Selection of the Best Lecturer in Management Forum Indonesia Chapter DKI Jakarta with Analytical Hierarchy Process (AHP) Method

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Abstract

This study aims to be able to provide recommendations in the decision-making system related to the best lecturers at the Jakarta Chapter of the Indonesian Management Lecturer Forum. It is hoped that the research results can be used as input in the Best Lecturer decision making system with a more systematic system. This research was conducted through interviews, questionnaires and literature study related to the Lecturer profession. In the field, the assessment criteria are still rough, therefore this study must include all the criteria into the mechanism, rules, and codes. Analysis, each criterion is analyzed using the AHP (Analytical Hierarchy Process) method in weighting. The cumulative results of the recapitulation of scores show that teaching is still a top priority in the implementation of the Tridaharma of Lecturers, after that the second priority is research, then community service and finally support in the form of participation in supporting activities and scientific development.

Keywords

Decision Making, Best Lecturer, AHP (Analytical Hierarchy Process).

Introduction

One of the efforts to improve academic quality is to increase the capacity of teachers or educators who are good and experienced, this is stated in the Law of the Republic of Indonesia No. 14 of 2005 concerning Teachers and Lecturers, Article 51 Paragraph (1) Point b, that lecturers are entitled to promotions and awards according to academic performance in accordance with the guidelines for selecting outstanding lecturers (Ristekdikti, 2017). The assessment of lecturers with good performance is appreciated through awards that will make the quality of learning good, but unfortunately there are thousands of lecturers who have good abilities who do not receive appreciation from Higher Education / Universities, subjective assessments, variables that are judged not in accordance with the guidelines to the mismatch of the assessment. The promotion process of the institution also does not have an accurate value due to the unclear assessment process of the inappropriate assessment variables.

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The problem arose in the inaccuracy of the assessment team in giving assessments to lecturers due to several criteria that were subjectivity. So that the assessment given is still uncertain and unclear. The existence of inaccuracies in giving grades to lecturers has an impact on the results of decisions given to be less precise. The above problems can be fixed by building a Decision Support System (DSS) by applying the Analytical Hierarchy Process (AHP) method. Analytical Hierarchy Process (AHP) is a decision-making method that is extensively used in multi-criteria (multi-criteria) decisions. One of the main advantages of this method is that it is relatively easy to handle decisions with multiple criteria. AHP involves the principles of decomposition, pairwise comparison, and priority vector generation and synthesis.

Based on this background, this study aims to be able to provide recommendations in the decision-making system related to the best lecturers at the Jakarta Chapter Indonesian Management Lecturer Forum. It is hoped that the research results can be used as input in the Best Lecturer decision making system with a more systematic system.

Research Methods

Data collection in this study was carried out through interviews, questionnaires and literature study related to the Lecturer profession. In the field, the assessment criteria are still rough, therefore this study must include all the criteria into the mechanism, rules, and codes. Based on the above process flow, this study divides the research method into several stages as follows:

- Identification of problems
- Analysis, each criterion is analyzed using the AHP (Analytical Hierarchy Process) method in weighting
- Implementation
- Testing. At this stage, testing is carried out using User Acceptance testing.

Analitycal Hierarchy Process (AHP) is one of the methods in decision support systems that uses criterion weights by choosing the best alternative and is used to solve a complex unstructured situation into several components in a hierarchical arrangement, by giving subjective values about the relative importance of each variable, and determine which variable has the highest priority in order to influence the outcome in the situation. The criteria for evaluating the best Lecturers refer to the Functional Position Assessment of Lecturers, namely;

A. Teaching
B. Research and Publication
C. Community Service
D. Additional Components

In the Best Lecturer assessment will involve 4 Lecturers who have previously been selected by the Assessment Team who are then given the symbols Y1, Y2, Y3 and Y4. This pairwise comparison is presented in the form of a matrix. The scale used to fill this matrix is 1 to 9 (Saaty scale) with the explanation,

Scale for Pairwise Comparison of Interests
Number
1 Equally important
3 Moderately more important
5 Strongly more important
7 Very strongly more important

9 Extremely more important

1, 4, 6, 8 Intermediate values

Results and Discussion

The first step in the AHP model is to calculate the hierarchical weighting factor for all criteria based on the recapitulation of the questionnaire results using the paired comparison method, where the lower triangle matrix is the comparison result of the upper triangle matrix. The calculation results produce the Vector Eigen value which is then multiplied by the total value for each criterion to produce the Maximum Eigen value (maximum λ). Table 1 contains the Vector Eigen results from all the criteria in the study.

