

THE PEER REVIEW PROCESS IN A SCIENTIFIC JOURNAL: AN EDITORIAL INSIGHT FROM THE UNIVERSITY OF PHAN THIET JOURNAL OF SCIENCE

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Abstract: *Peer review is an important step in the process of publishing scientific research results, as it helps ensure the integrity of a study and the validity and originality of data published in current scientific journals. Recently, there have been an increasing number of retractions of published papers in well-established journals. This leads to a legitimate question about the inherent quality and shortcomings along the publication path. This letter provides a comprehensive overview of this process applied to scientific publications in, among others, leading ISI or Scopus journals. The University of Phan Thiet Journal of Science (UPTJS), from the start of its establishment, has strictly followed the peer review to uphold the high standards of the scientific community. The historical progression of peer review, including single-blind and double-blind procedures, as part of the manuscript's evaluation is also described. It delves into the roles and responsibilities of several parties involved including authors, reviewers and editors. A flowchart and a table are built to provide readers with an easy-to-follow overview of the workflow and its application to UPTJS. Finally, we emphasize the need for continuous improvement and implementation of optimal methods, in particular the selection of reviewers, to maintain the excellence and trustworthiness of scientific publications.*

Keywords: *peer review, scientific publishing, quality control*

I. INTRODUCTION

The vigorous and tremendous development of all branches of science actually leads to a continuous and rapid increase in scientific publishing activities. Scientific publications have the noble mission of spreading knowledge from scientific research to the broader community, thereby enriching the knowledge base of humanity. However, not all published papers hold sufficient value for scientific research publication. Research results, presented in a manuscript and sent to a publisher, need to meet the publication standards of each specific publisher. Usually, the publisher, represented by an editor, follows a reasonable and transparent peer-review

process to determine the scope and value of these research results, as well as their ability to contribute to scientific knowledge. Furthermore, the peer review process aims to help researchers improve and perfect their work through critical comments from reviewers, who are supposed to be experts in the same field of research.

Peer review is no doubt a crucial component of research dissemination, ensuring the legitimacy, validity and originality of the studies published. Nevertheless, from time to time, some published papers were subsequently found to be insufficient, with inconsistent results, incorrect interpretation, or even including fraudulent data. Recently, an increasingly

large number of retractions of published papers in several well-established journals has lead to a legitimate question about the shortcomings of peer review. In this context, the present editorial perspective provides us with a thorough study of the peer review approach used by respectable ISI or Scopus-indexed journals, with a particular emphasis on the current processes used by the University of Phan Thiet Journal of Science (UPTJS) from the start to highlight the importance of manuscript review for maintaining scientific standards. We first examine the history of peer review, including both single-blind and double-blind procedures, and clarify the duties and responsibilities of three important players including authors, reviewers and editors. We aim to give a comprehensive sequence of the UPTJS's operations. This paper promotes the preservation of quality and reliability in scientific publication by emphasizing the need for continuous improvement and the implementation of best practices.

II. THE PEER REVIEW PROCESS IN A SCIENTIFIC JOURNAL

As stated above, peer review serves as a quality control mechanism in scholarly publication, ensuring that research articles meet the standards of the journal considered. Experts in the same field, known as peers, review a submitted manuscript in a journal and thereby assess its quality, validity, and relevance. The journal's editor makes a decision whether to accept, reject, or request revisions before publication of the manuscript considered, based on feedback from reviewers.

The flowchart displayed in Figure 1 systematically illustrates the stages of the publication process for a manuscript submitted to a journal, while Table 1 presents the roles and responsibilities of the parties involved in the process, including the manuscript author(s), the journal editor, and the peer reviewer(s), corresponding to each stage.

