Decision Support System for Quran Teacher Selection Using Profile Matching Method on TPQ Anbata

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Abstract. Al-Quran Reading Park (TPQ) Anbata is a reading park with a Quranic learning system that has an educational system of recitation values, reading fluency, Adab Values Reading reading, Attitude Values and Worship Value. The selection of the Koran teacher in the Anbata Al-Quran Reading Park (TPQ) is through a rigorous selection to guarantee the quality of its students. But sometimes these things are relatively balanced, causing new problems, namely the difficulty of determining the right quran teacher to be positioned as a teacher. Therefore a Decision Support System is needed that can provide recommendations for considering the selection of Quran teachers. In this case using the Profile Matching method. The method works by using the level of importance of a value needed to become a quran teacher. Calculations on this method produce the best value that meets the assessment criteria to be used as a recommendation for the selection of quran teachers in the Anbata Al-Quran Reading Park (TPQ).

1. Introduction

An organization or educational institution that is driven by human resources is faced with a variety of choices in order to determine qualified teaching staff or teachers [1]. The choice made by an educational institution in the reception of teaching staff or teachers is very influential on the performance and progress of students who are given learning from an educational institution. Al-Quran Reading Park (TPQ) Anbata is an Islamic educational institution that provides teaching on reading / writing al-Qur'an, aqeedah and Worship in accordance with Islamic Shari'a, where TPQ Anbata currently has 237 students and annually increases while the number teaching staff or quran teachers number 6 people. Inadequate numbers of students and teaching staff or quran teachers make TPQ need teaching staff or quran teachers to be able to teach at TPQ Anbata. To increase the teaching staff or quran teachers TPQ Anbata conducts recruitment of teaching staff or quran teachers through selection, where the selection determined by TPQ Anbata has assessment criteria consisting of recitation accuracy, reading fluency, Adab Values Reading reading, Attitude Values and Worship Value [2] [3]. In this case Anbata Al-Quran Reading Park (TPQ) has problems in accepting teaching staff or Quran teachers. The most difficult thing in making a choice is to eliminate the subjective factor from the Al-Quran Reading Park Leaders (TPQ) so that the choices made are objective based on the criteria expected by the Al-Quran Reading Park (TPQ).

Based on these problems the Al-Quran Reading Park (TPQ) requires a system or method that can support decision-making for the selection of prospective teaching staff or quran teachers through selection. Decision support system for screening quran teachers or teachers using Profile Matching method. the system or method needed is not the main decision maker that replaces the role of humans but is only limited to the role of supporting decision making [4] [5]. the system or method built will
present information on the results of the selection of prospective teaching staff or quran teachers based on the respective parameters that have been determined by the Al-Quran Reading Park (TPQ).

2. Profile Matching method
The method of profile matching or profile matching is a method that is often used as faith in decision making by assuming that there are ideal predictor variable levels that must be met by the subjects under study, not the minimum level that must be met or bypassed. [2] [6]
The following will be explained about how the profile matching process, will be presented through an example case. Research the process of selecting teaching staff at Quran teachers in the Anbata Al-Quran Reading Park (TPQ). The following are some stages and formulation of calculations using the profile matching method:

1. Weighting
At this stage, the value of each aspect will be determined using the gap weight.

| No | Difference (Gap) | Value Weight | Description                  |
|----|------------------|--------------|-------------------------------|
| 1  | 0                | 5            | There is no Gap (competency as needed) |
| 2  | 1                | 4.5          | Individual competencies are over 1 level / level |
| 3  | -1               | 4            | Individual competence is less than 1 level / level |
| 4  | 2                | 3.5          | Individual competencies are over 2 levels / levels |
| 5  | -2               | 3            | Individual competence is less than 2 levels / levels |
| 6  | 3                | 2.5          | Individual competencies are over 3 levels / levels |
| 7  | -3               | 2            | Individual competencies are less than 3 levels / levels |
| 8  | 4                | 1.5          | Individual competencies are over 4 levels / levels |
| 9  | -4               | 1            | Individual competencies are less than 4 levels / levels |

2. Grouping Core and Secondary Factor
After determining the required weight gap criteria, each criterion is grouped into two groups, namely core factor and secondary factor.

a. Core factor
Core factors are prominent / most needed aspects (competencies). To calculate the core factor, the formula is used:

\[ NCF = \frac{\sum NC}{\sum IC} \]

