



Application Assessment Method Using Teacher Rating Scale And Profile Matching

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ABSTRACT

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In education in school, the teacher is an important figure in determining the high and low quality of education outcomes, so teacher is required to continue to improve the performance in teaching, and ensure teacher performance the need for assessment, at each school, teacher assessment is still in the form of manual of the principal as the party who assesses teacher performance, while not everytime the principal monitors how the teacher's performance in teaching, it is necessary to add other more intensive assessors to meet with the teacher, namely students with several conditions that make students eligible to be correspondents, and a teacher assessment application to support students assessing their teacher more easily, making the application using the Rating Scale method for taking initial grade data and Profile Matching for calculating the average final grade. The results of the testing of this program is that 100% accuracy is tested from 6 teachers and 20 students.

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1. Introduction

Assessment is a process of data analysis to take a decision, as well as assessments on teachers, by having the results of the assessment can be taken a decision on how the teacher's performance, whether performance should be given a warning or sanction, or performance deserves to be rewarded and promotion recommendations. Assessment of teachers is very important to improve the performance of teachers assigned the quality of education, with a good quality education that will build the quality of human resources of very well. [1] [2]

In 2013 the government has conducted an assessment of all teachers which will affect the profession and rank allowance.

Function Teacher Performance Assessment (PKG):

- a) To assess the ability of teachers to implement all the competencies and skills required in the learning process, coaching, or implementing additional tasks relevant to the functions of the school / madrasah.
- b) To calculate the number of credits were obtained for the performance of teachers teaching, coaching, or implementing additional tasks that are relevant to the functioning of the school / madrasah accomplishments during the year. [3]

With that at least the principal will evaluate teachers once every 6 months, but at this moment the principal can not directly monitor how the performance of the teachers so that an assessment in a sense less accurate, and therefore in need of participation of students in grading. [4] With the development of technology, the application for the assessment of teachers were in need to facilitate the assessment, of course, these applications can be accessed by all students who are eligible to become a correspondent not only accessible by the principal. [5]





The application form of questionnaires which must be filled by students and then the results of student assessment will be stored in the database and the final results will appear in the account principal. Fill quitionary question refers to the Minister of Administrative Reform and Reform of the bureaucracy number 16 in 2009.

Representation of a teacher performance appraisal is to achieve the total number of credits as the unit value of each item of her main tasks activities in order to develop a career, rank and position. [6]

It embodies the rating scale method and the method of profile matching, rating scale method is the method most commonly used is based on a certain scale from low to high. [7] When Rating Scale applied and got the same response from several correspondents, it can help principals to be more accurate valuation on each teacher. [8]

To get the final result of this application to apply the method profile matching where assessment refers to a number of criteria split into sub-criteria and taking into account the weight of each criteria and sub-criteria. [9] [10]

This application aims to support the principal's decision to create a report that teachers can be recommended as an exemplary teacher and promotion / allowance as well as teachers who need to get a warning or penalty if the judgment is not according to standard.

2. Research methods

Rating Scale is a method of data collection tools in the form of a list of behavioral characteristics / properties should be noted in stages, this method to use to obtain the initial value of the sisw through questionnaires.

Ratings in this case to provide an assessment on the "value" based on the assessment scale is determined. The scale of the assessment, namely: Never = 1, rarely = 2, quite often = 3, often = 4 always = 5. The method Profile Matching is a mechanism decisions by mengasumsikanbahwa terdapaat level predictor variables studied, rather than a minimum level which must be met or exceeded, the method used to calculate the total value of the final and get ranked tip masgmasing teachers. in this application will be described with the following flowchart.

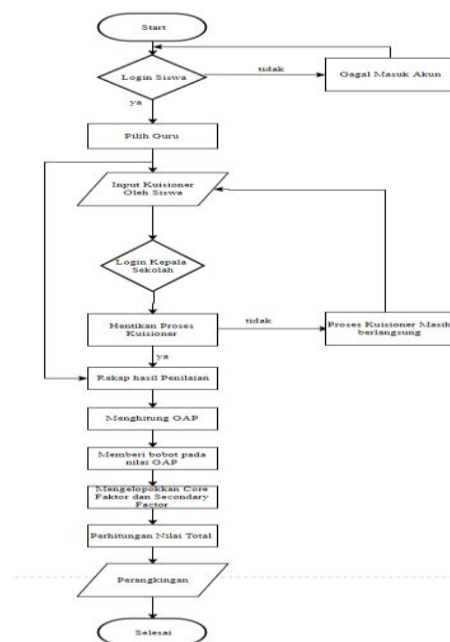


Figure 1. Flowchart teacher appraisal system

Explanation in Figure 1 are:

