2023-10-10

Engineering Education Research: Reviewing Journal Manuscripts Fairly, Constructively, Effectively

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

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

ABSTRACT

Peer review is the mechanism for quality control in academic journals. When a manuscript is submitted to a journal, the editors invite other researchers – peers – to review it anonymously. The reviews should serve to support the journal editors in making decisions, and to support the authors in improving the manuscripts before publication. Therefore, reviews need to be fair and constructive. As reviewing can

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also take considerable effort, it is useful for the reviewer to consider how to do it effectively. Given the important role of peer review in a field, and the considerable effort it takes, it is valuable to jointly consider all these aspects of reviewing in a dialogue with reviewers, authors and editors. This paper presents the outcomes of such a dialogue with 49 participants in the field of engineering education research.

1 BACKGROUND: FAIR, CONSTRUCTIVE, AND EFFECTIVE REVIEWING

1.1 Peer review as a way to safeguard and enhance quality

Academic journals publish papers after a process of peer review. When a manuscript is submitted to a journal, editors will initially screen it and decide whether it should proceed for peer review. The editors then invite other researchers to read the manuscript and anonymously provide a review. The main components of a review is a *recommendation* to the editor with regards to their decision about the manuscript, and a set of *comments* to the author. In these comments, the reviewer can justify the recommendation and suggest how the manuscript can be improved.

The function of the peer review process is first to support the 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 processes, as well as how they communicate these ideas and methodologies to the readers. It is through this process of 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 play a vital role – without peer review there can be no respected field.

1.2 The work of reviewing

Reviewing manuscripts is a rewarding task since there is much to be learned from engaging in the work of others. It can be particularly helpful to experience the editorial process from the inside, making it easier to take one's own manuscript from submission to successful publication. As reviewing can also be time consuming, it is a wise investment to improve one's skills to do it *effectively*.

1.3 The need for discussion

For all these reasons, it is beneficial for a research field to have an active discussion about peer reviewing among reviewers, authors, and editors. Participating in this dialogue is rewarding particularly for those taking on new roles, be they reviewers who are making their first experiences in reviewing manuscripts or doctoral students who are relatively new as authors.

2 ABOUT THE ACTIVITY

2.1 Aims

At the SEFI 2023 Annual Conference in Dublin, the authors organised a workshop focused on peer review of journal manuscripts in the field of engineering education research. Both new and experienced reviewers were invited, with a particularly warm welcome to doctoral students in engineering education research.

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

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

The workshop aimed to guide the participants through the following aspects:

- Introduction to the three journals' aims and scope
- Discussing the general review criteria and review processes used in engineering education research journals, and how to apply them
- Taking into consideration particular aspects of a manuscript that a reviewer should consider
- Providing constructive suggestions to authors in improving their manuscripts and to editors in making their decisions on how to reply to authors
- Time management, enabled with effective strategies for producing articulate reviews

2.2 Workshop structure

The total duration of the workshop was 60 minutes. The total number of participants, including the facilitators, was 49. After brief introductions of the three journals, participants were asked to divide themselves into groups of about 4, with one editor (facilitator) in each group. Through discussion, the groups each made a virtual poster, entitled "*Advice for reviewers*". The results were then discussed in plenary. At the end of the workshop, participants were invited to sign up for volunteering as reviewers for the journals.

3 FINDINGS

3.1 Advice for Reviewers

Below the posters are copied as created by the groups.

Poster 1

- Be aware that you're giving feedback to a human being who will feel a certain way about it; humans make mistakes; be nice
- Give actionable feedback, specific suggestions to help improve the work
- Describe what you read in the paper → in case two reviewers don't agree, this is more convincing and informative feedback for the editor
- You can add briefly where your point of view comes from if you think it is relevant (i.e. seeing something through a different theoretical lens)
- Even if you think it is a paper of poor quality, try to give as much detailed feedback as possible to help the writer understand and to help them improve
- A template or review guide would be useful

Poster 2

- Read the abstract carefully to ensure your expertise matches that of the manuscript.
- Ensure that you have time to read the entire paper to do it justice.
- Be careful about predatory journals. Good advice is to review for journals you've read or published in.