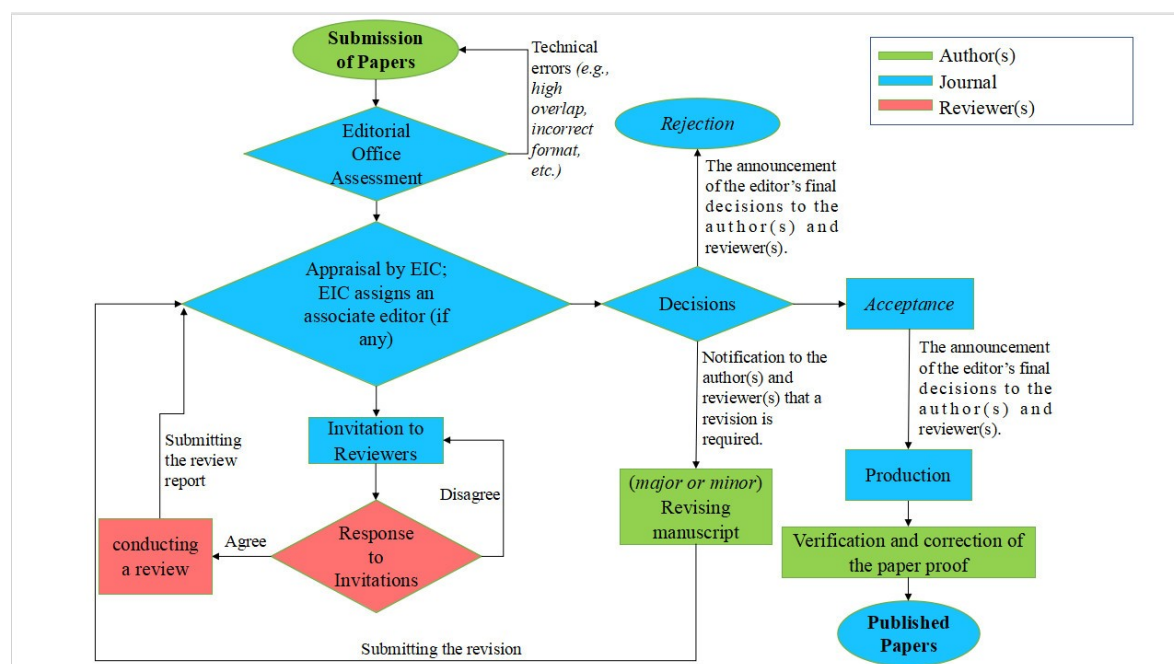


Figure 1. The flowchart of the publication process for scientific papers

Table 1. A summary of the publication process in scientific journals and applications for the UPTJS timeline

Procedure	Author(s)	Journals	Peer reviewer(s)	(UPTJS) Timeline
1. Submission of Papers	The corresponding author submits the paper to the journal (usually done via an online system such as ScholarOne Manuscripts. Some journals may accept submissions by email).			
2. Editorial Office Assessment		The Editorial Office checks if the manuscript adheres to the requirements described in the journal's Author Guidelines <i>and does not assess the paper's quality at this point.</i>		3 days
3. Evaluation by the Editor-in-Chief (EIC)		The EIC checks the manuscript considering its scope, originality and merits. To save time, <i>the editor may reject the manuscript at this stage.</i>		3 days
4. EIC assigns an Associate Editor (AE)		Some journals have AE (or equivalent) as an editor-in-charge who handle peer review.		3 days
5. Invitation to Reviewers		The handling editor sends invitations to scientists who are believed to be appropriate reviewers and waits for feedback. Further invitations are issued, if necessary, until the required number of reviewers is secured. Commonly, 2 or 3 reviewers are required, but this is dependent on each journal.		3 to 7 days

6. Response to Invitations		The journal might ask individual who declines the invitation to review to suggest alternative reviewers.	<p>Potential reviewers consider the invitation with respect to their own expertise, conflicts of interest, and availability.</p> <p>They then accept or decline the invitation to review.</p> <p>If possible, they might also suggest alternative reviewers when declining.</p>	3 to 7 days
7. Conducting a review			<p>The reviewer sets aside time to read the paper several times. If the reviewer initially finds major problems, they may choose not to proceed with the review and recommend that the journal <i>rejects the manuscript</i> at this time.</p> <p>Otherwise, they will read the paper several more times, taking notes to build a detailed point-by-point review. They then submit the review report to the journal along with one of following recommendations:</p> <ul style="list-style-type: none"> + ‘published as is’ + ‘revised’, including: <ul style="list-style-type: none"> - ‘<i>minor revision</i>’ - ‘<i>major revision</i>’ + Rejected 	2 to 4 weeks
8. Evaluating the reviews		<p>Before making a decision, the handling editor takes into account all the returned reviews.</p> <p>If the reviews differ widely, the editor may invite an additional reviewer to get an extra opinion before making a decision.</p>		3 to 7 days