First the students need to login first and if successful students enter the account and can be filled in a questionnaire to choose a teacher who wants to be judged first and after assessing the questionnaires should be discontinued prior to the value can go into account the principal and automatically calculated



the average of the every aspect, kemudain of the value that has been in the GAP value can be calculated by the formula:

$$a) \quad NR = JN / JS \quad (1)$$

Information :

NR = initial average value

JN = Total value

JS = Number of students

$$b) \quad GAP = NR - Target \quad (2)$$

Gap which can be converted to gain weight, the conversion is based on the following table:

Table 1
Weight Value

Selisih	Bobot Nilai	Keterangan
0	5	Tidak ada selisih (kompetensi sesuai dgn yg dibutuhkan)
1	4,5	Kompetensi individu kelebihan 1 tingkat
-1	4	Kompetensi individu kekurangan 1 tingkat
2	3,5	Kompetensi individu kelebihan 2 tingkat
-2	3	Kompetensi individu kekurangan 2 tingkat
3	2,5	Kompetensi individu kelebihan 3 tingkat
-3	2	Kompetensi individu kekurangan 3 tingkat
4	1,5	Kompetensi individu kelebihan 4 tingkat
-4	1	Kompetensi individu kekurangan 4 tingkat

After getting the weight then the next group the Core Factor (Major Factor) and Secondary Factor (Supporting Factor):

- a) Core Factors (Key Factor) and that is the main criteria are important that are expected to obtain maximum results.

$$NFC = NC / IC \quad (3)$$

Information :

NFC: The average value of core factors

NC : The total value of core factor.

IC : Number of items cores factor.

- b) Secondary factors (contributing factor), which is a factor that is less needed for assessment.

$$NFS = NS / IS \quad (4)$$

Information :

NFS: The value of the average - average secondary factor

NS : The total value of secondary factor

IS : Number of items secondary factor.

Then the calculation of the total value per facet by the formula:

$$N = (x)\% NCF + (y)\% NSF$$

(5)

Information :

N : Total value of core and secondary factor

NFS: The average value of core factor





NFC: The average value of secondary factor

(X)%: Value percent core factor

(Y)%: Value percent secondary factor

And lastly ranking calculation using the formula:

$$\text{Ranking} = (x1)\% * N1 + (x2)\% * N2 + \dots + (Xa)\% * NA \quad (6)$$

Information :

N1, N2NA : The total value criteria first aspect, the aspect of the final aspects 2 to Top

(X1)%, (x2)% (xa)% : Value percent aspek1, aspek2, until the final aspect

3. Results and Discussion

A. Aspects Rating

In the assessment in SMA xxx Jakarta, obtained aspects and sub-aspects that I made questions for the questionnaire to be filled by the students as follows:

Table 2
Table Aspects

No.	Aspek	Bobot	Sub Aspek	Target	Golongan
1	Pedagogik	40%	1. Apakah guru selalu menjelaskan materi yang sesuai ?	3	Cf
			2. Guru memberikan siswa waktu untuk bertanya setelah selesai memberikan penjelasan mengenai materi pelajaran yang disampaikan.	4	Cf
			3. apakah guru langsung memberikan jawaban atas pertanyaan yang diajukan?	3	Cf
			4. Dalam menyajikan materi pelajaran apakah guru menciptakan kegiatan atau perlakuan yang berbeda antara karakteristik siswa yang memiliki kemampuan rendah dengan siswa yang memiliki kemampuan tinggi	3	Cf
			5. Apakah guru dalam mengajar menggunakan metode secara bervariasi (ceramah, tanya jawab, demonstrasi, kerja kelompok)?	3	Cf
			6. Apakah guru anda menjelaskan materi pelajaran dengan menghubungkan dengan materi yang lalu?	4	Sf
2	Kepribadian	20%	1. apakah guru anda menggunakan bahasa yang sopan,santun, dan mudah di mengerti ?	3	Cf
			2. apakah guru anda sabar dan mampu menyelesaikan permasalahan dengan tenang ketika ada murid yang nakal ?	3	Cf
3	Sosial	10%	1 Apakah guru memberikan motivasi dan nasihat kepada murid ketika mengajar?	3	Sf
			2. Apakah guru memberikan teguran kepada siswa yang mengganggu kegiatan belajar mengajar?	4	Cf
4	Profesional	30%	1. Apakah guru dalam mengajar tanpa membaca buku (text book)?	3	Sf
			2. Apakah guru selalu tidak menjelaskan materi sebelum memberikan tugas ?	3	Cf
			3. apakah guru anda langsung masuk ketika bel berbunyi ?	3	Cf
			4. apakah guru anda mengakhiri pembelajaran tepat waktu ?	4	Cf

In Table 2. There are four aspects, pedagogical aspect has a weight of 40%, the professional aspect has a weight of 30%, the social aspect has a weight of 10% and aspects of personality has 20%, and the sub aspects when including the core group then had a weighting factor 60 % and if the secondary group then has a weighting factor of 40%. In each sub-aspect has a target to be achieved a teacher to become standard on outstanding teachers.