Table 1 Comparison between all criteria

	X1	X2	X3	X4		X1	X2	X3	X4	∑	Vector Eigen
X1	0,75	0,79	0,714	0,78		0.65	0.59	0.47	0.34	2.05	0.51
X2	0,12	0,11	0,14	0,51	Normalization	0.10	0.08	0.09	0.22	0.50	0.13
X3	0,15	0,11	0,15	0,2		0.13	0.08	0.10	0.09	0.40	0.10
X4	0,14	0,33	0,50	0,79		0.12	0.25	0.33	0,35	1.05	0.26
∑	1.16	1.34	1.504	2.28							

Source: Data processed, 2021

The next step is to calculate the evaluation factor for each criterion. Table 1 describes all the criteria. Meanwhile, table 2 on the reputation of the Teaching Criteria, table 3 on Criteria for Research and Publication and table 4 on Criteria for Community Service and table 5 on Additional Criteria.

Table 2 Teaching Table

	Y1	Y2	Y3	Y4		Y1	Y2	Y3	Y4	∑	Vector Eigen
Y1	1.02	0.42	0.2	0.6		0.49	0.38	0.08	0.24	1.19	0.30
Y2	0.64	0.1	0.45	0.6	Normalization	0.31	0.09	0.19	0.24	0.83	0.21
Y3	0.21	0.1	1.25	1		0.10	0.09	0.52	0.41	1.12	0.28
Y4	0.22	0.49	0.5	0.25		0.11	0.44	0.21	0.10	0.86	0.21
∑	2.09	1.11	2.4	2.45							
$\propto max = 4,253$
CI = 0,094
CR = 0,072 (*CR* < 0,100 means the respondent's preference is consistent)

Source: Data processed, 2021

Table 3 Research and Publication Tables

	Y1	Y2	Y3	Y4		Y1	Y2	Y3	Y4	∑	Vector Eigen
Y1	0.4	0.2	1.12	0.5		0.21	0.20	0.38	0.25	1.04	0.26
Y2	0.2	0.2	0.45	0.25	Normalization	0.10	0.20	0.15	0.13	0.58	0.14
Y3	1.11	0.1	1.25	0.25		0.58	0.10	0.43	0.13	1.23	0.31
Y4	0.2	0.52	0.1	1		0.10	0.51	0.03	0.50	1.15	0.29
∑	1.91	1.02	2.92	2							

$\propto max = 4{,}148$
CI = 0,049
CR = 0,067 (*CR* < 0,100 means the respondent's preference is consistent)

Source: Data processed, 2021

Table 4 Table of Community Service

	Y1	Y2	Y3	Y4		Y1	Y2	Y3	Y4	∑	Vector Eigen
Y1	0.25	1	0.75	0.4		0.19	0.24	0.48	0.19	1.11	0.28
Y2	0.2	1.24	0.45	1.25	Normalization	0.15	0.30	0.29	0.60	1.34	0.34
Y3	0.1	1.35	0.25	0.2		0.08	0.33	0.16	0.10	0.66	0.17
Y4	0.76	0.5	0.1	0.25		0.58	0.12	0.06	0.12	0.89	0.22
∑	1.31	4.09	1.55	2.1							

$\propto max = 4{,}208$
CI = 0,069
CR = 0,077 (*CR* < 0,100 means the respondent's preference is consistent)

Source: Data processed, 2021

Table 5 Table Additional Criteria

	Y1	Y2	Y3	Y4		Y1	Y2	Y3	Y4	∑	Vector Eigen
Y1	0.75	0.25	0.75	0.4		0.52	0.14	0.52	0.27	1.45	0.36
Y2	0.4	0.2	0.4	0.8	Normalization	0.28	0.12	0.28	0.53	1.20	0.30
Y3	0.2	0.78	0.2	0.2		0.14	0.45	0.14	0.13	0.86	0.22
Y4	0.1	0.5	0.1	0.1		0.07	0.29	0.07	0.07	0.49	0.12
∑	1.45	1.73	1.45	1.5							