9. Notification of the decision	<p>The handling editor sends a decision to the corresponding author, including all relevant reviewer comments.</p> <p>The editor also sends his or her decision, including the full text of the relevant reviews, to all reviewers (<i>This implies that each reviewer has access to the content of the remaining review(s)</i>).</p> <p><i>Comments will be anonymous if the journal follows a single-anonymous or double-anonymous peer review model.</i> Journals that follow an open or transparent peer review model will share the identities of the reviewers with the author(s).</p>	<p>1 day</p>
10. Rejection	<p>The author(s) should carefully read the comments from reviewers to improve the article before resubmitting it to the same journal (but adhere to the review process from the beginning again) or to another journal considered more suitable.</p>	<p>1 day</p> <p>Reviewers are informed by the journal, letting them know the outcome of their review.</p>
11. Acceptance	<p>The author(s) need to carefully read the proof, correct all errors found, and then send the corrected proof to the journal.</p> <p>After being accepted, the journal announces to the corresponding author (or maybe all authors) the final decision of the editor. The paper is sent to production, and its proof version is sent to the author(s) to check and correct any errors, such as typos and grammatical errors.</p>	<p>1 day</p> <p>Reviewers are informed by the journal, letting them know the outcome of their review.</p>

12. Revision (<i>except for the manuscript, which is accepted to publish or reject</i>)	The authors respond to the reviewer's comment(s) as well as revise the manuscript according to the requests of the reviewer(s). The revised manuscript is submitted again to the journal.			2 to 3 weeks
13. Invitation to Reviewers (Round 2)		The handling editor invites the previous reviewer(s) to review the revision to save time, instead of inviting completely new ones and then sends the revised manuscript to them. In case one (or more) of them disagrees, the editor does not need to send the revised manuscript to her/him and can invite another one. The handling editor does not need to send the revised manuscript to the reviewer, who is allowed to accept or reject the revision without considering it further.		1 week
14. Reviewing the Revised Manuscript			Return to step 7 and conduct the review again. The managing editor might give the final decision (acceptance or usually rejection) of the manuscript if the response is not satisfied after three review rounds.	1 to 4 weeks

The publication process of a scientific journal is a multifaceted journey that encompasses key stages such as submission, editorial assessment, evaluation by the Editor-in-Chief, reviews, decisions by the editor, and potential revision rounds (Wiley, 2024) and how it is used in the UPTJS is as follows:

2.1 Submission of Papers

The submission process for academic journals varies significantly across disciplines, reflecting the diversity in research culture and publication practices. Leading journals such as *Journal of the American Chemical Society (JACS)* and *Physical Review Letters (PRL)* in the natural sciences, *Journal of the American Medical Association (JAMA)* and *New England Journal of Medicine (NEJM)* in the health sciences utilize sophisticated online submission systems such as ScholarOne, in which authors are required to follow a detailed step-by-step process of manuscript submission, including uploading files and providing necessary information about research (ACS, APS, AMA và NEJM, 2024).

Similarly, in the financial field, *The Journal of Finance* requires electronic submissions through an online portal, emphasizing the importance of following specific author guidelines (AFA, 2024). Humanities journals, such as the *Journal of Social Sciences*, might offer a more flexible approach, accepting submissions via email or online portals, but still insisting on strict adherence to formatting and style guideline (Richtmann Publishing, 2024). Meanwhile, in engineering and computer science journals, such as *International Journal of Engineering and Computer Science (IJECS)* demand submissions through manuscript central systems, where adherence to template and formatting guidelines is crucial. This diversity underscores the importance of consulting and following each journal's

specific submission instructions to ensure a smooth publication process (IJSRM, 2024).

The initial acknowledgment from the editorial office confirming the receipt of the manuscript generally occurs within a week of submission. This time frame can vary depending on the journal's operational capacity and the volume of submissions being processed. It is important for authors to monitor their email (including spam folders) for this confirmation and any further instructions or requirements from the journal.

2.2 Editorial Office Assessment

The Journals' administrative staff checks that the paper adheres to the requirements described in the journal's Author Guidelines. The editorial office does not assess the paper's quality at this point, but pays attention to whether it meets the basic regulations. At this point, UPTJS makes a technical check utilizing software tools to assess the plagiarism rate and fix any concerns with the use of artificial intelligence (AI) in the submitted papers. The submissions are checked using plagiarism detection tools to confirm their originality and identify any instances of unacknowledged or incorrectly referenced sources to detect manuscripts written by AI.