B. Questionnaires display





Display of filling the questionnaire by the students as follows:



Figure 4. Choosing grade student teacher x ipa 1

In Figure 4 to assess the teachers and students have to choose a teacher who will be in grades first. Students can only judge the teachers who teach their own class.



Figure 5. Questionnaires

In Figure 5 is a view questionnaire that must be filled students, this is done on every teacher.

C. Calculation By Application

The initial value of filling the questionnaire is as Figure 7 below:

No	Nama	P ₁	P ₂	P ₃
1	RUMADA HOTMA PANJAITAN	3	5	4
2	ENY RATH	3	5	4
3	ERY IRIANTI SUMARMI	4	5	3
4	FERRY F BASALAMA	4	5	3
5	HERI BUDI PRASETYA	3	5	4
6	IKA BUDININGSIH	3	4	5

Figure 6. The initial value of the questionnaire

In the sixth image in get the initial value of the average value provided by the students. Once in dapakan initial value of filling out the questionnaire, the value can be calculated by the method of Profile Matching, the initial step counting GAP and obtained the results as follows:



siswa	No	Nama	P ₁	P ₂	P ₃
Guru	1	RUMADA HOTMA PANJAITAN	(3-3)=0	(5-3)=2	(4-2)=2
Hasil Penilaian					
Kelas	2	ENY RATIH	(3-3)=0	(5-3)=2	(4-2)=2
Daftar pertanyaan	3	ERY IRIANTI SUMARMI	(4-3)=1	(5-3)=2	(3-2)=1
Penilaian					
Logout	4	FERRY F BASALAMA	(4-3)=1	(5-3)=2	(3-2)=1
	5	HERI BUDI PRASETYA	(3-3)=0	(5-3)=2	(4-2)=2
	6	IKA BUDININGSIH	(3-3)=0	(4-3)=1	(5-2)=3

Figure 7. Calculation of GAP

In Figure 7 the gap is calculated from the difference between the value of the target value of the gap or difference in value can determine the weights in each of its aspects as follows

Table 3
Weighting

Selisih	Bobot Nilai	Keterangan
0	5	Tidak ada selisih (kompetensi sesuai dgn yg dibutuhkan)
1	4,5	Kompetensi individu kelebihan 1 tingkat
-1	4	Kompetensi individu kekurangan 1 tingkat
2	3,5	Kompetensi individu kelebihan 2 tingkat
-2	3	Kompetensi individu kekurangan 2 tingkat
3	2,5	Kompetensi individu kelebihan 3 tingkat
-3	2	Kompetensi individu kekurangan 3 tingkat
4	1,5	Kompetensi individu kelebihan 4 tingkat
-4	1	Kompetensi individu kekurangan 4 tingkat

Table 3 for converting the value obtained from the calculation of GAP. The conversion value used to calculate the Core Factor and Secondary Factor as follows:

siswa	No	Nama	P ₁ [c]	P ₂ [c]	P ₃ [c]	P ₄ [c]	P ₅ [c]	P ₆ [s]	rCF (60%)	rSF (40%)	Nilai
Guru	1	RUMADA HOTMA PANJAITAN	5	3,5	3,5	5	5	4	22/5=4,40	4/1=4,00	4,24
Hasil Penilaian											
Kelas	2	ENY RATIH	5	3,5	3,5	4	4	5	20/5=4,00	5/1=5,00	4,40
Daftar pertanyaan	3	ERY IRIANTI SUMARMI	4	3,5	4	4	5	4	20,5/5=4,10	4/1=4,00	4,06
Penilaian											
Logout	4	FERRY F	4	3,5	4	5	4	5	20,5/5=4,10	5/1=5,00	4,46

Figure 8. Calculation of core and secondary factor

Furthermore, the total value obtained from each teacher with the following results:

Home	Nilai Akhir Total Sorting		
siswa	No	Nama	Nilai
Guru	1	HERI BUDI PRASETYA	4,40
Hasil Penilaian	2	LAODE MAKBUJU	4,37
Kelas	3	ABDUL HAMID A	4,36
Daftar pertanyaan	4	IKA BUDININGSIH	4,34
Penilaian	5	IMAN SANTOSO	4,18



Figure 9. Value Total and on Ranking

From Figure 9 it was found that teachers who get the highest total score is Heri Budi Prasetya with 4.40 and the lowest value is Iman Santoso with a value of 4.18.

