Aalto University
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Engineering

Peer Review, JUFO, Impact Factor

What You Should Know When Writing a Scientific Journal Paper

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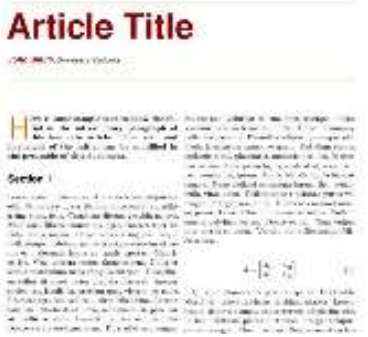
Outline

- Requirements for scientific articles
- Example editorial process
  - An IEEE journal
- What editors and reviewers watch in manuscripts
- Dos and don’ts
- Impact factor
- JUFO ranking system
- H index

Required from Scientific Articles



- Must present something “new”
  - New observation/application/solution, new/improved method…
- Must be validated
  - The new “thing” must have been tested and have advantages
  - Advantage can be w.r.t. accuracy, efficiency, cost, speed…
  - Usually need to compare with previous results or ground truth
- Must be well written
  - Sufficiently good use of the English language
  - Old and new must be clearly separated!
    - Old = inherited knowledge; New = what is proposed in the paper
  - Common problem: Confusing so that readers can’t see easily what is new, what is old, what is relevant…

First Step in Journals: Editorial Check

- Editor-in-Chief or Senior Editor checks the submission
- Example: IEEE/ACM Transactions on Audio, Speech and Language Processing
  - I was a Senior Area Editor in audio, handling 2-3 submissions weekly, about 100 per year, >500 submissions in 2015-2020
  - I started as the Editor-in-Chief in the Journal of the Audio Engineering Society in Sept. 2020, >100 annual submissions
- It should take max 15 min to make this basic check
  - Please make it easy for the editors to “like” your submission

Editorial Check (in 15 min)

- The Editor-in-chief or Senior Editor routinely checks the following points:

1. Relevant topic to this journal? (References to this journal)
2. Plagiarism checking (iThenticate report)
3. Is there novelty?
   - Can reader FIND novelty? Search for “new”, “novel”, “propos”…
4. Is it properly validated?
   - Comparison/evaluation/validation/experiments…
5. Is it well written?

- If the submission fails even in 1 → Immediate Reject [IR]

Typical Reasons for Immediate Reject

- Poorly written
  - Plagiarism <*iThenticate example*>
  - Language deficiency
  - Difficult to (quickly) see what's new or the benefits
- Lack of novelty
  - Contributions are too minor
  - Something similar was published earlier (lack of references)
  - Difficult to distinguish between previous and new ideas
- Incomplete
  - Validation (or comparison) is missing or is too limited
  - Not reproducible (lacking details, such as parameter values)

What Editors Like

1. It is obvious to see that the topic belongs to this journal
   - The paper title and abstract have familiar terms, refs to this journal
2. Not too similar or different from other papers
   - iThenticate: 5% < Similarity index < 30%
3. Easy to see the novelty
   - Words like “new”, “novel” appear in abstract, intro, and elsewhere
   - Own results are clearly indicated (“proposed”, “new”, “novel” …)
4. Clear validation
   - Usually, a comparison with previous best results (state-of-the-art)
5. Easy to read, no typos, not verbose, clear figures/tables

