



Assessment of Teacher Performance in SMK Informatika Bina Generasi using Electronic-Based Rating Scale and Weighted Product Methods to Determine the Best Teacher Performance

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Abstract: Teacher performance assessment is an assessment carried out on the main task activities as a teacher. The aim is to assess the performance of teachers in applying all competencies in the learning process, guidance to educational units and as a basis for planning continuous professional development for teachers. At SMK Informatika Bina Generasi, performance assessments were carried out on several teachers with the process of processing teacher performance appraisal data still semi-structured so it took time, tended to input data repeatedly and errors in data input, inefficient data storage resulted in a longer data search process. and the ongoing assessment has not supported decision-making on teacher performance assessments so that the school has difficulty determining achievement and evaluating teacher performance as a whole. The research method used is a qualitative research method by conducting literature studies, reviewing documents and interviews in determining teacher performance assessment instruments. The results obtained are a teacher performance appraisal system with an electronic-based rating scale method to assist schools and assessors in assessing teacher performance and obtaining teacher performance appraisal information more quickly, effectively and efficiently. In addition, this electronic-based teacher performance appraisal system is also equipped with the ability to rank all teacher performance using the weighted product method so that the best teacher performance is obtained.

Keywords: teacher performance assessment, rating scale method, electronic-based performance assessment, weighted product method

1. Introduction



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Human resources play a very important role in an organization because they are the resources used to mobilize and synergize other resources to achieve the goals of a company. In order to develop reliable human resources, it is necessary to manage the human resources of companies and organizations. Personnel management can be done through employee performance evaluation or performance evaluation[1].

Performance is the implementation of work, performance, and work results given by employees in accordance with their authority and responsibility to achieve organizational goals, such as existence, quantity, quality, effectiveness, and efficiency of objectives. However, teacher teaching performance is the ability of teachers to carry out work in accordance with predetermined goals[2]. Ideally, teacher performance assessment is based on actual performance, namely based on the main components through job analysis[3].

According to Sudarwan (2002: 168), one of the characteristics of the education crisis in Indonesia is that teachers cannot perform well because their performance appraisal is limited by certain substances. Develop and implement it based on the results of teacher performance assessments based on certain substances or components[4].

SMK Informatika Bina Generasi Bogor or better known as SMK IBG. SMK IBG was established in 2003 with a major in Multimedia and TKJ (Computer and Network Engineering). The total number of teachers working at the Bina Generasi Informatics Vocational School is 60 people, consisting of 3 different SMK locations. Currently, the process of processing teacher performance appraisal data is still semi-structured which can take a long time, prone to data entry errors and repeated data entry, data storage is inefficient, so that the decision-making process on the results of the performance assessment that has been carried out is very difficult in developing resources. humans in SMK Informatika Bina Generasi and it takes a long time.

The need for information that is used as the basis for decision making in every organization is increasingly needed. Therefore, more and more decision making today involves the use of computer technology[5]. Using technology in the teacher performance appraisal process is one of the more practical strategies for achieving results in teacher performance appraisal, as technology is no longer considered new. An assessment system with IT can be very helpful in the assessment process, so innovation is needed to create a web application-based teacher performance appraisal program. The use of technology as an improvement in assessment standards is an effort to reduce paper use and provide convenience in filling out the SMK teacher performance appraisal form. So that in this case the researchers also changed the electronic-based vocational teacher performance assessment system equipped with usage procedures, and usage guidelines for each instrument including pedagogic, professional, personality, and social competencies as well as other supporting competencies. With this electronic-based instrument, it is hoped that the assessment process can be carried out easily, quickly, and efficiently.

2. Materials and Method

The research method used is a qualitative research method by analyzing library sources related to teacher performance assessment, reviewing teacher performance appraisal documents





contained in SMK Informatika Bina Generasi and conducting interviews with the principal of SMK Informatika Bina Generasi. The data collection method in this study uses the main technique of documenting various information related to teacher performance assessments and methods that can be used in determining the best teacher performance and can be applied in electronic or web-based form. The data collected in this study from the literature, document review and interviews were analyzed qualitatively by taking into account the research objectives.

3. Results and Discussion

3.1. Determination of Teacher Performance Assessment Criteria

The rating scale method is known to be able to process rating data from quantitative data which is interpreted qualitatively, and the evaluator chooses one of the qualitative responses given. On a rating scale, researchers are asked to provide a simple and quick way to summarize observations that reflect past impressions that are included in the rating. The rating scale is more flexible and can be used to measure respondents' perceptions of environmental phenomena, such as: the scale of social status, economy, knowledge, and others[6].

There are several reasons why this method is widely used: a). This scale is easy to use and understand. b) This model can also be easily created and modified as needed. In this case, the rater uses a numerical scale starting from the lowest to the highest.

Qualitative data analysis method is a method of processing data in depth with data from observations, interviews, and literature. In this study, to determine the criteria for assessing teacher performance at SMK Informatika Bina Generasi, data collection was carried out through literature study and review of documents owned by SMK Informatika Bina Generasi related to teacher performance assessment. In addition, an interview process was carried out with the informant, who was the principal of the school. The interview process tries to understand the teacher performance appraisal process that has been carried out so far at SMK Informatika Bina Generasi.

