

MODEL FOR DETERMINING CRITERIA FOR PUBLICATION OF ARTICLES IN INTERNATIONAL REPUTABLE JOURNALS

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Abstract. *The problem faced by researchers, in this case lecturers at universities, after carrying out research and making research reports is deciding where to publish the results of their research. Analytic Hierarchy Process is an effective method for ranking alternative journals. This helps ensure that their research is published in a reputable journal that will reach the appropriate audience and have a positive impact on their career. The data collection method in this research was first sourced from books, the internet, and previously a study of articles and journals; secondly, create a checklist of criteria and sub-criteria from 20 (twenty) articles, namely 4 articles from Elsevier, 4 articles from Springer Nature, 4 articles from Taylor & Francis, 4 articles from Wiley-Blackwell, and 4 articles from Sage. Article selection was carried out randomly. The results of distributing questionnaires were analyzed using the Analytic Hierarchy Process Online System designed by Klaus D. Goepel. The main aim of this study was to determine the appropriate weighting of several criteria that explain why previously published manuscripts are submitted to their intended publication. The criteria for accepting article manuscripts in reputable international journals using the Analytical Hierarchy Process model (standard Analytic Hierarchy Process linear scale methods) is that the first priority is the “novelty” criterion with a weight of 0.502. The second priority is the “scientific” criterion with a weight of 0.201. Furthermore, the third and fourth priorities are “manuscript” and “content” respectively with weights of 0.142 and 0.078. Meanwhile, the last priority is “Interesting” with a weight of 0.076.*
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1. Introduction

The issue of the quality of higher education has become a major concern in the academic world. One indicator of the quality of higher education is the publication of articles in journals of international reputation. Therefore, determining criteria for publication of articles in journals of international reputation is important to ensure the quality and relevance of published research.[1]

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From a higher education perspective, the concept of “quality” is a standard used to evaluate and compare the quality of education between different institutions. In the context of publishing articles in journals of international reputation, quality can be measured through factors such as originality of research, valid methodology, strong data analysis, and research contribution to the development of science.[2], [3], [4]

According to several experts, the research efforts of teaching staff are an important catalyst in improving the quality of higher education. Research conducted by teaching staff can help develop relevant curricula, improve teaching methods, and increase student understanding of learning material.

Along with the positive motivation caused by the development of information and information access, the number of researchers who want to access electronic media resources and then publish their findings is also increasing. This can have a positive impact on the development of science and improve the overall quality of higher education. However, the challenge faced by teachers is ensuring that the research conducted is of good quality and relevant to the needs of the world of education.

The problem faced by the panel of researchers, in this case lecturers at universities, after carrying out research and making research reports is deciding where to publish the results of their research.[5] Choosing the right journal or conference to publish research results is important so that research can be accessed by the relevant scientific community and have a significant impact. Apart from that, teachers also need to consider the reputation and credibility factors of the publication to ensure that their research results are recognized and appreciated.

AHP is an effective method for ranking alternative journals. To build a complete decision-making model, correlated factor weights are needed. If the correct weights of these elements for such an AHP model can be estimated, their respective effect sizes can be determined.[6] However, determining the right weights for these elements can be challenging. One approach used is to involve experts in providing subjective assessments of these factors. Thus, the AHP model can provide more accurate and relevant results in ranking alternative journals.[7]

By applying analytical techniques, journal selection decisions can be explained. Consequently, the main aim of this study was to determine the appropriate weighting of several criteria that explain why previously published manuscripts are submitted to their intended publication. This research also aims to identify the most influential factors in journal selection and analyze their impact on the author’s reputation. Thus, the results of this research can provide better guidance for authors in choosing the right journal for publication of their work.

2. Research Method

The data collection method in this research was first sourced from books, the internet, and previously a study of articles and journals; secondly, create a checklist of criteria and sub-criteria from 20 (twenty) articles, namely 4 articles from Elsevier, 4 articles from Springer Nature, 4 articles from Taylor & Francis, 4 articles

from Wiley-Blackwell, and 4 articles from Sage. Article selection was carried out randomly.[8], [9], [10], [11], [12]

The type of data used in this research is primary data, namely data from several pieces of literature that are very relevant to support this research.