The acceptable level of text overlap is determined by the policies of each academic journal, typically ranging from 5% to 15%. This criterion takes into consideration both unintentional and intentional forms of overlap. Unintentional overlap occurs when an author coincidentally aligns with existing ideas without awareness, while intentional overlap involves purposeful replication or modification of previously published content, whether verbatim or with slight alterations (Baklytskyi, 2024). To comply with the UPTJS publish policy, an article's plagiarism rate must not exceed the stipulated limits: less than 25% for the

total piece and less than 5% for individual sources. Failure to meet these criteria may result in the submission being rejected. UPTJS's goal in completing this technical check is to preserve the publication's integrity and quality while also keeping the journal's professional criteria.

The incorporation of AI into research techniques has recently provoked heated discussion and controversy within the academic world. The issue of whether AI may be used ethically in scientific published work has become a hot topic, raising questions about the consequences for research integrity and oversight. The ethical concerns surrounding the use of AI in research are critical, since they address problems of openness, accountability, and bias reduction. It is critical that the use of AI in research be thoroughly assessed to guarantee that it is consistent with ethical norms and standards. Researchers and institutions must use AI technology with prudence, moderation and critical attention, taking steps to safeguard ethical values and maintain the legitimacy and dependability of academic work. By critically evaluating the role of AI in research and following to ethical principles, the scientific community may responsibly traverse this complicated terrain and contribute to the development of knowledge (Stahl, Schroede & Rodrigues, 2023).

Returning to editorial office assessment, authors can expect a response from UPTJS within one week requesting initial revisions. The journal may ask authors to revise their manuscripts to reduce plagiarism by properly citing sources, paraphrasing content, and adhering to the formatting requirements.

2.3 Evaluation by the Editor-in-Chief (EIC)

The Editor-in-Chief evaluates the manuscript's alignment with the journal's scope, originality, and academic excellence.

At this point, the EIC reserves the right to reject a manuscript when it does not satisfy the above criteria. Timeline: completed within three days.

2.4 EIC assigns an Associate Editor (AE)

UPTJS has an editorial secretary, and one of the Associate Editors who handles reviews. The reviewers are experts and scientists in various areas. The journal selects them for review invitations based on their expertise, which aligns with the field of each particular manuscript. For interdisciplinary articles, UPTJS adheres to the "paired" rule, inviting a reviewer representing each major to ensure a thorough evaluation of the study. It is a systematic process that matches reviewers based on their expertise in different majors or disciplines relevant to the paper under consideration. By combining reviewers from various areas, the assessment process gains a complete and well-rounded viewpoint. This guarantees that the article is properly reviewed from numerous perspectives, resulting in a more comprehensive and informative appraisal. The "paired rule" underlines the relevance of various skills while assessing multidisciplinary publications. For example, if a manuscript covers both business administration and economic law, UPTJS may request that a reviewer specializing in business administration and another specializing in economic law offer a full assessment from both viewpoints.

2.5 Invitation to Reviewers

The managing editor extends invitations to experts regarded as suitable to serve as reviewers. The criteria for choosing reviewers are critical to ensuring the quality and integrity of the peer review process. Peer reviewers are selected based on their knowledge and competence which should be closely related to the topic of the paper being reviewed. To give informative and helpful input, reviewers need to have a

well-established research background on the topic. Editors often prefer to invite reviewers who have already worked with them or have established outstanding expertise in the research field, guaranteeing a comprehensive and informed review process (COPE, 2017). The authors may also have a part in recommending possible reviewers who they feel are qualified to evaluate their work. Furthermore, authors have the option to refuse specific reviewers, particularly where conflicts of interest or prejudices may jeopardize the review's integrity. The thorough selection of peer reviewers contributes to the peer review process's integrity and academic rigor. Upon receiving answers, more invitations are sent, if needed, until the desired number of reviewers is obtained. Typically, this number ranges from 2 to 3; however, there may be some variability among journals.

When confronted with opposing viewpoints from two reviewers, it is critical to seek the advice of a third reviewer to provide additional perspectives and information. The goal of contacting a third reviewer is to provide a more diverse appraisal of the paper and help clarify any contradictions or doubts in the input obtained. While the advice of several reviewers is crucial in providing a broad evaluation, the editor ultimately decides whether to approve or reject the article. The Editorial Board, which is made up of experts in the area and is in charge of helping the editors, but it is the handling editor who examines comments from all reviewers before making the final decision based on the manuscript's quality, relevance, and alignment with the journal's standards. When needed the handling editor can seek advice from relevant members of the editorial board, such a collaborative and thorough review process helps to maintain the publication's integrity and trustworthiness.

