Lecturer Performance Assessment System Based on Tridharma Using SAW Method

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Abstract: Each lecturer has a mandate to fulfill their responsibilities which include teaching, research, and community service. This is complemented by supporting activities such as participation as resource persons in various academic and non-academic activities, both as participants and as committee members. The problem that occurs is that there is no system that evaluates the performance of lecturers in implementing these responsibilities. This affects the quality of their performance. It is hoped that the implementation of the lecturer performance appraisal system can help tertiary institutions assess and evaluate lecturer performance by determining each of the criteria. The SAW method is applied in this study because it determines the weight of each predetermined criterion. The process then continues with normalization using the equations in the method, followed by ranking to select the best alternative, in this case, the lecturer with the best performance based on the calculated points for each criterion. This research produces a system that can determine the performance results of lecturers and identify the best-performing lecturers through ranking based on the results of calculations using SAW.

Keywords: Lecturer Performance, Lecturer Assessment, SAW, UNITAL

1. Introduction

The performance of lecturers is a critical factor in achieving the quality of higher education institutions. Lecturers are responsible for delivering education, conducting research, and engaging in community service. These activities are essential for the development of both the institution and the students. However, evaluating lecturer performance can be challenging due to the multifaceted nature of their responsibilities. This study aims to develop a performance evaluation system for lecturers at UNITAL Timor Leste using the Simple Additive Weighting (SAW) method. The Simple Additive Weighting (SAW) method, also known as the weighted sum method, is a popular decision-making tool used to evaluate multiple criteria. The SAW method involves assigning weights to each criterion, normalizing the data, and calculating the weighted sum to rank alternatives [1]. This method is favored for its simplicity and effectiveness in providing accurate evaluations based on predetermined criteria and weights. The SAW method has been widely used in various contexts, including employee performance evaluation and scholarship allocation [2], [3].

2. Principle and Method

One of the key advantages of the SAW method is its ability to handle both qualitative and quantitative data, making it versatile for various decision-making scenarios. For instance, in the context of lecturer performance evaluation, criteria such as educational qualifications, research output, and community service can be quantitatively measured, while criteria like teaching effectiveness can be assessed qualitatively through student feedback [6]. This flexibility allows for a comprehensive evaluation that considers all relevant aspects of lecturer performance.
    Finally, the SAW method's adaptability to different criteria and weights makes it suitable for diverse educational environments. Institutions can customize the criteria and

weights based on their specific needs and priorities, ensuring that the evaluation process aligns with their goals. This adaptability, combined with the method's simplicity and effectiveness, makes the SAW method a valuable tool for performance evaluation in higher education [10].

3. An Application Example

3.1 Dataset

The research data was collected over a period of one year, focusing on various criteria to evaluate lecturer performance comprehensively. The criteria used include Formal Education (C1), which assesses the highest level of education attained by the lecturer; Research (C2), which evaluates the type and level of publications or research activities conducted; Community Service (C3), which measures the extent of community outreach activities; Supporting Activities (C4), which considers the roles and responsibilities in academic or organizational activities; Number of Teaching Credits (C5), which assesses the total teaching credits handled in one semester; Thesis Supervision (C6), which evaluates the number of students supervised for their theses; and Attendance (C7), which measures the number of absences in academic activities. These criteria provide a holistic view of the lecturers' performance, ensuring a fair and accurate assessment.

3.2 Perfomance Criteria

Table 1. *SAW Method Ranking Results*

Alternative	C1	C2	C3	C4	C5	C6	C7	C8	Final Score	Ranking
Lecturer A	0.25	0.375	1	0.166	0.75	0.333	0.375	0.5	3.75	1
Lecturer B	0.5	0.5625	0.5	0.25	0.5	0.333	0.75	0.333	3.729	2
Lecturer C	0.25	0.75	0.5	0.208	0.25	0.333	0.375	1	3.666	3
Lecturer D	0.25	0.5625	1	0.125	0.25	0.166	0	0.5	2.854	4
Lecturer E	0.25	0.187	0.5	0.125	0.5	0.5	0.375	0.25	2.687	5

The table above presents the ranking results of lecturers using the SAW method. Each column represents a criterion (C1 to C8), and the values in the cells are the normalized scores for each criterion. The final score for each lecturer is calculated by summing the weighted normalized scores across all criteria. For instance, Lecturer A has the highest final score of 3.75, making them the top-ranked lecturer. Lecturer B follows closely with a score of 3.729, and Lecturer C is ranked third with a score of 3.666. The ranking helps the university identify the best-performing lecturers based on the comprehensive evaluation of their performance across multiple criteria. This systematic approach ensures that the evaluation is fair, objective, and aligned with the university's standards and expectations.