Review Process

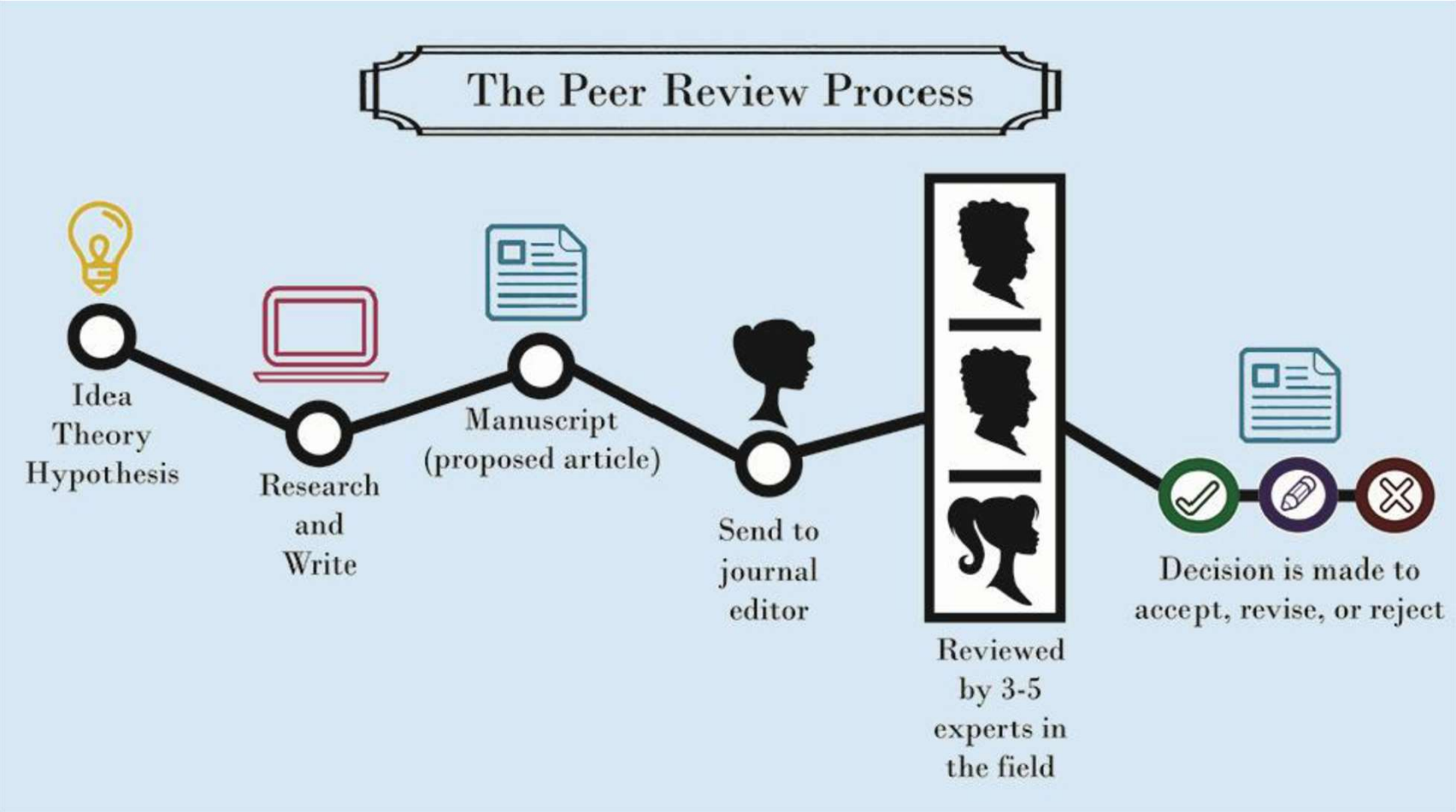


Figure taken from: http://libguides.evergreen.edu/peerreview

Review Process

- After the editorial check, the manuscript is assigned to an *Associate Editor*
- She/he will invite 3-5 *reviewers* to evaluate the submission
  - Names of reviewers are often searched from the reference list!
- Reviewers are instructed to look at *the same aspects* as editors (relevance to journal, novelty, validation, clarity, refs)
  - They are allowed 3-6 weeks, depending on the journal
- In IEEE journals, reviewers will suggest (**A**)ccept, Minor revision (**AQ**), Major revision (**RQ**), or (**R**)eject
- Associate Editor will decide based on reviewers' suggestions
  - Often the average, but sometimes the minimum
  - For example, one "R" may lead to rejection

Dos and Don’ts

- Use a short and descriptive title
- Use a standard structure for your manuscript
- Learn to write flawless (technical) English
- Separate new material from background – Don’t mix them!
- Identify novel material explicitly using words like “new”, “novel”
  - In the intro, body, and conclusion (but not allowed in the paper title)
- Don’t copy&paste sentences from anywhere (plagiarism)
- Draw iconic figures to visualize your ideas
- Cite as many previous papers/books as you can
  - Cite papers published in the same journal where you submit
  - Be sure to cite papers *from the past 2 years* (“state-of-the-art”)

Impact Factor, JUFO, H Index

What's the Impact Factor?

