Peer reviewing

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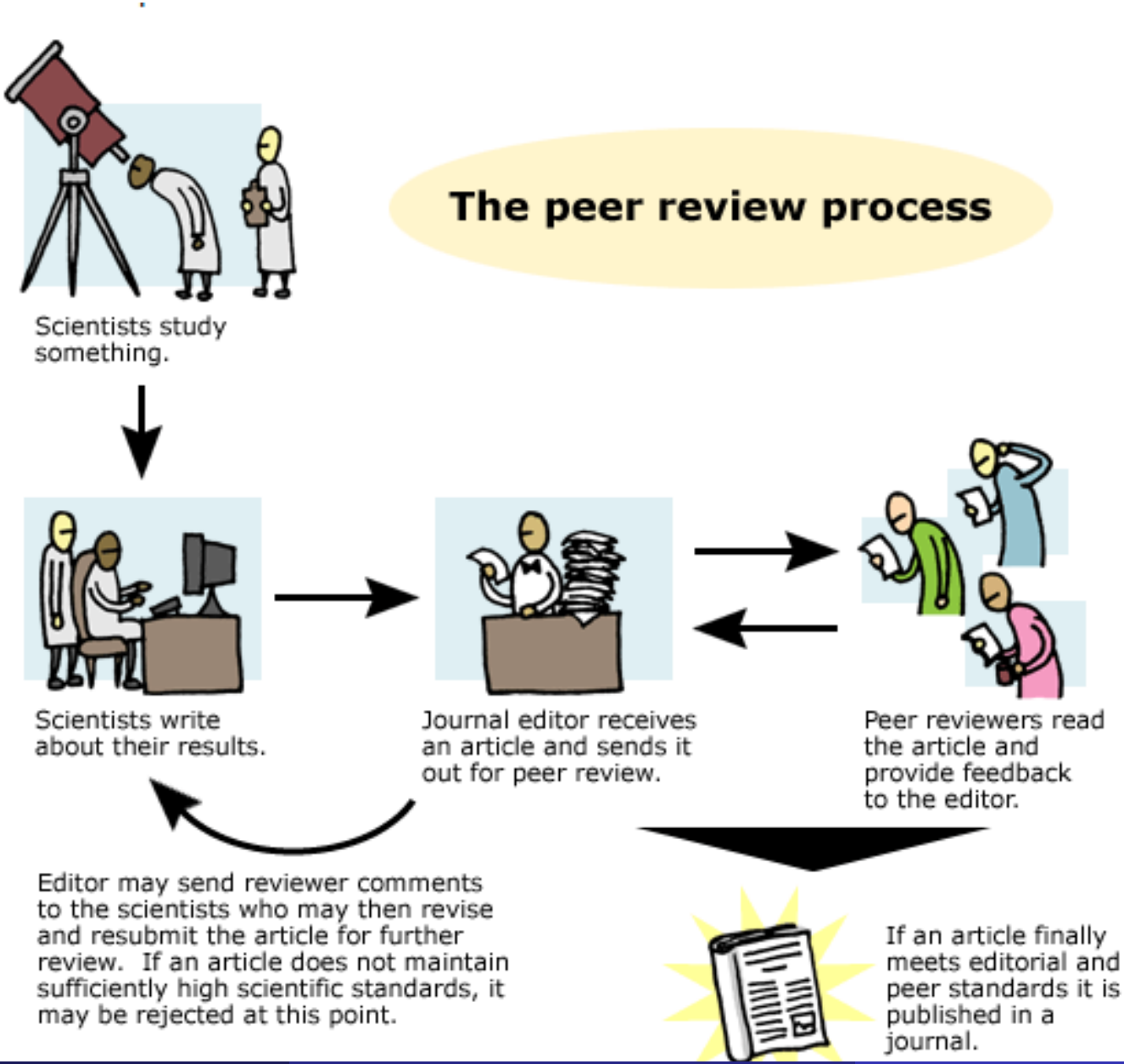
Peer Reviewing in Journals



Referee's dilemma

- Reviewing may be **intimidating**:
  - **False positive:** Accepting a flawed research
  - **False negative:** Rejecting solid research
- Because of bad refereeing, many **poor papers are published**
- Because of bad refereeing, many **good papers are (just) delayed**

Responsabilities

- **Authors:**
  - Honesty, ethics, careful preparation of papers
  - **Ultimate responsible** of the paper
- **Referees:**
  - Fair, objective, confidential, avoid conflict of interest
  - Only recommend acceptance when confident
  - Accurate reports
- **Editor (or editorial board member):**
  - Referees selection
  - Referees supervision
  - Arbitrage when evaluations differ
  - Arbitrage when author claims wrong evaluation
  - Final decision on acceptance

Introduction

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Reviewing is one of the most important tasks in a researchers career

When done properly:

- Very **time consuming** (and no direct incentive).
- Deserves **effort**, **care** and **ethical standards**.
- An excellent **source of inspiration**:
  - you are forced to **think** the paper **over**
  - you are forced to **justify** your opinion
- Unfortunately, the work load is way excessive.

