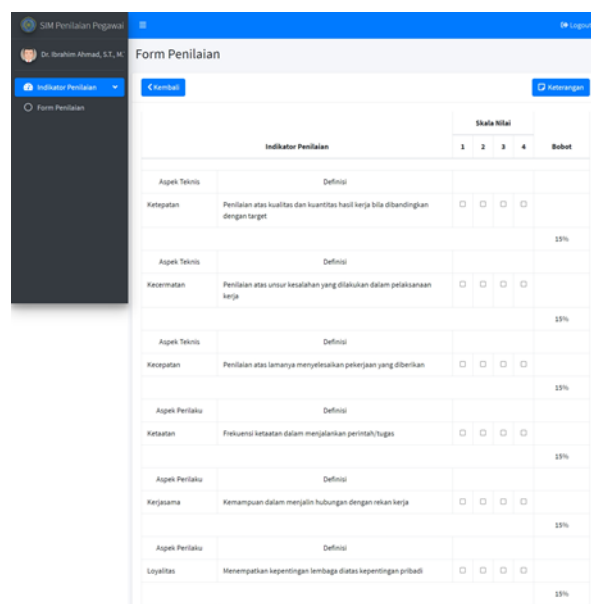


Figure 2. Display of the Assessment Form

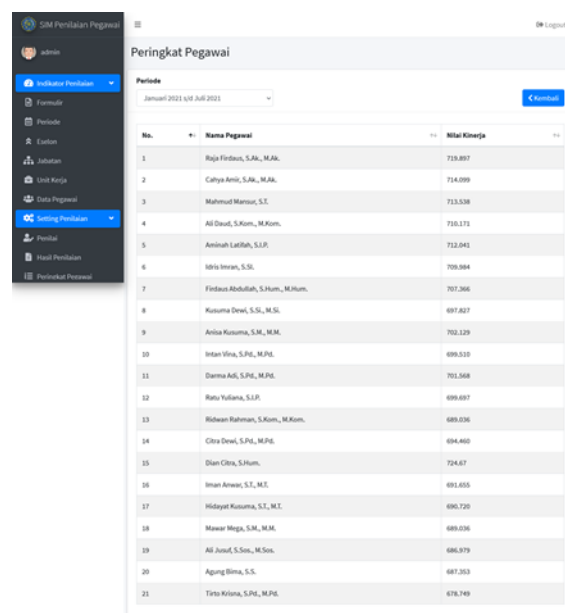


Figure 3. Display of Employee Rank

Comparison with the Graphic Rating Scale method

With the same values as table 7, the following are the results of the comparison of employee assessments using the Graphic Rating Scale method with the combined methods of the Graphic Rating Scale and Profile Matching. Based on the comparison on Table 20, each employee gets a different ranking on the results of the Graphic Rating Scale assessment with the Graphic Rating Scale and Profile Matching.

Testing

The test of the Graphic Rating Scale method

Table 20. Comparison of Graphic Rating Scale with Graphic Rating Scale and Profile Matching (Form 1)

No	Employee Name	GRS		GRS + PM	
		NK	Rank	NK	Rank
1	Kusuma Dewi, S.Si., M.Sc.	659,037	20	697,827	13
2	Firdaus Abdullah, S. Hum., M. Hum.	711,067	7	707,366	7
...
...
20	Citra Dewi, S.Pd., M.Pd.	711,067	10	694,460	15
21	Tirto Krisna, S.Pd., M.Pd.	669,443	18	678,749	21

with the combined method of Graphic Rating Scale and Profile Matching was carried out using the Confusion Matrix, with the Bureau of Human Resources (BSDM) as the examiner.

From Table 21 and 22, the Graphic Rating Scale assessment method gets an average accuracy of 68,45%, while the Graphic Rating Scale and Profile Matching assessment methods get an average accuracy of 78,18%. The Graphic Rating Scale and Profile Matching assessment methods have higher accuracy than the Graphic Rating Scale assessment methods.

Table 21. Testing Graphic Rating Scale Method

Form	Graphic Rating Scale				Accuracy
	TP	FP	FN	TN	
Form 1	6	5	7	3	42,86 %
Form 2	5	1	0	2	87,5 %
Form 3	3	2	0	7	75 %
Average					68,45 %

Table 22. Testing Graphic Rating Scale and Profile Matching Method

Form	Graphic Rating Scale and Profile Matching				Accuracy
	TP	FP	FN	TN	
Form 1	4	5	0	12	76,19 %
Form 2	3	2	0	3	75 %
Form 3	4	2	0	6	83,33 %
Average					78,18 %

Conclusion

Based on research, implementation and testing, the following conclusions can be drawn: (1) Assessment using the Graphic Rating Scale method, obtained different results from the assessment using the combined method of Graphic Rating Scale and Profile Matching, because in the Graphic Rating Scale assessment there were no standard values, core factors and secondary factors that became the standard in determining promotions. (2) On testing the Graphic Rating Scale method with the combined method of Graphic Rating Scale and Profile Matching, the combined method of Graphic Rating Scale and Profile Matching has a higher average accuracy of 78,18%, while the Graphic Rating Scale method has an average accuracy of 68,45%.

Suggestion

For further research, it can be tried to combine the Graphic Rating Scale with other decision support methods so that the level of accuracy can be known, whether it is better than the combined method of Graphic Rating Scale and Profile Matching.

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