- Good scientific journals have an Impact Factor (IF)
- IF is a simple estimate of the average number of citations a paper gets in that journal
- IF of 2017 is computed like this for an example journal:

$$\mathrm{IF}_{2017} = \frac{\mathrm{Citations}_{2017}}{\mathrm{Publications}_{2016} + \mathrm{Publications}_{2015}} = \frac{74090}{880 + 902} = 41.577$$

i.e., ratio of citations to papers in 2 previous years to the total number of papers published in 2 years (in that journal)

- Varies much among journals. In electrical engineering, good journals have IF > 1.

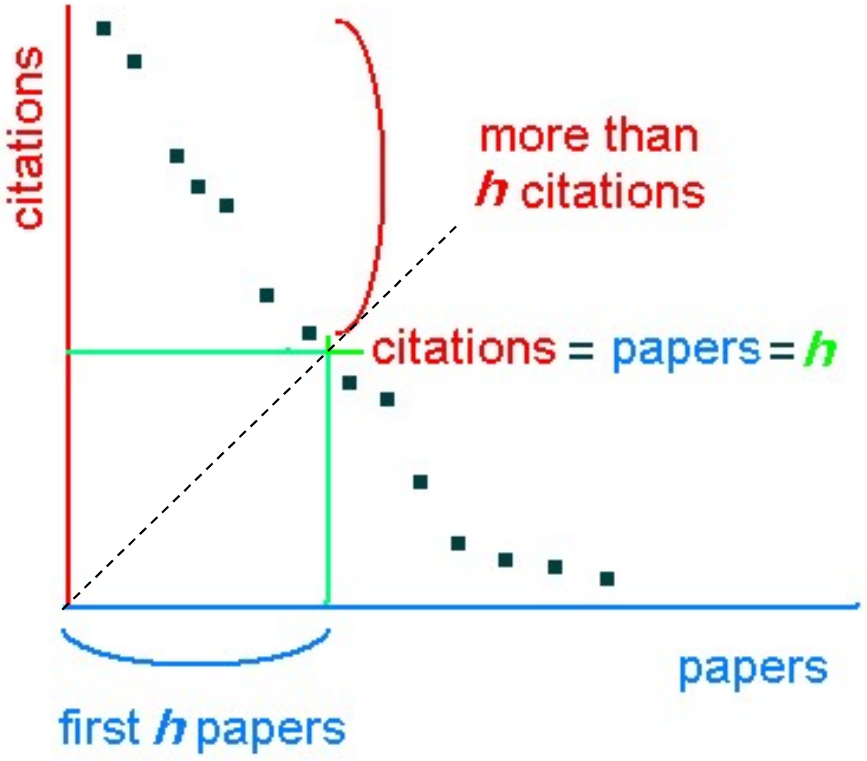
What About JUFO?

- JUFO = JUlkaisuFOorumi (publication forum):
  https://www.tsv.fi/julkaisufoorumi/haku.php?lang=en
- Finnish national system for ranking scientific journals and conferences, which started in 2015
- The Finnish Ministry of Education and Culture uses JUFO points for funding decisions for universities
- JUFO systems has 3 classes and the “no class”
  - Classes 0 and ”-” mean that the publication is not ranked
  1. Basic quality: most peer-reviewed journals and conferences
  2. Leading quality: respected int’l journals and conferences
  3. Highest quality: Only the top int’l journals, one in each field

What Is the H Index?

- H index is a measure of a researcher's scientific success, which Hirsch proposed in 2005
- E.g. when H index = 6, she/he has 6 papers with 6 or more citations.
- For successful researchers:

  H index > years from PhD
- H index can be computed from Web of Science, Scopus or Google Scholar.
  - They are all different!



https://guides.library.ubc.ca/citationmetrics workshop/researchers