Description :
NCF = Average value of core factor
NC = total number of core factor values
IC: Number of core factor items

b. Secondary Factor
Secondary factor is items other than the aspect of the core factor. To calculate the secondary factor, the formula is used:

\[ NSF = \frac{\sum NS}{\sum IS} \]

Description :
NSF: Average value of secondary factor
NC: Total number of secondary factors
IC: number of secondary factor items

3. Calculation of Total Value
From the calculation of core factors and secondary factors of each aspect, then the total value of each aspect calculated is estimated to affect the performance of each profile. To calculate the total value of each aspect, the formula is used:
3. Analysis and Discussion

3.1. Problem Analysis

Problem analysis is done to find out what problems occur in the development of the system in this study. Based on the results of the research and interviews with the Al-Quran Reading Park (TPQ) Anbata regarding the decision-making process for the selection of teaching staff or quran teachers at the current Anbata Al-Quran Reading Park (TPQ) is still done manually by collecting the candidate scores teaching staff who are processed using notes on paper and announced on the bulletin board and also rely on senior clerics in determining the value of prospective teaching staff or quran teachers who are selected or pass the selection, then analyzed and matched with the standard values and criteria required in selection and requires a long time.

To overcome these problems, a decision support system is needed that can process selection data of prospective teaching staff or quran teachers quickly, accurately and accurately so that they can provide results for recommendations for those in authority in the process of selecting the best teaching staff or quran teachers to become teaching staff or Quran teacher at the Anbata Koran Reading Park (TPQ).

3.2. Discussion

3.2.1. Profile Matching Method

There are five value criteria in the selection process of the Teaching Staff, including:

- a) Accuracy of Tajweed Value
- b) The Value of Reading Fluency
- c) Fair Value of Reading Reading
- d) Value of Attitude Value
- e) Value of Worship Value

The following is the data of prospective lecturers or quran teachers who will be used for the calculation of the method to be applied.

| Name   | Accuracy of Tajweed Value | The Value of Reading Fluency | Fair Value of Reading Reading | Value of Attitude Value | Value of Worship Value |
|--------|---------------------------|-----------------------------|-------------------------------|------------------------|-----------------------|
| Ridwan | 8                         | 8                           | 9                             | 7                      | 9                     |
| Emma   | 8                         | 8                           | 8                             | 8                      | 9                     |
| Rahmat | 8                         | 9                           | 8                             | 9                      | 9                     |
| Abdul  | 8                         | 8                           | 8                             | 8                      | 9                     |
| Abdi   | 7                         | 6                           | 8                             | 7                      | 7                     |
| Buchory| 7                         | 6                           | 8                             | 7                      | 7                     |
| Shanaz | 7                         | 7                           | 8                             | 7                      | 6                     |
| Khadijah | 8                        | 6                           | 8                             | 6                      | 8                     |
| Firman | 8                         | 7                           | 7                             | 7                      | 8                     |
| Khairunnisa | 8                     | 8                           | 7                             | 7                      | 9                     |

After getting the value of the Candidate Pengajars, the next step is the calculation of the santri value using the profile matching method, as for the steps as follows:

1. Mapping Gap and Weight Value

What is meant by gap here is the difference between the value of prospective teaching staff or quran teacher and the value of the required criteria. As for the collection of gaps that occur themselves at each criterion has different calculations. Assessment criteria are found in the following table.
| Name      | Criteria                          | The Value of Prospective Teaching Staff | Criteria Value | Gap |
|-----------|-----------------------------------|-----------------------------------------|----------------|-----|
| Ridwan    | Value of Worship Value            | 9                                       | 9              | 0   |
|           | The Value of Reading Fluency      | 8                                       | 8              | 0   |
|           | Fair Value of Reading Reading     | 9                                       | 7              | 2   |
|           | Value of Attitude Value           | 7                                       | 7              | 0   |
|           | Accuracy of Tajweed Value         | 8                                       | 6              | 2   |
| Emma      | Value of Worship Value            | 9                                       | 9              | 0   |
|           | The Value of Reading Fluency      | 8                                       | 8              | 0   |
|           | Fair Value of Reading Reading     | 8                                       | 7              | 1   |
|           | Value of Attitude Value           | 8                                       | 7              | 1   |
|           | Accuracy of Tajweed Value         | 8                                       | 6              | 2   |
| Rahmat    | Value of Worship Value            | 9                                       | 9              | 0   |
|           | The Value of Reading Fluency      | 8                                       | 8              | 1   |
|           | Fair Value of Reading Reading     | 8                                       | 7              | 1   |
|           | Value of Attitude Value           | 9                                       | 7              | 2   |
|           | Accuracy of Tajweed Value         | 8                                       | 6              | 2   |
| Abdul     | Value of Worship Value            | 7                                       | 9              | -2  |
|           | The Value of Reading Fluency      | 6                                       | 8              | -2  |
|           | Fair Value of Reading Reading     | 8                                       | 7              | 1   |
|           | Value of Attitude Value           | 7                                       | 7              | 0   |
|           | Accuracy of Tajweed Value         | 8                                       | 6              | 2   |
| Abdi      | Value of Worship Value            | 6                                       | 9              | -3  |
|           | The Value of Reading Fluency      | 5                                       | 8              | -3  |
|           | Fair Value of Reading Reading     | 7                                       | 7              | 0   |
|           | Value of Attitude Value           | 7                                       | 7              | 0   |
|           | Accuracy of Tajweed Value         | 7                                       | 6              | 1   |
| Buchory   | Value of Worship Value            | 7                                       | 9              | -2  |
|           | The Value of Reading Fluency      | 6                                       | 8              | -2  |
|           | Fair Value of Reading Reading     | 8                                       | 7              | 1   |
|           | Value of Attitude Value           | 8                                       | 7              | 1   |
|           | Accuracy of Tajweed Value         | 7                                       | 6              | 1   |
| Shanaz    | Value of Worship Value            | 6                                       | 9              | -3  |
|           | The Value of Reading Fluency      | 7                                       | 8              | -1  |
|           | Fair Value of Reading Reading     | 7                                       | 7              | 0   |
|           | Value of Attitude Value           | 7                                       | 7              | 0   |
|           | Accuracy of Tajweed Value         | 7                                       | 6              | 1   |
| Khadijah  | Value of Worship Value            | 8                                       | 9              | -1  |
|           | The Value of Reading Fluency      | 6                                       | 8              | -2  |
|           | Fair Value of Reading Reading     | 8                                       | 7              | 1   |
|           | Value of Attitude Value           | 6                                       | 7              | -1  |
|           | Accuracy of Tajweed Value         | 8                                       | 6              | 2   |
| Firman    | Value of Worship Value            | 8                                       | 9              | -1  |
|           | The Value of Reading Fluency      | 7                                       | 8              | -1  |
|           | Fair Value of Reading Reading     | 7                                       | 7              | 0   |
|           | Value of Attitude Value           | 7                                       | 7              | 0   |
|           | Accuracy of Tajweed Value         | 8                                       | 6              | 2   |
| Khairunnisa | Value of Worship Value           | 9                                       | 9              | 0   |
|           | The Value of Reading Fluency      | 8                                       | 8              | 0   |
|           | Fair Value of Reading Reading     | 7                                       | 7              | 0   |
|           | Value of Attitude Value           | 7                                       | 7              | 0   |
|           | Accuracy of Tajweed Value         | 8                                       | 6              | 2   |
| Name    | Criteria                        | Value of Weight of Candidates for Teaching Force |
|---------|---------------------------------|--------------------------------------------------|
| Ridwan  | Value of Worship Value          | 5                                                |
|         | The Value of Reading Fluency    | 5                                                |
|         | Fair Value of Reading Reading   | 3,5                                              |
|         | Value of Attitude Value         | 5                                                |
|         | Accuracy of Tajweed Value       | 3,5                                              |
| Emma    | Value of Worship Value          | 5                                                |
|         | The Value of Reading Fluency    | 5                                                |
|         | Fair Value of Reading Reading   | 4,5                                              |
|         | Value of Attitude Value         | 4,5                                              |
|         | Accuracy of Tajweed Value       | 3,5                                              |
| Rahmat  | Value of Worship Value          | 5                                                |
|         | The Value of Reading Fluency    | 4,5                                              |
|         | Fair Value of Reading Reading   | 4,5                                              |
|         | Value of Attitude Value         | 3,5                                              |
| Abdul   | Value of Worship Value          | 3                                                |
|         | The Value of Reading Fluency    | 3                                                |
|         | Fair Value of Reading Reading   | 4,5                                              |
|         | Value of Attitude Value         | 5                                                |
|         | Accuracy of Tajweed Value       | 3,5                                              |
| Abdi    | Value of Worship Value          | 2                                                |
|         | The Value of Reading Fluency    | 2                                                |
|         | Fair Value of Reading Reading   | 5                                                |
|         | Value of Attitude Value         | 5                                                |
|         | Accuracy of Tajweed Value       | 4,5                                              |
| Buchory | Value of Worship Value          | 3                                                |
|         | The Value of Reading Fluency    | 3                                                |
|         | Fair Value of Reading Reading   | 4,5                                              |
|         | Value of Attitude Value         | 4,5                                              |
|         | Accuracy of Tajweed Value       | 4,5                                              |
| Shanaz  | Value of Worship Value          | 2                                                |
|         | The Value of Reading Fluency    | 4                                                |
|         | Fair Value of Reading Reading   | 5                                                |
|         | Value of Attitude Value         | 5                                                |
|         | Accuracy of Tajweed Value       | 4,5                                              |
| Khadijah| Value of Worship Value          | 4                                                |
|         | The Value of Reading Fluency    | 3                                                |
|         | Fair Value of Reading Reading   | 4,5                                              |
|         | Value of Attitude Value         | 4                                                |
|         | Accuracy of Tajweed Value       | 3,5                                              |
| Firman  | Value of Worship Value          | 4                                                |
|         | The Value of Reading Fluency    | 4                                                |
|         | Fair Value of Reading Reading   | 5                                                |
|         | Value of Attitude Value         | 5                                                |
|         | Accuracy of Tajweed Value       | 3,5                                              |
| Khairunnisa | Value of Worship Value    | 5                                                |
|         | The Value of Reading Fluency    | 5                                                |
|         | Fair Value of Reading Reading   | 5                                                |
|         | Value of Attitude Value         | 5                                                |
|         | Accuracy of Tajweed Value       | 3,5                                              |
2. Core Factor and Secondary factor calculations

