



Applying Profile Matching Methode to Determine The Best Employees in Educational Institutions

Veti Apriana¹, Imam Nawawi²

¹Accounting System Information, Engineering and Informatics , University of Bina Sarana Informatika, Jl. Kramat Raya No.98, Jakarta, 10450, Indonesia

²System Information, University of Bina Sarana Informatika, Jl. Kramat Raya No.98, Jakarta, 10450, Indonesia

E-mail: veti.vta@bsi.ac.id, imam.imw@bsi.ac.id

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ABSTRACT

In every company, the performance evaluation of each employee is very important in order to determine the ability, progress and achievement or performance results of each employee. Performance evaluation is an assessment of the performance of each employee whose results can be used for human resource development, companies and educational institutions. In relation to performance evaluation, it is very close to determining the selection of the best employees who will later be used as benchmarks in companies and educational institutions in providing promotions. Determining the best employee is a difficult decision making, the thing that makes it difficult is the implementation of the limited evaluation time and the number of employees so that the selection of the best employee is only chosen by the manager and the results of the assessment are subjective. Selection of the best employees in this study used the profile matching method, assessment and calculation of GAP values based on disciplinary criteria, employee performance and soft skills. The final result of the profile matching method is in the form of a ranking which shows that the higher the ranking is produced, the greater the chance to get an assessment as the best employee. The results showed that the profile matching method can be used in a decision support system to determine the best employees in companies and educational institutions.

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1. Introduction

The performance evaluation of employees is very important to know the capabilities, progress and achievements or results of employee performance. The performance evaluation is the assessment of achievement of each employee that results can be used for the development of human resources, companies and educational institutions.

In relation to performance evaluation, it is very close to determining the selection of the best employees who will later be used as benchmarks in companies and educational institutions in providing promotions. Best and qualified employees are assets of the company that will make the company grow rapidly [1]. Determining the best employees are difficult decisions [2], this is due to the implementation of the evaluation period is limited and also the large number of employees to be evaluated, so the selection of the best employees only selected by managers who lead the assessment of the best employees become subjective. In his research [3] said that work performance appraisal is important for companies to determine further policy actions.

Given the importance of employee performance evaluation to determine the best employee and that employee appraisal appropriately based on capability, progress and achievements or results of the performance of each employee, this study aims to determine the best employees is by using the method of profile matching the three criteria to each sub -criteria are as follows:

- Disiplin (absensi, konduite, kerapihan berpakaian),
- Kinerja (kemampuan, meningkatkan hasil yang dicapai, pengembangan diri, mutu),
- Soft skill (attitude, leadership, teamwork).

Decision Support Systems (DSS) are usually built to support a solution or problem or for an opportunity. Decision Support System (DSS) applications are used in decision making. Decision Support



System (DSS) application uses CBIS (Computer Based Information System) which is flexible, interactive, and adaptable, which was developed to support solutions to specific unstructured management problems [4].

2. Research Methods

This research is experimental, namely by applying Profile Matching to determine the best employees by using the results of employee performance evaluations which are then processed using the profile matching method for decision making based on predetermined criteria and sub-criteria:

- a. Discipline (attendance, condition, neatness of dress),
- b. Performance (ability, increasing the results achieved, self-development, quality)
- b. Soft skills (attitude, leadership, teamwork).

The approach of this research is qualitative in nature, namely understanding how the Profile Matching algorithm works, then the steps in the algorithm are used in manual calculation analysis to produce output in the form of ranking priority values [5] to determine the best employees.

Based on the predetermined criteria, namely disiplin, kinerja and soft skills, steps are taken based on the profile matching method, which are as follows:

- a. Weighted value for each criterion (target value).
- b. Weighting value of GAP
- c. Core factor calculation
- d. Secondary factor calculation
- e. Total value calculation
- f. Determination of ranking

In a profile matching process outlines a process to compare between each of the criteria of each assessment is proposed in order to know the difference scores (also called GAP (Gains Across Product)), the smaller the GAP produced by the weight of large value which means it has a better chance to priority eligibility / graduation.