Problem solving steps determine the criteria for publication of articles in internationally reputable journals using the AHP method, as follows:

- a. Identifying the key factors that contribute to the quality and significance of research findings

By establishing transparent criteria based on these key factors, researchers can ensure that their work meets the standards expected by reputable international journals, enhancing the credibility and impact of their publications.[13], [14] The variables used in this research are criteria that can influence the determination of scientific publications in journals of international reputation. The criteria for acceptance and publication of articles are: (1) Essays must be written in accordance with “manuscript guidelines”. (2) The contents of the article must match the title and abstract. (3) Articles must be of interest to a wide audience. (4) Articles must be based on original and scientific research. (5) Article material must be original. The criteria and subcriteria in this research can be seen in Table 1.

Table 1. Criteria and sub-criteria for publication of articles in journals of international reputation

Criteria	sub-criteria
Manuscript	1. In accordance with the scope of the research 2. In accordance with “manuscript guidelines” 3. Quality of Problem Formulation 4. Relevant literature review
Content	1. The title and content of the article are related 2. Appropriate research abstraction
Interesting	1. Stimulate audience interest 2. Good writing quality
Scientific	1. Complete research analysis 2. Scientific research methods/design 3. Relevant results and discussion 4. Limitation of the problem and space for further research 5. Consistent and accurate references and citations
Novelty	1. Authenticity (original) 2. Recency (novelty)

- b. Evaluating the importance of factors in determining the suitability of an article for publication. By establishing criteria that prioritize rigorous scientific methods and reproducibility, the researcher can increase the likelihood of their study being accepted for publication in a respected international journal.[15], [16]

The checklist is designed based on the criteria and sub-criteria contained in Table 1. The technique used in scoring this questionnaire uses the Saaty scale technique which has answers on a scale of 1 to 9. [17], [18]. Scale 1 means both elements are equally important, scale 3 means one element slightly more important than the others, scale 5 means one element is quite important compared to other elements, scale 7 means one element is very important compared to other elements, scale 9 means one element is absolutely important compared to other elements, and scale 2, 4, 6, 8 are the middle values of two adjacent values. The questionnaire consists of 15 subcriteria with details in Table 1.

- c. Prioritizing the criteria based on their impact on the overall value and reliability of the research.

Pairwise comparison values are required for each accessible criterion to establish the priority of criteria. The pairwise comparison value can be modified to a pre-established judgment in order to obtain a priority weight value for the criteria and alternatives. The priority weight of each criterion is determined by inputting the value from the comparison matrix or can be calculated using mathematical equations.

This approach ensures that the study is conducted with a high level of scientific rigor and increases its credibility within the scientific community. The results of distributing questionnaires were analyzed using the AHP Online System - AHP-OS designed by Klaus D. Goepel. [19] In this template the researcher includes a checklist of criteria and sub-criteria for each article to obtain a paired matrix of the 20 articles studied.

- d. Developing a systematic approach to assessing and scoring articles against the established criteria to ensure consistency and fairness in the publication process.

Within the realm of logical consistency, there exist two distinct categories of meaning. First, objects are categorized based on their consistency and significance. Secondly, the degree of interconnectedness between items in relation to other objects for each specific criterion. To calculate the consistency index, equation (1) can be used.

$$CI = \frac{\lambda_{\max} - n}{n} \quad (2.1)$$

where CI is Consistency index, $\lambda_{\max}$ is the optimum of eigen vector from matrix, and n is number of parameters / matrix order. Next, in order to calculate the consistency ratio, it is necessary to obtain the random index established by Saaty for the second type:

Table 2: Random Index Consistency

N	1,2	3	4	5	6	7	8	9	10	11	12	13	14	15
RI	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49	1.51	1.48	1.56	1.7	1.59

It can be inputted using equation (2) below:

$$CR = \frac{CI}{RI} \quad (2.2)$$

where CR is consistency ratio, CI is consistency index, and RI is random index consistency as presented in Table 2.

- e. Implementing feedback mechanisms to continuously improve and refine the criteria for article publication in international journals.