a. Core factor

Core factor is the aspect that is most needed by a vacancy. In this case the core factor was the Value of Worship Value, The Value of Reading Fluency and the Fair Reading Value. Core factor calculations are as follows:

\[
\text{Core Factor} = \frac{\text{Jumlah Total Nilai Bobot core factor}}{\text{Jumlah Item Bobot core factor}}
\]

For Ridwan:
\[
\text{Core Factor} = \frac{5 + 5 + 3.5}{3} = \frac{13.5}{3} = 4.5
\]

For Emma:
\[
\text{Core Factor} = \frac{5 + 5 + 4.5}{3} = \frac{14.5}{3} = 4.833
\]

For Rahmat:
\[
\text{Core Factor} = \frac{5 + 4.5 + 4.5}{3} = \frac{14}{3} = 4.666
\]

For Abdul:
\[
\text{Core Factor} = \frac{3 + 3 + 4.5}{3} = \frac{10.5}{3} = 3.5
\]

For Abdi:
\[
\text{Core Factor} = \frac{2 + 2 + 5}{3} = \frac{9}{3} = 3
\]

For Buchory:
\[
\text{Core Factor} = \frac{3 + 3 + 4.5}{3} = \frac{10.5}{3} = 3.5
\]

For Shanaz:
\[
\text{Core Factor} = \frac{2 + 4 + 5}{3} = \frac{11}{3} = 3.666
\]

For Khadijah:
\[
\text{Core Factor} = \frac{4 + 3 + 4.5}{3} = \frac{11.5}{3} = 3.833
\]

For Firman:
\[
\text{Core Factor} = \frac{4 + 4 + 5}{3} = \frac{13}{3} = 4.333
\]

For Khairunnisa:
\[
\text{Core Factor} = \frac{5 + 5 + 5}{3} = \frac{15}{3} = 5
\]

b. Secondary factor

Secondary factor is items other than the aspect of core factor, in this case the secondary factor is Value of Attitude Value and Accuracy of Tajweed Value. Calculation of secondary factors can be seen as follows:

\[
\text{Secondary Factor} = \frac{\text{Jumlah Total Nilai Bobot secondary factor}}{\text{Jumlah Item Bobot secondary factor}}
\]

For Ridwan:
\[
\text{Secondary Factor} = \frac{5 + 3.5}{2} = \frac{8.5}{2} = 4.25
\]

For Emma:
\[
\text{Secondary Factor} = \frac{4.5 + 3.5}{2} = \frac{8}{2} = 4
\]

For Rahmat:
\[
\text{Secondary Factor} = \frac{3.5 + 3.5}{2} = \frac{7}{2} = 3.5
\]

For Abdul:
\[
\text{Secondary Factor} = \frac{5 + 3.5}{2} = \frac{8.5}{2} = 4.25
\]

For Abdi:
\[
\text{Secondary Factor} = \frac{5 + 4.5}{2} = \frac{9.5}{2} = 4.75
\]