$\propto max = 4{,}074$
CI = 0,025
CR = 0,028 (*CR* < 0,100 means the respondent's preference is consistent)

Source: Data processed, 2021

Table 6 Matrix of Relationship between Criteria and Alternatives

	Vector Eigen				
	X1	X2	X3	X4	Total Score Per Dosen
Y1	0.30	0.26	0.28	0.36	1,2
Y2	0.21	0.14	0.34	0.30	0,99
Y3	0.28	0.31	0.17	0.22	0,98
Y4	0.21	0.29	0.22	0.12	0,84

Source: Data processed, 2021

Conclusion

The results showed that respectively Lecturers with codes Y1, Y2, Y3 and Y4, to get the best Lecturer predicate in the order of 1, 2, 3 and 4. The cumulative score recapitulation results show that teaching is still the top priority in implementing the Tridaharma of Lecturers after that the second priority is research, then community service and the last is support in the form of participation in supporting activities and scientific development.

References

Ali, S., Maharani, L., & Untari, D.T. (2019). Development of religious tourism in Bandar Lampung, *Indonesia African Journal of Hospitality, Tourism and Leisure, 8*(5), 1- 8.

Dharmanto, A., Komariah, N.S., Handayani, M., Suminar, R., & Untari, D.T. (2020). Analysis of tourism preferences in choosing online-base travel agents in Indonesia. *International Journal of Scientific and Technology Research, 8*(12), 3761–3763.

Nurhalimah. (2015). Decision Support System for Convection Raw Material Supplier Selection Using AHP Method (Case Study: Alta Moda Convection Medan). *Scientific Information and Technology Scientific Magazine (INTI),* 129-136.

Siswanto, T. (2013). The Analytical Hierarchy Process; Optimization of social media as a marketing medium for small and medium businesses. *Liquidity, 2*(1), 80-86.

Silalahi, S.A.F. (2017). National Start-Up Company Developments and Challenges. *Research Center of the Indonesian House of Representatives Expertise Board, 9*(16), 13-16.

Shim, J.P., Shin, Y.B., & Nottingham, L. (2002). Retailer web site influence on customer shopping: exploratory study on key factors of customer satisfaction. *Journal of the Association for Information systems, 3*(1), 53-76.

Saghafian, S., & Hejazi, S.R. (2005). Multi-criteria group decision making using a modified fuzzy TOPSIS procedure. *In International Conference on Computational Intelligence for Modelling, Control and Automation and International Conference on Intelligent Agents, Web Technologies and Internet Commerce (CIMCA-IAWTIC'06), 2*, 215-221.

Tahriri, F., Osman, M.R., Ali, A., Yusuff, R., & Esfandiary, A. (2008). AHP approach for supplier evaluation and selection in a steel manufacturing company. *Journal of Industrial Engineering and Management (JIEM), 1*(2), 54-76.

Taufik, R., Sumantri, Y., & Tantrika, CFM (2014). The application of the selection of suppliers of readymix raw materials based on the integration of the AHP and TOPSIS methods (Case study at PT Merak Jaya Beton, Malang). *Journal of Industrial Systems Engineering and Management, 2*(5), 1067-1076.

Untari, D.T., Satria, B., Fikri, A.W.N., Nursal, M.F., & Winarso, W. (2020). Technology, social media and behaviour of young generation in Indonesia; a conseptual paper. *International Journal of Scientific and Technology Research, 9*(4), 986–989.

Untari, D.T. (2020). The role of information technology in promotion strategy. Case in taman mini Indonesia indah and ragunan, Indonesia. *Journal of Environmental Management and Tourism (JEMT), 11*(04 (44)), 960-964.

Untari, D.T., & Satria, B. (2019). Measuring website effectiveness in communicating tourism destinations in Jakarta, Indonesia. *African Journal of Hospitality, Tourism and Leisure, 8*(4), 1-16.

Malhotra, M., & Chhabra, J.K. (2018). Micro level source code summarization of optimal set of object oriented classes. *Webology, 15*(2), 113-132.