This includes actively seeking input from authors, reviewers, and editors on ways to enhance the criteria and make them more comprehensive. By incorporating feedback into the evaluation process, journals can ensure that their publication standards remain relevant and up-to-date in the rapidly evolving academic landscape. Ultimately, the goal is to establish a transparent and rigorous system that promotes high-quality research and fosters a culture of continuous improvement within the scholarly community.

3. Results And Analysis

The research findings have yielded the calculation for determining the factors that influence the acceptance of an article in a highly regarded worldwide journal using the Analytic Hierarchy Process (AHP) model. The calculation is as follows:

3.1. Designing AHP

Analytic Hierarchy Process Model Assumptions.

The study employs the criteria established in the Analytical Hierarchy Process (AHP) paradigm, as presented in Table 3 and 4 below:

Table 3. Model Assumption for criteria

Criteria	Symbol
Manuscript	A
Content	B
Interesting	C
Scientific	D
Novelty	E

Table 4. Pair-wise Comparison Matrix between Criteria

Information	Value
EI: Equally Important	1
MI: Moderate importance	3
SI: Strong importance	5
VI: Very strong importance	7
AI: Absolutely importance	9

Note: (2,4,6,8 values in-between).

In this study, authors implemented a hierarchical approach to facilitate the determination of the weight assigned to each criterion. Data analysis using AHP Online System - AHP-OS. Mathematically the method is based on the solution of an Eigenvalue problem. The results of the pair-wise comparisons are arranged in a matrix. The first (dominant) normalized right Eigen vector of the matrix gives the ratio scale (weighting), the Eigenvalue determines the consistency ratio. As a pairwise comparison matrix between criteria has been created, the subsequent step involves calculating by substituting this matrix into a preset model. This site employs many Analytic Hierarchy Process (AHP) approaches, such as standard linear AHP scale, square root scale, geometric scale, and others.

This process results in the generation of the matrices in Table 5, Table 6, and Table 7.

Table 5. Pairwise comparison matrix for standard linear AHP scale

Criteria	Manuscript	Content	Interesting	Scientific	Novelty
Manuscript	1	3.00	2.00	0.50	0.20
Content	0.33	1	1.00	0.50	0.20
Interesting	0.50	1.00	1	0.33	0.20
Scientific	2.00	2.00	3.00	1	0.33
Novelty	5.00	5.00	5.00	3.00	1

Table 6. Pairwise comparison matrix for square root AHP scale

Criteria	Manuscript	Content	Interesting	Scientific	Novelty
Manuscript	1	1.73	1.41	0.71	0.45
Content	0.58	1	1.00	0.71	0.45
Interesting	0.71	1.00	1	0.58	0.45
Scientific	1.41	1.41	1.73	1	0.58
Novelty	2.24	2.24	2.24	1.73	1

Table 7. Pairwise comparison matrix for geometric AHP scale

Criteria	Manuscript	Content	Interesting	Scientific	Novelty
Manuscript	1	4.00	2.00	0.50	0.06
Content	0.25	1	1.00	0.50	0.06
Interesting	0.50	1.00	1	0.25	0.06
Scientific	2.00	2.00	4.00	1	0.25
Novelty	16.00	16.00	16.00	4.00	1

The priorities using standard linear AHP scale, square root AHP scale, and geometric AHP scale are stated in Table 8, Table 9, and Table 10 respectively.

Table 8. Consolidated Priorities standard linear AHP scale (CR = 3,4%)

Criteria	Priority	Rank
Manuscript	14.2%	3
Content	7.8%	4
Interesting	7.6%	5
Scientific	20.1%	2
Novelty	50.2%	1

Table 9. Consolidated Priorities square root AHP scale (CR = 0,8%)

Criteria	Priority	Rank
Manuscript	17.9%	3
Content	13.4%	4
Interesting	13.3%	5
Scientific	21.5%	2
Novelty	33.9%	1

Table 10. Consolidated Priorities geometric AHP scale (CR = 5,8%)

Criteria	Priority	Rank
Manuscript	8.0%	3
Content	3.9%	4
Interesting	3.7%	5
Scientific	13.2%	2
Novelty	71.1%	1

3.2. Alternative Ranking as a Priority Determinant for Articles Accepted by Journals

Alternative comparison matrices based on criteria.