D. Calculations Manual

With the example of the implementation is done on 5 teachers rated by 20 students then the manual calculation as follows:

Table 4
Initial assessment table

Aspek	s 1	s 2	s 3	s 4	s 5	s 6	s 7	s 8	s 9	s 10	total
Pedagogik	4	4	4	4	4	4	4	4	4	4	40
	5	5	3	3	5	4	5	5	3	5	43
	4	3	4	3	3	3	3	4	4	3	34
	5	4	4	4	4	4	3	4	5	4	41
	3	4	5	4	4	4	5	5	4	3	41
Kepribadian	3	4	3	5	4	4	5	3	5	5	41
	5	5	4	3	3	5	5	4	4	3	41
Sosial	3	4	3	4	2	5	5	5	3	4	38
	4	3	5	5	3	3	3	3	5	4	38
Profesional	4	3	2	4	2	3	3	4	4	3	32
	5	5	5	2	4	4	4	4	4	2	39
Profesional	5	4	3	3	2	3	4	3	3	3	32
	4	4	3	5	4	3	3	4	4	4	38
Profesional	3	3	3	4	3	3	3	3	4	3	32

Aspek	s 11	s 12	s 13	s 14	s 15	s 16	s 17	s 18	s 19	s 20	total
Pedagogik	4	4	3	4	4	4	5	4	3	3	38
	3	3	5	3	3	5	3	5	3	4	36
	4	4	4	5	5	4	5	4	3	4	42
	3	5	4	4	3	4	3	5	3	5	39
	4	4	3	2	5	3	5	4	3	5	38
Kepribadian	3	4	3	4	2	4	3	5	3	5	36
	4	5	3	4	4	5	5	4	3	4	41
Sosial	3	4	5	3	5	4	3	5	3	3	38
	4	3	1	3	3	4	5	4	3	4	34
Profesional	3	4	2	2	2	5	3	5	3	3	32
	4	5	5	3	3	3	5	4	3	5	40
Profesional	3	4	3	3	5	4	3	5	3	4	37
	4	3	5	2	3	3	5	4	3	4	36
Profesional	3	4	3	3	5	4	3	5	3	3	36

- a) The average value of the initial
 $NR = JN / JS$

Table 5
table average

Aspect	Factor	average	rounding off
pedagogic	cf	3.9	4
	cf	4	4
	cf	3.8	4
	cf	4	4
	Sf	3.95	4
Personality	Sf	3.85	4
	cf	4.1	4
Social	cf	3.8	4
	Sf	3.6	4
Professional	cf	3.2	3
	Sf	3.95	4
	cf	3.5	4
	cf	3.7	4
Professional	cf	3.4	3

2. Value Gap

$$GAP = NR - Target$$

Table 6
Testing gap calculation

Aspect	Factor	Score	Target	result
pedagogic	cf	4	3	4-3 = 1
	cf	4	3	4-3 = 1
	cf	4	2	4-2 = 2
	cf	4	4	4-4 = 0
	cf	4	4	4-4 = 0
	Sf	4	4	4-4 = 0
Personality	cf	4	3	4-3 = 1
	cf	4	3	4-3 = 1
Social	Sf	4	3	4-3 = 1
	cf	3	3	3-3 = 0
Professional	Sf	4	4	4-4 = 0





	cf	4	4	4-4 = 0
	cf	4	4	4-4 = 0
	cf	3	3	3-3 = 0

b) Nilaian Weight

As previously described weighting table then on the result of reduction in the target can.