The GAP value is the difference between the value of each attribute and the value target, which can be calculated using the equation:

$$GAP = value\ atribut - value\ target \quad (1)$$

The next step is to determine the GAP weight based on the GAP value weighting. After determining the weighting of the GAP value for each value, then grouping each value into two groups, namely the Core Factor and Secondary Factor, to calculate the Core Factor you can use the following equation:

$$NCF = \frac{\sum NC(i,s,p)}{\sum IC} \quad (2)$$

Information :

NCF : Average core factor values

NC (i, s, p): The total number of core factor values

IC : The number of core factor items

To calculate the Secondary Factor, you can use the following equation:

$$NSF = \frac{\sum NS(i,s,p)}{\sum IS} \quad (3)$$

Information :

NSF : Mean value of secondary factor

NS (i, s, p) : The total number of secondary factor values

IS : Number of secondary factor items

Furthermore, the total value calculation based on the value of core factors and secondary factors used as assessment criteria that influence whether or not the employee received the title of the best employees. Calculations can be done using the following equation:

$$Ni = (x)\%NCF + (x)\%NSF \quad (4)$$

Information:

Ni : Final Grade

NCF : Core Factor average value

NSF : Secondary Factor mean value

The final result of the Profile Matching process is the ranking of each employee. After each employee gets the final result, it can be determined rating or ranking of employees based on growing the value of the final result so that the larger the opportunity to accept the title as the best employee, ranking calculations performed using the following equation:

$$Rangking = (x)\%N1 + (x)\%N2 + (x)\%Nn \quad (5)$$

Information:

N1, N2, Nn : Total scores per criterion

(x)% : Percentage of criteria score

3. Results and Discussion

In this profile matching method, the initial step of weighting the criteria (the target value) for each criterion.

Ordinal scale:

- a. Very less
- b. Less
- c. Enough
- d. Good
- b. Very good

3.1 Weighting of values for each criterion (value target)

TABLE 1
Weighting criteria (value target)

No.	Criteria	Sub-kriteria	Value Target
1	Disiplin	Absensi	5
		Konduite	4
		Kerapihan berpakaian	4
2	Kinerja Employee	Kemampuan	4
		Meningkatkan hasil yang dicapai	3
		Pengembangan diri	4
		Mutu	4
3	Soft skill	Atitude	5
		Leadership	3
		Teamwork	4

Source: (Apriana & Nawawi, 2020)

In table 1. Contains the target value of each criterion that has been determined based on an ordinal scale, namely 1. Sangat kurang, 2. Kurang, 3. Cukup, 4. Baik, 5. Sangat baik, where the value target becomes the benchmark for weighting the GAP value on the next step.

TABLE 2
Employee Performance Evaluation Data

Employee	Performance Evaluation Criteria in determining the best employees									
	1. Disiplin Sub-criteria		2. Kinerja Employee Sub-criteria			3. Soft skill Sub-criteria				
	Absensi	Konduite	Kerapihan berpakaian	Kemampuan	Meningkatkan hasil yang dicapai	Pengembangan diri	Mutu	Atitude	Leadership	Team work
Employee 1	4	4	3	4	2	4	3	5	3	4
Employee 2	5	4	3	3	1	3	4	5	3	4
Employee 3	4	3	4	4	1	4	3	4	3	2
Employee 4	5	4	4	3	3	2	4	4	2	3
Employee 5	4	2	3	2	2	5	4	4	2	4

Source: (Apriana & Nawawi, 2020)

3.2 Weighting value of GAP

Based on the Employee Performance Evaluation Data contained in table 2, the next step is to calculate the GAP value, where the GAP value is the difference between the value attribute and the value target, so that the weight of each criterion is obtained. The GAP value can be summarized by using the GAP weight value data, as seen in the employee data 2 based on employee performance evaluation data, absensi has an attribute value = 5 while the target value for absensi is 5, then the difference between the value attribute and the value target is 0, so if based on the GAP weight value data, the difference with the result 0 has a weighted value of 5, which means there is no difference (Competence as required).