2.6 Response to Invitations

When responding to review invitations, prospective reviewers carefully consider their expertise, possible conflicts of interest, and availability. They analyze whether their expertise and background are relevant to the subject of the paper, ensuring that they can deliver a useful and informed review. Furthermore, evaluators assess any possible conflicts of interest that might jeopardize their impartiality or objectivity. Availability is also an important factor, as reviewers must dedicate enough time to properly analyze the work. Based on these parameters, reviewers decide whether to accept or refuse the offer to review. When reviewers refuse, they may recommend alternate experts who can deliver an appropriate evaluation. This thorough and transparent approach to responding to review invitations contributes to the quality and integrity of the peer review process (COPE, 2017).

2.7 Conducting a review

The reviewer sets aside time to read the paper several times. The reviewer uses the first read to form an initial impression of the work. If the reviewer initially finds major problems, they may choose not to proceed with the review and recommend that the journal rejects the manuscript at this time. A pertinent question is how long a review process takes. Estimating the duration of the review is difficult since it depends on how diligently the reviewers complete their review assignments. Today, there are online platforms, such as letpub.com or scirev.org, that compile the mean duration of reviews for several academic journals, aiding researchers in estimating the time it may take for their manuscripts to undergo the review process in their particular area of study (Politzer-Ahles, & Yao, 2017). UPTJS requests reviewers take a two-to-three-week time frame to finish their review. After multiple readings, reviewers meticulously

take notes to craft a detailed point-by-point evaluation of the paper. Subsequently, they submit a comprehensive review report to the journal, accompanied by one of the following recommendations (RSC, 2024):

- “Published as is”
- “Revised”, which includes:

“Minor revision”: involves minor adjustments to enhance clarity, accuracy, or quality, such as addressing typos, refining sentence structure, or rectifying minor formatting issues. This revision is less extensive than a major revision and may not require reevaluation by the reviewer post-revision.

“Major revision”: entails substantial modifications to content, structure, or argumentation, necessitating significant rewriting, addition or removal of sections, and addressing feedback to improve the paper’s overall quality. A major revision typically undergoes further review, possibly by a different reviewer, before acceptance.

- “Rejected”: Reviewers must clearly articulate reasons for rejection, citing a lack of new insights or insufficient quality. Additionally, reviewers should highlight incomplete aspects to guide authors in enhancing their work for future submissions.

In some scientific journals, there are two types of “rejections”, including:

“Rejected”: The evaluated manuscript has been deemed unsuitable for publication in its current form. This decision is usually final, and the authors are not allowed to resubmit the same manuscript to the journal.

“Rejected but allowing re-submission” Although the manuscript was not accepted for publication in its current form, the authors are permitted to revise and resubmit the article for further consideration. This decision indicates that the reviewers see potential in the research but request significant revisions

or additional experiments before it can be accepted for publication.

2.8 Evaluating the reviews

Before making a decision, the managing editor takes all the returned reviews into account. If the reviews differ widely from each other (for example, one requests an acceptance or a minor revision, whereas another requests a rejection), the editor may invite an additional reviewer to get an extra opinion before making a decision. When the peer review date expires without the review report, the editorial office must issue a reminder email and begin negotiations about extending the deadline. If the reviewer remains unresponsive even after the time extension, the editorial staff might consider inviting another reviewer as a precaution. The addition of a new reviewer will require an extra 3 to 4 weeks on the procedural timetable. As a result, editorial offices plan ahead of time for a larger number of submissions than many journals expected in order to counteract possible unanticipated events such as delayed reviewer comments, manuscript rejections, or author withdrawals.

It is clear that an editor tends to make a decision on the fate of a manuscript by taking a balance between the reviewers’ comments and remarks. A reviewer is supposed to have not only competence and knowledge in the subject of the manuscript, but also, perhaps more importantly, professional conscience, openness to new ideas and fairness. It is sometimes unfortunate that some reviewers, thanks to the anonymous status, tend to lower or even destroy the work of a competing group by giving nonconstructive or exaggerated comments, or requesting some non-realistic additional work. It is often hard to foresee the possible conflicts of interest and/or fairness of a reviewer. As far as what we are experienced, UPTJS trust that a great majority of our selected reviewers

are competent and fair.