For Buchory:
\[
\text{Secondary Factor} = \frac{4.5 + 4.5}{2} = \frac{9}{2} = 4.5
\]

For Shanaz:
\[
\text{Secondary Factor} = \frac{5 + 4.5}{2} = \frac{9.5}{2} = 4.75
\]
Table 5. Table of Core Factor and Secondary Factor Values

| Name   | NCF | NSF |
|--------|-----|-----|
| Ridwan | 4,5 | 4,25|
| Emma   | 4,833 | 4 |
| Rahmat | 4,666 | 3,5 |
| Abdul  | 3,5 | 4,25|
| Abdi   | 3 | 4,75|
| Buchory| 3,5 | 4,5 |
| Shanaz | 3,666 | 4,75|
| Khadijah| 3,833 | 3,75|
| Firman | 4,333 | 4,25|
| Khairunnisa | 5 | 4,25 |

3. Calculating Total Value

From the results of the calculation of each aspect then the total value is calculated based on the percentage of core factors and secondary factors that are expected to affect the performance of each profile. The calculation can be seen as follows:

\[
\text{Nilai Total} = 60\% \cdot NCF + 40\% \cdot NSF
\]

Total Value:
1. Ridwan = \((0.6 \times 4.5) + (0.4 \times 4.25) = 4.4\)
2. Emma = \((0.6 \times 4.833) + (0.4 \times 4) = 4.5\)
3. Rahmat = \((0.6 \times 4.666) + (0.4 \times 3.5) = 4.199\)
4. Abdul = \((0.6 \times 3.5) + (0.4 \times 4.25) = 3.8\)
5. Abdi = \((0.6 \times 3) + (0.4 \times 4.75) = 3.7\)
6. Buchory = \((0.6 \times 3.5) + (0.4 \times 4.5) = 3.9\)
7. Shanaz = \((0.6 \times 3.666) + (0.4 \times 4.75) = 4.0996\)
8. Khadijah = \((0.6 \times 3.833) + (0.4 \times 3.75) = 3.7998\)
9. Firman = \((0.6 \times 4.333) + (0.4 \times 4.25) = 4.2998\)
10. Khairunnisa = \((0.6 \times 5) + (0.4 \times 4.25) = 4.7\)

Table 6. Table Nilai Total

| Name   | NCF | NSF | Total Value |
|--------|-----|-----|-------------|
| Ridwan | 4,5 | 4,25| 4,4         |
| Emma   | 4,833 | 4 | 4,5         |
| Rahmat | 4,666 | 3,5 | 4,1996     |
| Abdul  | 3,5 | 4,25| 3,8         |
| Abdi   | 3 | 4,75| 3,7         |
| Buchory| 3,5 | 4,5 | 3,9         |
| Shanaz | 3,666 | 4,75| 4,0996     |
| Khadijah| 3,833 | 3,75 | 3,7998     |
| Firman | 4,333 | 4,25| 4,2998     |
| Khairunnisa | 5 | 4,25 | 4,7 |

After the total value of each method is obtained, then the next is to make the highest ranking of the results of the method. The highest ranking results of the authors took the top 5 from the prospective Teaching Staff. The following table 7 selection results:
| Name         | Total Value |
|--------------|-------------|
| Ridwan      | 4.4         |
| Emma        | 4.5         |
| Abdul       | 4.2998      |
| Rahmat      | 4.1996      |
| Khairunnisa | 4.7         |

From the highest ranking results, it can be seen that the results of the selection carried out by the profile matching method show the selected teaching staff or quran teacher. The highest value is Khairunnisa with a value of 4.7. the authors conclude that the Profile Matching Method is suitable for the recruitment system of teachers or quran teachers in the Anbata Al-Quran Reading Park (TPQ). Because the weighting of profile matching is suitable for finding the best value from the best.

4. Conclusion

Based on the research that has been done during the application of an information system to determine prospective teaching staff or quran teachers at the Anbata Al-Quran Reading Park (TPQ), then some conclusions can be drawn as follows:

1. Decision-making system with Profile Matching Method can update the decision-making system that is running on the selection of teaching staff or quran teachers in accordance with the criteria of assessment
2. The decision making system with the Profile Matching Method can determine the prospective teaching staff or new quran teachers in providing the required information more quickly and accurately.
3. The results of the selection of prospective teaching staff or quran teachers who are automatically presented to the system can reduce data errors and redundancies.

5. References

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