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Implementation of the Simple Additive Weighting Method at Universitas Terbuka Mataram for New Employee Recruitment

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Article Info	ABSTRACT

An agency will thrive if it is supported by qualified employees. So that employees are certainly one of the most important assets in an institution, both private and public institutions, so that agencies are required to recruit prospective contract employees who have competence and talent to support the implementation of work at the Open University of Mataram City. Skilled workers who can bring institutions forward and compete with other agencies so that they can keep up with the times, and the recruitment aspect is starting to get a special view, because the recruitment process is not in accordance with the needs at the Mataram Open University so that it can hinder the rate of development of the agency itself. Therefore, a decision support system is needed for the contract employee recruitment process at the Universitas Terbuka Mataram. Therefore, a decision support system is needed for the contract employee recruitment process at Universitas Terbuka Mataram campus. This decision support system uses the Simple Additive Weighting SAW method. In this case, prospective employees are compared with one another so as to provide an output value of priority intensity which results in a system that provides an assessment of each employee. This decision support system helps evaluate each employee, make changes to the criteria, and changes the weight values. This is useful to facilitate decision making related to employee selection issues, so that the most appropriate employees will be received in the company. The purpose of this study was to select the best candidate for employees at the Universitas Terbuka Mataram. The results of this study indicate that the SAW method is appropriate for selecting the best prospective employees because it can obtain qualified employees in accordance with the expectations of the company and the leadership.

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1.   INTRODUCTION

Contract employees are legally defined as employees with non-permanent status or in other words, employees or commonly referred to as employees who work only for a certain time based on an agreement between the employee and the company or employer agency [1]. employee or employee is a worker who works under the orders of others and gets compensation and guarantees [2, 3]. Employees are human resources who play a very important role in realizing the vision and mission of an agency or company [4]. The quality and morale given by employees can help sustain the progress of an agency [5]. Universitas Terbuka Mataram which requires a contract employee who has educational qualifications in the computer field, both D3 and S1 in supporting operations at the Universitas Terbuka Mataram, after the announcement of the recruitment of contract employees there were about 20 people who joined the list to try their luck to work as contract employees on the university campus open eyes.

The selection of the employee with the best score is selected based on the criteria and sub-criteria from the results of the selection of employees with the agreed terms and criteria. Problems arise in the inaccuracy of the assessment team in providing assessments to employees because what is assessed is the subjectivity of each prospective employee [6], so the assessment given is still uncertain [7]. The existence of inaccuracies in providing value to employees has an impact on the results of the decisions given are less precise.

The above problems can be corrected by building a Decision Support System (DSS) by applying the ranking method [8]. So that in the case of making the decision to accept the best new contract employees at the Mataram Open University, it is more objective. Therefore, the method that can be applied is Simple Additive Weighting (SAW) [9]. The Simple Additive Weighting (SAW) method is one of the methods used in the process of making a decision [10, 11]. The basic concept of the SAW method is to find the weighted sum of the performance ratings for each alternative on all attributes [12, 13]. The SAW method requires the process of normalizing the decision matrix (X) to a scale that can be compared with all existing alternative ratings [14, 15]. In this study, the implementation of the selection of the best contract workers who will be selected to work at the Universitas Terbuka Mataram. The structure of further writing of this manuscript is as follows: part 1 the background of this research; Section 2 discusses materials and methods; Section 3 explanation of results and discussion; Section 4 which concludes the research results.

2.   RESEARCH METHOD

This study uses the Simple Additive Weighting (SAW) method for making decisions on hiring contract employees at the Universitas Terbuka Mataram.

Explanation of Research Design:
a. Problem Identification Identifying a problem is an early stage in the research process. This stage is done so that researchers can actually find scientific problems. This stage is built based on the formulation of the problem based on the background of the problem.
b. Literature study of the theories used relating to the decision-making system using the Simple Additive Weighting (SAW) method.
c. Data Collection This stage is a way of collecting data which is done in 2 ways, namely observation and interviews with the agency parties related to the criteria for accepting contract employees.
d. Research data
e. Implementation of SAW Method Analysis In this stage, the SAW method is used, which in principle performs calculations by finding the weighted sum of the performance ratings for each alternative on all attributes.
f. Analysis Results After the data analysis stage using the Simple Additive Weighting (SAW) method, an analysis result is produced which is the result of a decision-making process.
g. Conclusion

3.   RESULT AND ANALYSIS

The Simple Additive Weighting (SAW) method is known as the weighted addition method. The basic concept in the SAW method is to find the weighted sum of the performance ratings on each alternative in all attributes. The SAW method requires the process of normalizing the decision matrix (X) to a scale that can be compared with all existing alternative ratings. The formula (1) to perform the normalization is:

$$R_{ij} = \begin{cases} \frac{x_{ij}}{Max\ x_{ij}} & If\ j\ is\ atribute\ (benefit) \\ \frac{Min\ x_{ij}}{x_{ij}} & if\ j\ is\ atribut\ (cost) \end{cases} \tag{1}$$

r_{ij}	=	normalized performance rating value
x_{ij}	=	attribute value owned by each criterion i
Max X_{ij}	=	the largest value of each criterion i
Min X_{ij}	=	the smallest value of each criterion
benefit	=	if the biggest value is the best
cost	=	if the smallest value is the best where rij is the normalized performance rating of alternative Ai on attribute Cj; i=1,2,...,m and j=1,2,...,n.

