SEFI ANNUAL CONFERENCE 2–5 SEPTEMBER 2024 LAUSANNE

ENGINEERING EDUCATION RESEARCH: REVIEWING JOURNAL MANUSCRIPTS FAIRLY, CONSTRUCTIVELY, AND EFFECTIVELY

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Conference Key Areas*: Fostering Engineering Education Research*
Keywords*: Engineering Education Research, Journal, Peer review, Reviewer, Editorial process*

ABSTRACT

This workshop focuses on peer review of journal manuscripts in the field of engineering education research. The aim is to jointly consider how to review manuscripts fairly, constructively and effectively. To this workshop we invite both experienced and new reviewers, with a particularly warm welcome extended to doctoral students in engineering education research.

1 BACKGROUND: FAIR, CONSTRUCTIVE, AND EFFECTIVE REVIEWING

1.1 Peer review as a way to safeguard and enhance quality

The function of the peer review process is first to support journal editors in making *fair* decisions by helping them identify which manuscripts deserve to be published. The task is further to *constructively* support the authors in improving their manuscript before publication. The peer review process often goes through some iteration to help authors improve their research ideas and approaches, as well as how they communicate these ideas, methodologies and results to the readers. It is through this process of both selection and enhancement that the quality of publications is safeguarded. By extension, this is how the whole research field can establish and maintain respect. Reviewers therefore play a vital role. It is even fair to say that without peer review there can be no respectable field.

1.2 The work of reviewing

Given that the research field depends on it, reviewing manuscripts is a contribution that all scholars need to make to sustain and further the field. The peer reviewer role is also a part of any academic identity and expresses scholarly collegiality. In addition to such altruistic reasons, it is a rewarding task to review manuscripts, since much can be learned from engaging with the work of others. It is not least helpful to experience the editorial process from the inside. Such insights can be helpful when taking one's own manuscripts from submission to successful publication. However, as reviewing can also be time-consuming, it is a wise investment to improve one's skills to do it *effectively*.

2 ABOUT THE WORKSHOP

2.1 Aims

The workshop aim was to introduce the participants to various credible journals in our field, with their different aims and scope, and review criteria.

During the group exercise, participants were asked to consider the following aspects:

- The roles and perspectives of authors, editors, and reviewers in the peer review process
- How to provide recommendations to support editors in making fair decisions
- How to provide constructive suggestions to authors to support them in improving their manuscripts
- Which aspects of a manuscript that are helpful to focus on in a review, and how to apply the review criteria
- Ethical aspects of peer reviewing – do's and don'ts
- Time management strategies for effectively producing articulate reviews

2.2 Outline

The total duration of the workshop was 60 minutes.

Brief introductions

- Participants and session leaders.
- Journals: aims and scope, review criteria and review process.

Group activity

- Participants were divided into groups of about four, each facilitated by one or more journal editors. The task was to make a virtual poster: "Advice for reviewers". The poster consisted of a slide in an online collaborate writing environment. All participants wrote concurrently during the discussion, without needing to reach full consensus.

Plenary

- Joint discussion about the results – in search for synthesis, collected wisdom and conclusions.

Closing

- At the end, participants were invited to sign up to receive documentation from the session, including the posters that were produced during the workshop. They could also sign up to volunteer as reviewers for the journals.

2.3 Facilitators

The workshop was facilitated by a large team of editors of five leading engineering education journals:

- *European Journal of Engineering Education (published by SEFI)*
- *Journal of Engineering Education (published by ASEE)*
- *Australasian Journal of Engineering Education (published by AAEE)*
- *IEEE Transactions on Education (published by IEEE)*
- *SEFI Journal of Engineering Education Advancement (published by SEFI)*.

3 RESULTS FROM THE WORKSHOP

During the workshop 22 persons worked intensely, in 4 groups, to generate advice for reviewers. The posters that they produced are copied below, slightly edited.