TABLE 3



Weighting value of GAP

Evaluation Data	Performance Evaluation Criteria in determining the best employees									
	1. Disiplin Sub-kriteria		2. Kinerja Employee Sub-kriteria					3. Soft skill Sub-kriteria		
	Absensi	Konduite	Kerapihan berpakaian	Kemampuan	Meningkatkan hasil yang dicapai	Pengembangan diri	Mutu	Attitude	Leadership	Teamwork
Employee 1	4	4	3	4	2	4	3	5	3	4
Employee 2	5	4	3	3	1	3	4	5	3	4
Employee 3	4	3	4	4	1	4	3	4	3	2
Employee 4	5	4	4	3	3	2	4	4	2	3
Employee 5	4	2	3	2	2	5	4	4	2	4
Value Target	5	4	4	4	3	4	4	5	3	4
GAP Value										
Employee 1	-1	0	-1	0	-1	0	-1	0	0	0
Employee 2	0	0	-1	-1	-2	-1	0	0	0	0
Employee 3	-1	-1	0	0	-2	0	-1	-1	0	-2
Employee 4	0	0	0	-1	0	-2	0	-1	-1	-1
Employee 5	-1	-2	-1	-2	-1	1	0	-1	-1	0
Result of Weight Value										
Employee 1	4	5	4	5	4	5	4	5	5	5
Employee 2	5	5	4	4	3	4	5	5	5	5
Employee 3	4	4	5	5	3	5	4	4	5	3
Employee 4	5	5	5	4	5	3	5	4	4	4
Employee 5	4	3	4	3	4	4,5	5	4	4	5

Source: (Apriana & Nawawi, 2020)

3.3 Core factor calculation

Based on the GAP values in table 3, the next step is to divide the criteria into two groups, namely the core factor and the secondary factor, where the criteria including the core factor in the Disiplin criteria are kehadiran and konduite, while the secondary factor in the Disiplin criteria is kerapihan berpakaian, The core factor in the employee performance criteria is kemampuan and mutu, while the secondary factor is Meningkatkan hasil yang dicapai and pengembangan diri, The core factor in soft skill criteria is Attitude, while secondary factor is leadership and teamwork. After grouping the criteria into core factor and secondary factor, the next step is to calculate the core factor value, as in table 4.

TABLE 4
Core factor calculation

Evaluation Data	Performance Evaluation Criteria in determining the best employees								
	1. Disiplin Sub-kriteria		2. Kinerja Employee Sub-kriteria			3. Soft skill Sub-kriteria			
	Absensi	Konduite	Core Factor	Kemampuan	Mutu	Core Factor	Attitude	Leadership	Teamwork
Employee 1	4	5	4,5	5	4	4,5	5	5	5
Employee 2	5	5	5	4	5	4,5	5	5	5
Employee 3	4	4	4	5	4	4,5	4	4	4
Employee 4	5	5	5	4	5	4,5	4	4	4
Employee 5	4	3	3,5	3	5	4	4	4	4

Source: (Apriana & Nawawi, 2020)

3.4 Secondary factor calculation

The criteria included secondary factor in the criteria of Disiplin is the Kerapihan berpakaian, at kinerja Employee criteria secondary factor is Meningkatkan hasil yang dicapai and pengembangan diri, while at the secondary factor is the soft skills of leadership and teamwork, as shown in Table 5

TABLE 5
Secondary factor calculation

Evaluation Data	Performance Evaluation Criteria in determining the best employees								
	1. Disiplin Sub-kriteria		2. Kinerja Employee Sub-kriteria			3. Soft skill Sub-kriteria			
	Kerapihan berpakaian	Secondary Factor	Meningkatkan hasil yang dicapai	Pengembangan diri	Secondary Factor	Leadership	Teamwork	Secondary Factor	
Employee 1	4	4	4	5	4,5	5	5	5	
Employee 2	4	4	3	4	3,5	5	5	5	
Employee 3	5	5	3	5	4	5	3	4	
Employee 4	5	5	5	3	4	4	4	4	
Employee 5	4	4	4	4,5	4,25	4	5	4,5	

Source: (Apriana & Nawawi, 2020)

3.5 Total value calculation

The next step is to calculate the total value which is a percentage of the value of the core factor and secondary factor. Percentage of core factor is 60% and the secondary factor was 40%, as shown in Table 6.