In the case of hiring a contract employee at an open university, there are several requirements/criteria, including:

IPK Minimum	=	2.75
Maximum Age	=	35 Years
Last Education	=	S1: 1
		S2: 2

The following is temporary data on prospective contract employees who have passed the administrative selection:

Table 1. List of prospective contract employees who have passed the administration selection:

No	Name	IPK	Age	Education
1	Risky	2,94	39	2
2	Surya	3,1	32	2
3	Saripa	3,23	26	1
4	M.Yusuf	2,76	30	2
5	Muhammad Wirasatya Husain	3,1	27	2
6	Damhuji Saleh	2,77	25	1
7	Gibran	3,18	26	2
8	Fajri	2,99	24	1
9	Henky	2,75	30	2
10	Nurul Fitriani	2,75	32	2
11	Putri Yusnia Ningrum	3,29	30	2
12	Minda	2,75	25	1
13	Apriliya	3,26	26	2
14	Wahyudi	3,5	30	1
15	Syamsuddin	3,25	39	2
16	Jembu	2,81	25	2
17	Rama	3,3	38	1
18	Safi'i	2,98	34	2
19	Dinda	2,84	32	2
20	Gatot Suherman	3,15	29	1

The data in Table 1 is a candidate for contract workers who meet the administrative requirements, there are 20 people. From the data above, 10 contract employees will be selected with the following assessment criteria:

1. IPK point : 25%
2. Age Point : 10%
3. Education : 20%
4. Academic Potential Test Point : 20%
5. Interview Point : 25%

Table 2. The calculation results are as follows:

No	Name	IPK	Age	Education	Academic Potential Test	Interview
1	Gibran	3,18	26	2	80	5
2	Muhammad Wirasatya Husain	3,1	27	2	75	5
3	Surya	3,1	32	2	85	4
4	Syamsuddin	3,25	39	2	76	4
5	Putri Yusnia Ningrum	3,29	30	2	80	3
6	Minda	2,75	25	1	88	5
7	Saripa	3,23	26	1	90	4
8	Rama	3,3	38	1	95	4
9	Henky	2,75	30	2	80	3
10	Jembu	2,81	25	2	70	3
11	Apriliya	3,26	30	2	80	2
12	M.Yusuf	2,76	30	2	76	3
13	Fajri	2,99	24	1	79	4
14	Safi'i	2,98	34	2	69	3
15	Dinda	2,84	32	2	70	3
16	Risky	2,94	39	2	68	3
17	Wahyudi	3,5	30	1	55	4
18	Damhuji Saleh	2,77	25	1	69	4
19	Gatot Suherman	3,15	29	1	80	3
20	Nurul Fitriani	2,75	32	2	60	2
	Min/Max	**3,5**	**24**	**2**	**95**	**5**

Furthermore, an academic knowledge test was conducted and interviews were conducted with all applicants who passed the administrative selection as shown in Table 2.

Table 3. Matrix Normalization

No	IPK	Age	Education	Academic Potential Test	Interview	Referensi
1	0,909	0,923	1,000	0,842	1,000	0,938
2	0,886	0,889	1,000	0,789	1,000	0,918
3	0,886	0,750	1,000	0,895	0,800	0,875
4	0,929	0,615	1,000	0,800	0,800	0,854
5	0,940	0,800	1,000	0,842	0,600	0,833
6	0,786	0,960	0,500	0,926	1,000	0,828
7	0,923	0,923	0,500	0,947	0,800	0,812
8	0,943	0,632	0,500	1,000	0,800	0,799
9	0,786	0,800	1,000	0,842	0,600	0,795
10	0,803	0,960	1,000	0,737	0,600	0,794
11	0,931	0,800	1,000	0,842	0,400	0,781
12	0,789	0,800	1,000	0,800	0,600	0,787
13	0,854	1,000	0,500	0,832	0,800	0,780
14	0,851	0,706	1,000	0,726	0,600	0,779
15	0,811	0,750	1,000	0,737	0,600	0,775
16	0,840	0,615	1,000	0,716	0,600	0,765
17	1,000	0,800	0,500	0,579	0,800	0,746
18	0,791	0,960	0,500	0,726	0,800	0,739
19	0,900	0,828	0,500	0,842	0,600	0,726
20	0,786	0,750	1,000	0,632	0,400	0,698

In Table 3 are the results of the normalization of each criterion so that the results of the calculation use the SAW method show that 10 people with the highest scores in the reference column have the potential to pass the selection test for contract employee recruitment at the Universitas Terbuka Mataram.

4.   CONCLUSION

Based on the results of the evaluation and implementation of the SAW method into the SPK application, the decision-making system for the acceptance of new contract employees at the Mataram Open University campus concluded that the recruitment selection process for contract employees can be carried out using the Decision Support System method using the SAW method so that it can facilitate the university in conducting the admissions selection process. best contract employee. The results of decisions using the SAW method are able to produce decisions that are more objective, computerized, and reduce the occurrence of human errors, as well as speed up the assessment process. The Best New Contract Employee Decision Support System that was built, can provide accurate weight calculation results and can provide reports on the ranking results of new recruits received by looking at the highest value to the lowest value.

5.   ACKNOWLEDGEMENTS

6.   DECLARATIONS

AUTHOR CONTIBUTION

Author contributed to the writing of this article.

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COMPETING INTEREST

The author declares no conflict of interest in this article.

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