The levels in the hierarchy cannot be ascertained through conjecture or reliant on the researcher's approximations. The hierarchy levels must be derived from pre-existing data in order to provide a consistent final outcome. The determination of the weight for each alternative pairwise comparison should be derived from the hierarchy outlined in the weighting for each criterion. Once the hierarchy level has been taken into account, the subsequent step involves transforming each weighting result into a matrix. As demonstrated in Table 1.

Table 11: Table Comparison Matrix between Manuscript Criteria

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	2,00	3,00	2,00	3,00	2,00	3,00	3,00	2,00	3,00	2,00	3,00	2,00	3,00	2,00	2,00	3,00	3,00	2,00	3,00
2	0,50	1	3,00	3,00	2,00	2,00	3,00	1,00	3,00	3,00	2,00	2,00	2,00	3,00	2,00	3,00	2,00	3,00	2,00	3,00
3	0,33	0,33	1	3,00	2,00	1,00	3,00	2,00	2,00	1,00	1,00	2,00	1,00	3,00	2,00	1,00	1,00	1,00	2,00	3,00
4	0,5	0,33	0,33	1	3,00	2,00	1,00	1,00	2,00	2,00	1,00	1,00	2,00	1,00	2,00	3,00	3,00	3,00	1,00	3,00
5	0,33	0,50	0,50	0,33	1	1,00	1,00	1,00	1,00	2,00	1,00	1,00	1,00	3,00	2,00	1,00	1,00	1,00	1,00	1,00
6	0,50	0,50	1,00	0,5,00	1,00	1	1,00	1,00	1,00	3,00	3,00	2,00	1,00	3,00	3,00	3,00	1,00	1,00	1,00	2,00
7	0,33	0,33	0,33	1,00	1,00	1,00	1	1,00	1,00	3,00	1,00	1,00	3,00	2,00	3,00	1,00	1,00	3,00	1,00	1,00
8	0,33	1,00	0,50	1,00	1,00	1,00	1,00	1	1,00	2,00	1,00	3,00	3,00	1,00	2,00	1,00	1,00	1,00	1,00	3,00
9	0,50	0,33	0,50	0,50	1,00	1,00	1,00	1,00	1	1,00	2,00	3,00	1,00	1,00	1,00	1,00	1,00	3,00	1,00	3,00
10	0,33	0,33	1,00	0,50	0,50	0,33	0,33	0,50	1,00	1	1,00	1,00	0,33	1,00	3,00	2,00	1,00	1,00	1,00	1,00
11	0,50	0,50	1,00	1,00	1,00	0,33	1,00	1,00	0,50	1,00	1	1,00	1,00	2,00	1,00	1,00	2,00	1,00	1,00	3,00
12	0,33	0,50	0,50	1,00	1,00	0,50	1,00	0,33	0,33	1,00	1,00	1	1,00	3,00	1,00	2,00	1,00	1,00	1,00	1,00
13	0,50	0,50	1,00	0,50	1,00	1,00	0,33	0,33	1,00	3,00	1,00	1,00	1	3,00	1,00	2,00	3,00	1,00	3,00	0,50
14	0,33	0,33	0,33	1,00	0,33	0,33	0,50	1,00	1,00	3,00	0,50	0,33	0,33	1	1,00	1,00	1,00	3,00	3,00	1,00
15	0,50	0,50	0,50	0,50	0,50	0,33	0,33	0,50	1,00	1,00	1,00	1,00	1,00	1,00	1,	2,00	1,00	3,00	2,00	0,50
16	0,50	0,33	1,00	0,33	1,00	0,33	1,00	1,00	1,00	0,33	1,00	0,50	0,50	1,00	0,50	1	3,00	1,00	2,00	1,00
17	0,33	0,50	1,00	0,33	1,00	1,00	1,00	1,00	1,00	0,50	0,50	1,00	0,33	1,00	1,00	0,33	1	1,00	1,00	0,33
18	0,33	0,33	1,00	0,33	1,00	1,00	0,33	1,00	0,33	1,00	1,00	1,00	0,33	0,33	1,00	1,00	1	2,00	3,00	
19	0,50	0,50	1,50	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	0,33	0,33	0,50	0,50	1,00	0,50	1	1,00
20	0,33	0,33	1,33	0,33	1,00	0,5	1,00	0,33	0,33	1,00	0,33	1,00	2,00	1,00	2,00	1,00	3,00	0,33	1,00	1

For the other sub criterias can be seen in <https://bpmsg.com/ahp/ahp-group.php?sc=bahAGa> . This website also provides a bar chart that displays the visualization of priority. For example, in Figure 1, it can be seen the visualization result of the first method.