Table 7.
Table Weight

Aspect	Factor	result	Weight
pedagogic	cf	1	4.5
	cf	1	4.5
	cf	2	3.5
	cf	0	5
	cf	0	5
Personality	Sf	0	5
	cf	1	4.5
Social	cf	1	4.5
	Sf	1	4.5
Professional	cf	0	5
	Sf	0	5
	cf	0	5
	cf	0	5

c) Core Values and Secondary factor

NFC = FC / IC, NFS = NS / IS, and

$N = (x)\% NCF + (y)\% NSF$

Table 8
Table cores and secondary factor

Aspect	cf	Sf	Total Cf (60%)	Total Sf (40%)	Total value
Pedagogik	4.5	5	2.7	2	4.7
Personality	4.5	0	2.7	0	2.7
Social	5	4.5	3	1.8	4.8
Professional	5	5	3	2	5

d) The total value and on Ranking

NilaiTotal = 40% (Pedagogik) + 20% (personality) + 10% (social) + 30% (professional)

= 1.88 + 0.54 + 0.48 + 1.5

= 4.4

Tables manual calculations described above are Heri Budi value calculation, and calculation to four other teachers, the process can be repeated as in the example above. In the test 5 of 20 student teachers then can the overall final result is:

Table 9
Table Ranking

1	HERI BUDI PRASETYA	4.4
2	Laode MAKBUDU	4.37
3	ABDUL HAMID A	4.36
4	IKA Budiningsih	4.34
5	FAITH SANTOSO	4.18



In Table 9 is obtained where Heri Budi Prasetya get the highest rank with a total value of 4.4 and Iman Santoso get the lowest rank with a total value of 4.18.

4. Conclusion

Rating Scale method can be in combination with the Profile Matching and this method can be implemented for assessing teacher performance. The forged with web-based applications can facilitate and shorten the time of assessment. The results of the assessment by the method of rating scale and profile matching has akuransi 100% where the testing 5 of 5 teachers in testing a match of the same by comparing the manual calculation, where the results of the calculation of votes against five teachers conducted by 20 students is Heri Budi Prasetya get 4 , 4, Laode Makbudu get 4.37, Abdul Hamid A 4.36, Ika Budiningsih Iman Santoso 4.34 and 4.18.

5. Reference

- [1] R. Imam, and A.Rahman, "Teacher Assessment and Profiling using Fuzzy Rule based System and Apriori.,Algorithm," *Int. J. Comput. Appl.*, vol. 65, no. 5, pp. 22–28, 2013.
- [2] M. O'Leary, "Measuring Teachers' Assessment for Learning (AfL) Classroom Practices in Elementary Schools," *Int. J. Educ. Methodol.*, vol. 3, no. 2, pp. 103–115, 2017.
- [3] D. H. P. Sadewo, "Aplikasi Penilaian Kinerja Guru Berdasarkan Feedback Dari Siswa Berbasis Web (Studi Kasus : SMP Negeri 2 Dayeuhkolot)," *Univ. Telkom*, vol. 1, no. 3, pp. 1966–2016, 2015.
- [4] Vol, "Rancang Bangun Aplikasi Penilaian Kinerja Dinas Pendidikan Kota Surabaya Dengan Metode Graphic Rating Scales Issn 2338-137X," vol. 5, no. 7, pp. 1–5, 2016.
- [5] B. A. Nababan, R. Budiawan, P. M. Informatika, F. I. Terapan, and U. Telkom, "Aplikasi Monitoring Dan Penilaian Guru (Studi Kasus Smpk 4 Penabur Bandung) Journal Writing Format for Final Project," vol. 4, no. 1, pp. 81–94, 2018.
- [6] Y. Herianto, Akhmad Zulkifli, "Aplikasi Penilaian Angka Kredit Dosen Untuk Proses Pengajuan Jabatan Fungsional (Studi Kasus : STMIK Hang Tuah Pekanbaru)," *J. Ilmu Komput. (Compute Sci. Journal)*, vol. 6, no. 2, pp. 116–122, 2017.
- [7] R. S. Ilhami and D. Rimantho, "Penilaian Kinerja Karyawan dengan Metode AHP dan Rating Scale," *J. Optimasi Sist. Ind.*, vol. 16, no. 2, p. 150, 2017.
- [8] S. A. Wind, C. L. Tsai, S. B. Grajeda, and C. Bergin, "Principals' use of rating scale categories in classroom observations for teacher evaluation," *Sch. Eff. Sch. Improv.*, vol. 29, no. 3, pp. 485–510, 2018.
- [9] T. Susilowati, E. Y. Anggraeni, Fauzi, W. Andewi, Y. Handayani, and A. Maseleno, "Using Profile Matching Method to Employee Position Movement," *Int. J. Pure Appl. Math.*, vol. 118, no. 7 Special Issue, pp. 415–423, 2018.
- [10] Z. Tharo and A. P. Utama Siahaan, "Profile Matching in Solving Rank Problem," *IOSR J. Electron. Commun. Eng.*, vol. 11, no. 05, pp. 73–76, 2016.