3.1 Group 1

- Put yourself in the shoes of the authors and the readers
- Can you understand the paper even if you're not an expert?
- Don't talk about what you would write; discuss what you would read
- You are not reviewing the author; you are reviewing the paper
- Longer reviews don't necessarily mean better reviews
- 3-4 actionable bullet points are better both for the author and the editor
- Structure your review: what are the main points, and what are minor fixes?
- Give examples (e.g., where is the alignment off?)
- Highlight the positive/strong aspects: This helps us to keep the good aspects when reviewing the paper
- Helps the editor
- Be careful with the use of AI
- Don't put the paper you are reviewing into AI, although GenAI may be used for structuring your review
- Name-dropping is to be avoided
- Don't push citing your work as a reviewer
- Make sure that what you cite is what you say
- Notify editors about possible delays:

- If you know you will be busy in advance already, talk to the editor about your timeline
- If you can’t do it, say it as soon as possible
- As a reviewer, you are not correcting – you are making suggestions and advising the author (and the editor)
- You are not the writer
- You are not alone
- Editors and associate editors are also reviewing, especially if the reviewers don’t agree
- Reviewing is a way to grow as a part of the community
- You can improve clarity, but novelty is difficult to add
- Even if you reject, provide suggestions as to what can be improved, e.g., “these are necessary,” and “these would add value”

3.2 Group 2

- Be constructive in offering ways to improve the work proposed
- Be respectful in a sense of providing peer-to-peer education
- Be concrete on your suggestions
- Provide references when you feel they would be helpful

  Be aware of your own biases; be impartial and non-biased regarding your own research
- It is fine if you make your review only on your line of expertise, you don't need to be an expert on all elements of a paper: give feedback on what you know well enough only (editors will have the role to combine reviewers expertise into one paper revision);
- Be honest about the paper’s contribution to the field; let the authors/editors know the relevant already existent publications
- If you notice a review is taking a lot of time, park it for a bit, and try again a few days later

3.3 Group 3

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- Read the paper, the first time for context and feel, and then reread for detail
- Assess if you can gist the paper from abstract, figures and conclusions
- Give advice that is actionable
- Give realistic Advice, e.g., Don’t ask “for more data” (unless the paper is unpublishable without expansion)
- Advise, don't criticise

- Do not proofread
- Be timely
- Is the usefulness of work clearly defined?
- Don't be a gatekeeper
- Be supportive…

3.4 Group 4

- Focus on the key issues - not pages on listing typos
- Be constructive and empathetic. Authors often don't spell out what they've done clearly enough because they're very close to the work. Don't just talk about the things that were done poorly, also highlight what's been done well.
- Write the review in a tone you would want to receive
- Recognize that authors own an interpretivist view of their research
- Use the confidential comments box to be candid (i.e., fit for the journal, citation of literature relevant to the area of study overlooked)
- Consider if the paper has ‘potential’ and offer suggestions for how to move the paper forward in a productive manner (similar to offering actionable feedback)

4 CONCLUSIONS

The advice for reviewers reflects several common themes. The groups have much to say about what it means for reviews to be *constructive*, in the sense of being directly helpful to the authors to improve the manuscript. In particular, actionable and concrete advice is much valued. Structuring a review by distinguishing between fundamental or serious issues and optional recommendations is also helpful, both to editors and authors. Suggesting relevant references is helpful, but not to promote one’s own work. You may highlight very relevant work of your own in the confidential advice to the editors, so the editors can determine its relevance and usefulness to the manuscript and include the suggestion in the editor’s comments. Another theme related to *fairness* is the advice to see the manuscript on its own terms. We are reminded to consider the manuscript as the authors’ work rather than what the reviewer would have written. Generally, reviewers should understand the role of their own positionality and possible bias. An important theme is *empathy*. A review must be worded in a respectful tone. Highlighting what is good about the manuscripts is recommended, not only for balancing the critique to make the review easier to bear for the authors, but the validation of strengths is important information for both editors and authors. Empathy and respect are also conveyed by helpfulness. A truly supportive review is when the reviewer not only points out weaknesses in the manuscript, but also gives advice on how to overcome problems. As one group pointed out, manuscript reviewing is also *peer-to-peer education*. Approaching the peer-review role with that mindset makes reviewing a valuable contribution to the field.

5 ACKNOWLEDGEMENTS

The editors who facilitated this workshop would like to extend their sincere gratefulness to the reviewers who volunteer their time and effort to engage in the peer review process. Through these anonymous contributions, reviewers are supporting the journals, the authors, and the field of engineering education research.