Criteria for Judging a Paper

Contribution

Contribution is the main criterion for judging a paper.
Contribution = **Originality** + **Interest** + **Validity**

- **Originality** is the degree to which the ideas presented are **new** (i.e, granularity of the loop-cycle)
- **Interest** is the degree to which the ideas presented are **significant** and **relevant**
  - **Significance**: the extent to which something matters
  - **Relevance**: how appropriate something is to what's being done or said at a given time (e.g. someone talking about ph levels in soil during a gardening class)
  - emphasis on **induction** (hypothesis)
- **Validity** is the degree to which the ideas have been shown to be **sound**
  - emphasis on **deduction** (testing)

Criteria for Judging a Paper

What is better?

- **Disruptive** ideas (intuitions that may change our undertaning of things)
- **Informing** ideas (hypothesis that may explain our understanding of things)
- **Sound** limited extension of previously published work (consolidating evidence)

Originality

Originality

Ranges from **groundbreaking** to ϵ-**incremental**

How much originality warrants publication?

- That is the referee's main dilemma
- Also depends on the journal or conference

On Originality

To assess originality think about how much it would influence the work of people working in the topic.

- **Comparison to existing work** is the best way to show originality

Interest

Interest

Ranges from **groundbreaking** to **trivial** or **irrelevant**

On Interest

To assess Interest think about who would care.

On triviality

That some ideas appear obvious does not detract from their originality

- Many excellent ideas appear obvious in retrospect.
- Ideas in well-presented papers often seem less sophisticated than those in a poorly presented paper

Validity

Validity

Ranges from **demonstration of correctness in a form that allows verification** to **claims based on intuition**

Demonstration of correctness:

- **Different approaches:** proof, analysis, modeling, simulation, experiments,...
- **Must be rigorous:** carefully described, thorough and verifiable

Poorly Written Papers

- A badly presented paper deserves rejection
- An excellent presentation does not justify acceptance
- It is acceptable to have **a limited number** of typos, bibliographical errors, notation inconsistencies,...

Unfortunate fact

Careless presentation may be a winning strategy for careless reviewers.

Making the evaluation and writing the report

- The process of evaluation involves answering a number of questions
- In a well-written paper the answers should be easy to find

1. What is the contribution?
2. is it original? what is exactly what has never tried before?
3. is it significant? who is it useful to?
4. Is the topic relevant to the potential audience?
5. Are the results correct?
6. Are the results critically analyzed?
7. Are conclusions drawn from the results?
8. Are the technical details correct?
9. Could the results be verified?
10. Are there ambiguities or inconsistencies?
11. What is missing? Is any of the material unnecessary?
12. Is the presentation at an adequate standard?

Additional Elements on the Report

- Reviews should always start with a **brief summary** of the paper (just a few lines), where the reviewer writes in his/her own words his/her own understanding of what the paper is about and what is the contribution
- Reviewers should always take a look to the **Bibliography** and see if the references are reasonable (pertinent, recent, trustworthy source, comprehensive,...)
- The review template usually allows the reviewer to indicate his/her **level of confidence** confidentially to the editor.

Some tips for peer-reviewing (from Matt Might, U. of Utah)

Decision Fatigue: we take decisions all day long and it is extenuating

Fact

The dominant factor when writing a high- or low-quality review is decision fatigue.

- Review one paper per day.
- Review in the morning, before decision fatigue sets in.
- Never review when **hungry**.
- Never review when **tired**.
- Never review when **angry**
- If you must review papers in succession, rest between reviews.

Conflicts of Interest

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Decline to review any paper if you have any conflict of interest with its authors (e.g. family, advisor, advisees, recent paper authors or collaborators or those at the same institution)

- **Friends**
- **Career fragility** (e.g. tenure)
- **Foes:** if you have strong personal objections to an individual or work
- **Scholarly conflict:** you discover that someone else has independently solved the same problem as you
  - Inform the program chair or editor and decline (try to leave written proof, including the current state of your related manuscript)
  - After a decision has been made, consider approaching the authors, provide them with all of your work to date, and offer to combine your insights for a future submission (promise to respect whatever decision the authors make)
- **Pigeon-hole conflict**

Beware The Grad Student Syndrome

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Reviews written by graduate students are among the most negative

Beware Visceral Reactions

- You may form an accept/reject opinion from just the title and the abstract.
- That gut instinct **frames** the way a reviewer reads a paper.
- **Confirmation bias** sets in, and reviewers will look for evidence that supports their initial predisposition.

Respond as you read

- Items you like / don't like.
- Findings that surprised or disappointed you.
- Concepts that were well or poorly presented.
- Anything that confused you.
- Anywhere you feel an example would have helped.
- Anything that contradicted your running expectations.
- Anything unclear, even if later text clarifies it.

Be constructive

When you criticize an aspect of a manuscript, **offer advice** on how to fix it

- if the presentation is poor, **identify** why:
  - Is the grammar poor? Are transitions stunted or awkward? Are concepts, definitions and theorems convoluted? Are the diagrams unclear? Does the author assume too much of the reader's knowledge? Are explanations inadequate? Are more examples necessary?
- If there are technical mistakes, can you **correct** them?
- If the experimental results are flawed, can you **suggest** a way to correct the experimental design or to properly interpret the results?
- If you recommend rejection, what specifically could have changed your mind to argue for acceptance?

Anonymize but don't hide

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Referee-guessing is unavoidable and it may be a source of complicated social relations

- Change frequently your style when you review.
- Be cautious when citing your own work in a review
- Don't hide behind the veil of anonymity. It is meant as a shield, not a sword.