TABLE 6
Total Value Calculation

Data Evaluasi	Disiplin			Kinerja Employee			Soft Skill		
	Core Factor	Secondary Factor	Nilai Total	Core Factor	Secondary Factor	Nilai Total	Core Factor	Secondary Factor	Nilai Total
Employee 1	4,5	4	4,3	4,5	4,5	4,5	5	5	5
Employee 2	5	4	4,6	4,5	3,5	4,1	5	5	5
Employee 3	4	5	4,4	4,5	4	4,3	4	4	4
Employee 4	5	5	5	4,5	4	4,3	4	4	4
Employee 5	3,5	4	3,7	4	4,25	4,1	4	4,5	4,2

Source: (Apriana & Nawawi, 2020)

3.6 Determination of ranking

At this stage, will be the determination of the ranking which is the final stage of the method of profile matching, ranking is determined based on the calculation of the total value as shown in Table 7, then the value is calculated using the formula on ranking, which is then sorted from largest to smallest.

TABLE 7
Determination of ranking

Evaluation Data	Criteria			Nilai Akhir
	Disiplin	Kinerja Employee	Soft Skill	
Employee 1	4,3	4,5	5	4,55
Employee 2	4,6	4,1	5	4,62
Employee 3	4,4	4,3	4	4,26
Employee 4	5	4,3	4	4,56
Employee 5	3,7	4,1	4,2	3,93

Source: (Apriana & Nawawi, 2020)

In table 7, this is the result of calculating the final value, where if we rank the highest final score obtained by Employee 2 with the score achieved is 4.62, employee 4 with a score of 4.56 in the second rank, Employee 1 with a score of 4.55, the fourth rank order achieved by Employees 3 with a value of 4.26, the fifth rank order achieved by Employees 5 with a value of 3.93. For further research, it is expected to implement profile matching in a Decision Support System by adding other determining variables that can strengthen the assessment in determining the best employees.

4. Conclusion

The results of processing employee evaluation data to determine the best employees using the Profile Matching method show that the profile matching method can be implemented in a decision support system to determine the best employees, so that it can assist the authorities in making decisions according to existing criteria. The highest ranking achieved by Employee 2, which means the ordinal scale of the assessment obtained is **Sangat baik** and is entitled to receive the title as the best employee.

5. References

- [1] Aliy Hafiz and Muhammad Ma'mur, "Sistem Pendukung Keputusan Pemilihan Karyawan Terbaik Dengan Pendekatan Weighted Product," *Cendikia*, vol. 15, no. 2, pp. 23–28, 2018.
- [2] W. Priatna and R. Tunnisia, "Implementasi Metode Simple Additive Weighting Pada Aplikasi Penentuan Karyawan Terbaik," vol. 4, pp. 1187–1196, 2020.
- [3] M. M. Frindo, "Sistem Penunjang Keputusan dalam Evaluasi Kinerja Karyawan Menggunakan Metode SAW pada PT. Sierad Produce," *J. Inform. Univ. Pamulang*, vol. 3, no. 1, p. 13, 2018.
- [4] D. Nofriansyah, *Konsep Data Mining VS Sistem Pendukung Keputusan*, Ed.1. Yogyakarta: Deepublish, 2014.
- [5] F. Fasya, M. Z. Arifin, Z. Muttaqin, R. S. Sukur, and K. Kusriani, "Penerapan Metode Profile Matching Pada Sistem Pendukung Keputusan Untuk Memilih Calon Penerima Beasiswa Bidikmisi," *CAHAYAtech*, vol. 7, no. 1, p. 50, 2019.