- Evaluate what is given - suggesting completely different methods, etc. is not useful or constructive
- A high quality one-page review is better than a high-quality 20-page review. Be concise! Don't do copy editing!
- It's good to provide a quick summary of what the article was about (to show your interpretation), but this should not be the focus.
- Include strengths and areas for improvement.
- It's okay to suggest the writing to use polishing, but it's not okay to suggest a native english speaker should edit the manuscript.
- Suggestions for how to review:
    - Read the whole article and take notes, then organize notes into major and minor points
    - Can also organize points into strengths/areas for improvement
- When you read the reviews of other reviewers, learn from them! Compare your perceptions to theirs
- Phrase your comments carefully - be constructive!
- Use the "notes to the editor" box. Some editors like when you include a two-sentence summary of your thoughts.
- Use the available APA guides for use of inclusive language.
- Common reasons an article might be rejected:
    - Misalignment across sections
    - Not enough time on the discussion/conclusions
    - Not returning to the literature in the discussion section
    - Inappropriate use of methods

Poster 3

- Make sure to actually read the paper
- Make sure that you having engaged with the paper becomes clear from your review
- Check title, abstract, reference list (unspoken rule: reference other papers in the journal, editors, and so on)
- Be aware of bubbles, diversity of meaningsl
- No grammar, basic structure needed - you don't need to copy-edit or proof read the paper
- Notation can matter (is it interesting to the readership, is that relevant for understanding)
- Stay within your lane ☝ Focus on what you know about (and hedge what you do not). Reflect on your expertise.
- Make sure the correct source is used (not only the most recent), but also keep in mind that there might be recent publications.
- Formulate the review constructively and friendly.
- Provider examples or rationales for suggested improvements
- Do not suggest to cite the work of yourself
- If in doubt, you should check sources

Poster 4

- Important to be objective, enough details to the authors to review the manuscript
- Be constructive

- Give specific advice on what improvements are needed, and in which sections of the paper
- Pay attention to the methodology of the paper (including how the results are being evaluated) and offer suggestions on alternatives
- Make sure you understand the journal scope and aims and how manuscripts are assessed: for example for EJEE its usefulness and scholarliness
- Be kind
- Especially be sensitive to interdisciplinary research/academics
- Use the same principles that we use in giving student feedback (e.g specific, useful, cover both quality of arguments and presentation)
- Don’t miss the minor changes that are required (e.g references, captions, typos etc)
- Reviewers are not proof readers, but do all journals have a proofreading / copyediting stage of the process
- Make suggestions as to other literature sources
- Don't let poor English be a reason to reject, rather encourage authors to get it proof read/ reviewed by native speakers

Poster 5

- Follow the guidelines
- Dont care about details
- Read through the paper and se if you understand the message. Then check for relevance (up to date/of interest) and coherence by means that aim and rqs are answered.

Poster 6

- Be nice in your use of language even if you think the paper is not good. People worked hard on writing it
- Make sure your criteria are objective and also explain why you reject based on these objectives so they can learn.
- Try and be as specific as you can be. Dont say that section is unclear, please fix. Do say, I find the section on X hard to follow. Can you provide a more detailed description for instance or explain your motivation of choosing the method.
- Write the type of review that you would want to receive even if it is negative.
- You do not have to agree to review every paper that is assigned to you
- Your opinion to accept / reject a manuscript is advice to the editors. They decide whether to accept or reject and need sufficient information.
- Give feedback on two levels: higher order, high priority and on detailed level on inconsistencies in wording
- Review in two stages. First make rough notes and then write detailed constructive feedback
- Suggest an alternative outlet for paper that is good but out-of-scope

Poster 7

- Be kind and constructive
- Be as precise as possible
- Don't be afraid of saying you don't understand something
- Focus on content and if it is scholarly rather than correcting language

- Keep a readers perspective

Poster 8

- Timely information can be provided upon initial evaluation.

Poster 9

- Make sure that you have enough expertise in the area.
- Think about including positionality statements as the reviewer.
- Sharing your review process with early career colleagues.
- Good idea to publish reviews next to the paper
- Giving constructive feedback that is highly detailed/specific.
- You are a reviewer not an author, it is not your duty to rewrite papers.
- Try to see the value that the paper brings to the community.
- Start with positive feedback and outline the potential impact.
- Construct a review template over time.