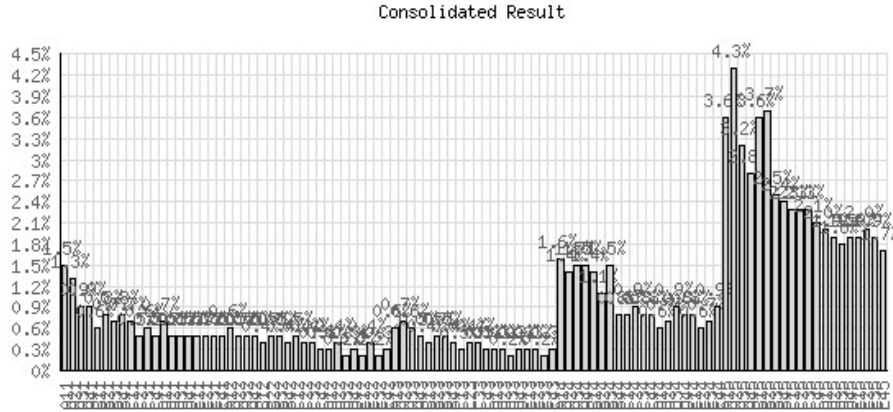


Figure. 1. Effects of selecting different switching under dynamic condition

Based on the results of this research, several criteria were used for design, namely Manuscript, Content, Interesting, Scientific and Latest criteria. Based on the data from tables 5 and 8, it is evident that employing various approaches will yield varying consistency ratios. However, the order of priority stays unchanged.

The following interpretation of each criterion increases the acceptance of an article in an internationally reputable journal “Manuscript” analysis shows that the relevance criterion has third priority. This criterion states that in order for an article to be published in a journal of international repute, it must be in accordance with the scope of research in that journal. The Editor in Chief or The Editor in Chief at a journal always looks at the scope of the research study in relation to the journal before deciding whether to send it for review. In addition, the timing of publication and the value of the particular subject matter published in the journal are also important. A very important thing to pay attention to is whether the structure of the writing meets the existing “manuscript guidelines”.

“Content” analysis shows that the relevance criterion has the fourth priority in this research. The written abstract is correct or not. Apart from that, you will pay attention to whether the title and abstraction are coherent or not. The “Interesting” analysis shows that the article presentation criteria have the fifth priority. These criteria state that articles that have a good writing structure, simple but straightforward delivery will attract the attention of the intended audience, so that they can be published in journals of international reputation.

“Scientific” analysis shows that scientific criteria have second priority. This criterion states that a scientific research method/design will make it easier for an article to be accepted in a journal of international reputation. References and citations are also sub-criteria that are no less important that must be considered. Problem limitations must be included so that the research results presented are reliable. Furthermore, space for further research is also of particular concern.

The “Novelty” analysis shows that originality and novelty are the main priorities for an article to be accepted in an internationally reputable journal. Novelty and non-obviousness are the main criteria most emphasized by scientific journal editors. Additionally, there is little or no scientific value in presenting outdated research, when newer methods are available.

4. Conclusion

In this research. The criteria for accepting article manuscripts in reputable international journals using the Analytical Hierarchy Process model is that the first priority is the “recentness” criterion with a weight of 0.502. The second priority is the “Scientific” criterion with a weight of 0.201. Furthermore, the third and fourth priorities are “manuscript” and “content” respectively with weights of 0.142 and 0.078. Meanwhile, the final priority is “interesting” with a weight of 0.076. In this paper, only the Standard AHP linear scale, square root scale, and geometric scale methods are presented. There remain multiple techniques that can be employed. For future research, the author proposes conducting a comparative analysis of other established methodologies in order to obtain more precise outcomes.

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