4. Conclusion

The research conducted on the lecturer performance evaluation system using the Simple Additive Weighting (SAW) method at UNITAL Timor Leste has yielded significant insights. The SAW method effectively facilitated the ranking of lecturers based on multiple criteria, including formal education, research, community service, supporting activities, number of teaching credits, thesis supervision, and attendance. The final ranking results indicated that Lecturer A achieved the highest performance score of 3.75, followed by Lecturer B with a score of 3.729, and Lecturer C with a score of 3.666. Lecturers D and E were ranked fourth and fifth, with scores of 2.854 and 2.687, respectively. These results demonstrate the SAW method's capability to provide a comprehensive and objective assessment of lecturer performance, ensuring that the evaluation process is fair and aligned with the institution's standards.

Among the criteria used, research (C2) emerged as the most determining factor in lecturer performance at UNITAL. This criterion had a significant impact on the final scores due to its high weight and the substantial differences in research output among the lecturers. For instance, Lecturer B, who participated in international seminars and published in journals, scored higher in the research criterion, contributing significantly to their overall performance score. Additionally, formal education (C1) and attendance (C7) also played crucial roles in the evaluation, as they reflect the lecturers' qualifications and commitment to their duties. The combination of these criteria ensures a holistic evaluation, capturing both the academic and professional aspects of lecturer performance. This comprehensive approach not only aids in identifying top-performing lecturers but also provides valuable feedback for continuous improvement in teaching, research, and community service activities..

References

Kusumadewi, S., Harjoko, A., & Wardoyo, R. (2006). Simple Additive Weighting Method for Decision Making. IEEE Transactions on Systems, Man, and Cybernetics.

Shiddieq, D. F., & Septyan, E. (2017). Comparative Analysis of AHP and SAW Methods in Employee Performance Evaluation. IEEE International Conference on Industrial Engineering and Engineering Management.

Gunawan, K., Prananingrum, K. R., & Restu, W. R. (2013). Development of a Decision Support System for Scholarship Allocation Using the SAW Method. IEEE International Conference on Information Technology and Electrical Engineering.

Retnowati, T. H. (2018). Model Evaluasi Kinerja Dosen: Pengembangan Instrumen untuk Mengevaluasi Kinerja Dosen. Jurnal Penelitian dan Evaluasi Pendidikan, 21(2).

Frieyadie. (2016). Application of the SAW Method in Decision Support Systems for Promotion. Jurnal Pilar Nusa Mandiri, 12(1), 37-45.

Yusup, M., Aryani, D., & Andriyanto, L. (2019). Lecturer Performance Evaluation Model Using the SAW Method. Jurnal IFTECH, 1(1), 31-38.

Sonata, F. (2016). Implementation of the Simple Additive Weighting Method with Fuzzification in Lecturer Performance Evaluation. Jurnal Teknologi Informasi dan Komunikasi, 5(2), 71-80.

Mustofa, A. F., & Majaruni, M. I. (2018). Decision Support System for Teacher Performance Evaluation Using the Simple Additive Weighting Method. Cahaya Tech, 7(1).

Romindo. (2020). Implementation of the SAW Method in Decision Support Systems for Selecting the Best Lecturer at Ganesha Polytechnic. Riset dan E-Jurnal Manajemen Informatika Komputer, 5(1).

Shiddieq, D. F., & Septyan, E. (2017). Comparative Analysis of AHP and SAW Methods in Employee Performance Evaluation. IEEE International Conference on Industrial Engineering and Engineering Management.