Based on the results of the documentation study, a review of existing documents at SMK Informatika Bina Generasi and interviews with the principal of SMK Informatika Bina Generasi, it was determined that there were 40 teacher performance assessment items divided into 6 assessment criteria. The following is a table of criteria for assessing teacher performance:

Table 1. Teacher performance assessment criteria

Code	Criteria
C1	Pedagogic Competence
C2	Professional Competence
C3	Personal Competence
C4	Social Competence
C5	Additional Tasks
C6	Developing Professional Activities





From the criteria above, the points of the assessment indicators are determined. The following is a table of criteria and indicators for teacher performance assessment:

Table 2. Teacher performance assessment indicator points

No	Assessment Criteria & Indicators
Padagogic Competence	
1	Understanding insight or educational foundation
2	Implementation of educational and dialogical learning
3	Planning active, creative and innovative learning
4	Characteristics of students
5	Educational learning theory and principles of learning
6	Curriculum development
7	Educational learning
8	Development of the potential of students
9	How to communicate
10	Learning assessment and evaluation
Professional Competence	
11	Mastering the subject matter taught, along with the structure, concepts, and scientific mindset.
12	Mastering the Competency Standards (SK) lessons, Basic Competencies (KD) lessons, and learning objectives of a taught lesson.
13	Able to develop subject matter creatively so that it can provide knowledge more broadly and deeply for students.
14	Able to act reflectively for continuous professional development.
15	Able to utilize Information and Communication Technology in the learning process and also self-development.
16	Develop strategies, models, methods, techniques, and learning media
17	Conduct self-evaluation, reflection and competency development
Personal Competence	
18	Have a steady and stable personality, the indicators of which are acting in accordance with legal and social norms.
19	Have a mature personality, with the characteristics of displaying independence in acting as an educator who has a work ethic
20	Have a wise personality, which is shown by actions that are





	beneficial to students
21	Shows openness in thinking and acting
22	Have an authoritative personality
23	Have noble character and be an example
24	Have a sense of responsibility
25	Have emotional maturity
26	Have a firm attitude and don't scare
27	Have closeness with students
28	Have a stable personality, have a noble character, and can be a role model for students
Social Competence	
29	Able to communicate effectively, using polite and empathetic language.
30	Able to communicate both orally and in writing.
31	Able to adapt and carry out duties as a teacher in various environments with various socio-cultural characteristics of each.
Additional Tasks	
32	Become a Deputy Principal
33	Become a Class Teacher
34	Become an extracurricular builder
35	Carry out picket duties
36	Become a student council coach
Developing Professional Activities	
37	Conducting Classroom Action Research
38	Attending Education / Seminars, etc.
39	Using Information and Communication Technology
40	Improving Foreign Language Mastery

The following is a table of preference values or ranking scales (using the rating scale method) used in determining the weight of the assessment of the items or indicators of each criterion (a total of 40 items/indicators).

Table 3. Preference value

Preference Value	Description
1	Not enough
2	Enough
3	Good
4	Very good





3.2. Analysis of Determining the Best Gutu Performance with the Weighted Product Method

The weighted product method is a solution method using multiplication to connect attribute ratings, where the rating must be raised to the first power with the weight of the attribute in question. The following are the steps in the weighted product method[7]:

- 1) Initial weighting of each criterion.
- 2) Determine the criteria that are worth the benefits and costs. If it is profit, then the attribute value is positive and if it is cost, then the attribute value is negative.
- 3) Repair the weight of the initial weight value using the formula (1):

$$W_j = \frac{w_j}{\sum w_j}$$

- 4) Determine the vector value (S) using formula (2):

$$S_i = \prod_{j=1}^n X_{ij}^{W_j}$$

Description:

S : Alternative preferences are analogous to vector S

X : Criteria Value

W : Criteria weight or

sub-criteria I : Alternative

(where $i=1,2,\dots,n$) j :Criteria

n : Number of criteria

Meanwhile, $w_j = 1$ is a positive rank for the profit attribute, and a negative value for the cost attribute.

- 5) Determine the vector value (V) using formula (3).

$$V_i = \frac{S_i}{\prod_{j=1}^n (X_j^*)^{W_j}}$$

Description:

V : Alternative preferences are analogous to vector V

X : Criteria Value

W : Criteria Weight or subcriterion i : Alternative

j : Criteria

n : Number of criteria

• : The number of criteria that have been assessed on the vector S

After the above steps have been carried out, the largest value is sought. Because the greatest value is the best value of all alternatives

In the performance assessment, the teacher with the highest score can be made a recommendation from the principal as consideration when applying for an award or promotion.





The lowest teacher scores will provide recommendations to improve teacher professionalism. Improve performance in the form of seminars, instructions and consultations. With the available data, and by using the weighted product method as a solution to these problems.



Figure. 1 Example of an electronic-based teacher performance calculation with the best teacher ranking

The figure above shows the results of the calculation of the electronic-based teacher performance assessment in the form of a web application. From these results, it can be seen that the value of each teacher is based on the existing assessment criteria, namely cognitive competence, professional competence, personality competence, social competence, additional assignments and the development of professional activities. The results of the assessment then using the weighted product method a ranking process is carried out to determine the ranking of the best teachers.

4. Conclusion

Based on the teacher performance appraisal system that has been built, it can be concluded that this assessment system can help schools and assessors to assess teacher performance and obtain teacher performance appraisal information more quickly, effectively and efficiently. In addition, this teacher performance appraisal system has the ability to rank the results of the teacher's performance assessment so that it can assist in determining the best teacher performance in SMK Informatika Bina Generasi.

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