2.9 Notification of decision

The handling editor notifies the decision to relevant parties. The editor also sends the entire review and decision to author(s) and all reviewers. This technique presupposes that each reviewer has access to the assessments supplied by their peers. Journals that use a single- or double-blind peer review method keep comments anonymous. Journals that adopt an open or transparent peer review process disclose reviewer identities to the author(s) and vice versa. For fairness, UPTJS does not reveal the identities of reviewers to authors, and vice versa, as well as among reviewers.

2.10 Rejection

In the event that a manuscript is rejected, the journal will notify the author and all reviewers involved in the manuscript of the editorial board's conclusions, as well as report the results of the review. The author(s) could take advantage by attentively evaluating the constructive suggestions offered by reviewers to improve their manuscript before resubmitting it to the same journal (but following the peer-review process from the beginning again) or to another journal judged more appropriate.

2.11 Acceptance

Upon acceptance, the author(s) thoroughly study the proof, correct any errors, and send the revised proof to the journal. The journal shares the proof version with the author(s) so they can visualize the outlook of the article published in the journal, allowing them to correct typographical and grammatical errors, or some lousy figures. Similar to rejection cases, reviewers should get an email from the journal informing them of the conclusion of their review.

The technical staff will then supervise the typesetting process. UPTJS will send the authors an acceptable proof in PDF format

for rigorous inspection and correction of any minor mistakes, if required, before the journal's official publication in both print and online forms. The author(s) sign a copyright transfer form of the article to the journal with a commitment that disputes and complaints between the authors and conflicts of interest related to the article will not be the responsibility of the journal.

2.12 Revision Process

After receiving reviews, authors revise the work based on recommendations and provide responses to the comments and suggestions. Following that, the revised article can be submitted again to the journal for further perusal by the editor.

When replying to reviewers point-by-point, it is critical to thoroughly analyze each comment and make appropriate corrections. If the author agrees with a reviewer's criticism, implementing the edits in the revised version according to the recommendations is a standard practice. On the other side, if the author disagrees with a specific suggestion, there is a need for a clear and comprehensive explanation for not embracing the requested change. This explanation serves to support the author's point of view and help the editorial board's decision-making process.

If there are the same questions between the reviewers, the authors can use the same answer to respond; however, the authors should not combine them. To ensure clarity and organization throughout the response process, authors should provide the specific locations for the changes in the revised manuscript. This includes specifying paragraphs, pages, and line numbers where the reviewer made their critique for easy reference and verification. A revised version with highlighted additions is often requested.

If authors have difficulty reaching the stipulated schedule from original submission

to article revision, they may seek an extension. In circumstances where several extensions have been granted but the revision has not been completed successfully, the best course of action may be to withdraw it and resubmit the new version. In such cases, the journal will conduct a review procedure similar to that of a new submission.

2.13 The second round review invitation

In cases of minor revision, the handling editor can make an edition to accept the manuscript. For a major revision, the managing editor preferentially invites previous reviewers to examine the revised article again. However, if a reviewer declines, the editor may choose to ask alternate reviewers instead.

The managing editor is not obligated to send the amended manuscript to the reviewer who rejected the previous manuscript or accepted the minor amendment without further review.

2.14 Reviewing the revised manuscript

The process reverts to step 2.7, where reviewers are tasked with conducting a thorough review of the edited manuscript. The managing editor can make the final decision (acceptance or often rejection if editing are not satisfied) after three review rounds.

The overall duration of the process,

spanning from manuscript submission by the author to publication, typically ranges between 10 to 20 weeks. Specifically, the peer review process accounts for approximately 8 to 13 weeks of this timeline.

III. CONCLUSION

The peer review process in scientific publications is a crucial step to ensuring the integrity, validity, and quality of published research work. From initial submission to final publication, each step, including editorial pre-assessment, reviewer evaluation, and decision-making, is critical to ensuring the legitimacy and brilliance of a scientific study. The UPTJS endeavors to attain high norms by implementing rigorous peer review approaches, continuing development, building trust, and encouraging information dissemination. The iterative structure of the process, with possibilities for revisions and numerous review rounds as needed, demonstrates our dedication to maintaining high standards in scientific publication. The peer review process, as the foundation of academic communication, continues to be crucial for keeping openness, trustworthiness, and creativity in scientific discourse. This obviously requires the selection of high-quality reviewers who not only have competence and knowledge but also, perhaps more importantly, professional conscience, openness and fairness.

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Notes

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