Poster 10

- Look at the other reviews that get sent to the author - see different styles.
- Your review style will depend on the quality of the manuscript - you can be pragmatic with your approach - think “what will help the author the most?”
- You can put links and resources in your reviews if these could be helpful for the author(s).
- A reviewer is like a detective - checking references etc. be rigorous.
- To help your time management - go through the whole paper first and make an initial judgment (if reject then you don’t need to go through line by line, identify grammar errors etc. just give key points that would improve the manuscript most).
- If many grammar errors then you can highlight on first page and then if there are a lot, you don’t have to continue - you can just point to a proofread (but do this sensitively).
- Remember that you are making suggestions only - authors do not need to make the changes but should be responding to your feedback with a rationale (you can
- Respond to accept/decline email and communicate with Associate Editor if you would like an extension (if you don’t indicate accept/decline, you may be removed from the reviewer list)
- Split feedback into major concerns and minor concerns to help the author see where to focus their revisions.
- Can ask Associate Editor for support in reviewing - you can sometimes get asked to look at a specific element of a manuscript rather than the whole (adding your expertise to the reviewer profile can be really useful here to help you get relevant manuscripts).
- Create own workflow framework for reviewing to help time management
- Do
    - Check some references
    - Use constructive and neutral language
    - Be open minded
- Don’t
    - Correct all grammar/typos (you don’t need to do this)

    - Make assumptions about the author
- Frustrations of reviewers!
    - When revised manuscripts come back virtually unchanged, without rationale for not changing in response to reviewer comments.
    - Being removed as a reviewer after accepting, as may be working on manuscript at time and feel
- Useful resource to find journals to review for:
    - https://reen.co/eer-journals/
    - Visit https://beallslist.net/ and check both the journal and its publisher from the list of potentially predatory publishers there, even though it is not the only way to check journals, it is certainly a good place to start.

Poster 11

- Rubric or Checklist of assessment criteria.
- Time management for reviewing
- The comments is more important than the ranking in different review indicators
- Make sure you fully understand the paper (e.g. context, purpose, methods)
- The contributions need to be linked to the results, research scopes and results. Claims well supported by evidence
- Start giving positive feedback as the encouragement and help authors to keep
- To be fair and objective. Don't make the author's work about your own work. That is honor author's decisions and research.

4 FINAL REFLECTIONS

Some themes are recurring through many of the posters. In the following, we reflect on advice related to fairness, constructiveness and effectiveness.

4.1 Reviewing Fairly

Several posters contain comments regarding *fairness*. One recommendation is to only accept review assignments within one's area of expertise so that reviewers fully understand the manuscript. It can also help to make one's position clear in a positionality statement, and clearly indicate any parts where one has less expertise. Some advice relates to the quality control function, for instance checking references "like a detective". Reviewers are also recommended to communicate with the editors, for instance by clarifying the recommendation in a short confidential comment. It may indicate that the groups have experiences of poor reviews when they emphasise such basic ideas as making time for the review and reading the paper.

4.2 Reviewing Constructively

The posters were dominated by the themes related to *constructiveness* of reviews. Kindness features in most posters. It implies recognising that there is a human on the receiving end of one's comments, and therefore the recommendation is to be encouraging and use friendly, neutral language. One idea is to split the comments into major and minor issues. Being constructive also means being helpful to the authors in making improvements. Making feedback actionable is for instance being specific on what needs to change, in what parts of the manuscript, and how this can be done. Suggesting references to missing or highly relevant literature is

appreciated, but not promoting one's own. It is recommended to focus on the manuscript as it is, rather than suggesting new work or new methods.

4.3 Reviewing Effectively

With regard to *effectiveness* of reviewing, some groups mention time management. First it is important to choose carefully which journals to review for. The recommendation is to review mainly for the journals that we read and publish in, and carefully check up lesser known ones to avoid predatory journals. One piece of advice is to read the paper first for an initial judgment, and in case of recommending rejection focusing on major feedback only. The advice in the posters is divided with regards to whether reviewers should support authors in minor editing. Some ways to improve one's reviewing is to carefully read also the other reviews when the journal copies the reviewers on all feedback that was sent to authors. Experienced reviewers are also recommended to engage junior researchers in reviewing, starting under guidance.

5 ACKNOWLEDGMENTS

The editors (workshop facilitators) wish to sincerely thank all reviewers who volunteer their time to support authors, journals and by extension the field of engineering education research. Reviewers are anonymous but as editors we see you and appreciate your valuable contributions.