

Research Methodology in Computer Science (AI800)

Lecture 8

Ethical issues in Conducting Research



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Outlines

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- Principles of Ethical Research
- Ethical Principle in Research and Publication
- Ethical Decision-Making



Learning Outcomes

- To understand the importance of ethical considerations in research.
- To identify common ethical issues that may arise in the research process.
- To discuss the potential consequences of unethical research practices.
- To explore guidelines and regulations for ethical research conduct.
- To analyze case studies to apply ethical principles in research scenarios.
- To reflect on personal values and biases that may influence research ethics.
- To engage in discussions on controversial topics related to research ethics.
- To develop strategies for addressing and resolving ethical dilemmas



What is Research Ethics?

- *Research Ethics* refers to the moral *principles* and *guidelines* that govern the conduct of research.
- *Research Ethics* involves *ensuring* that research is conducted in an *ethical manner*, with respect for the *rights* and *welfare* of participants, *integrity* in *data collection* and *analysis*, and *transparency* in *reporting findings*.
- *Research Ethics* includes *considerations* such as obtaining informed consent, protecting privacy and confidentiality, minimizing potential harm, and addressing conflicts of interest.



What is Research Ethics? (cont.)

“Greek ethos ‘character’ is the systematic study of value concepts—good, bad, right, wrong and the general principles that justify applying these concepts”.

“Ethics is the disciplined study or morality....and morality asks the question...what should one’s behavior be”.



Why Research Ethics?

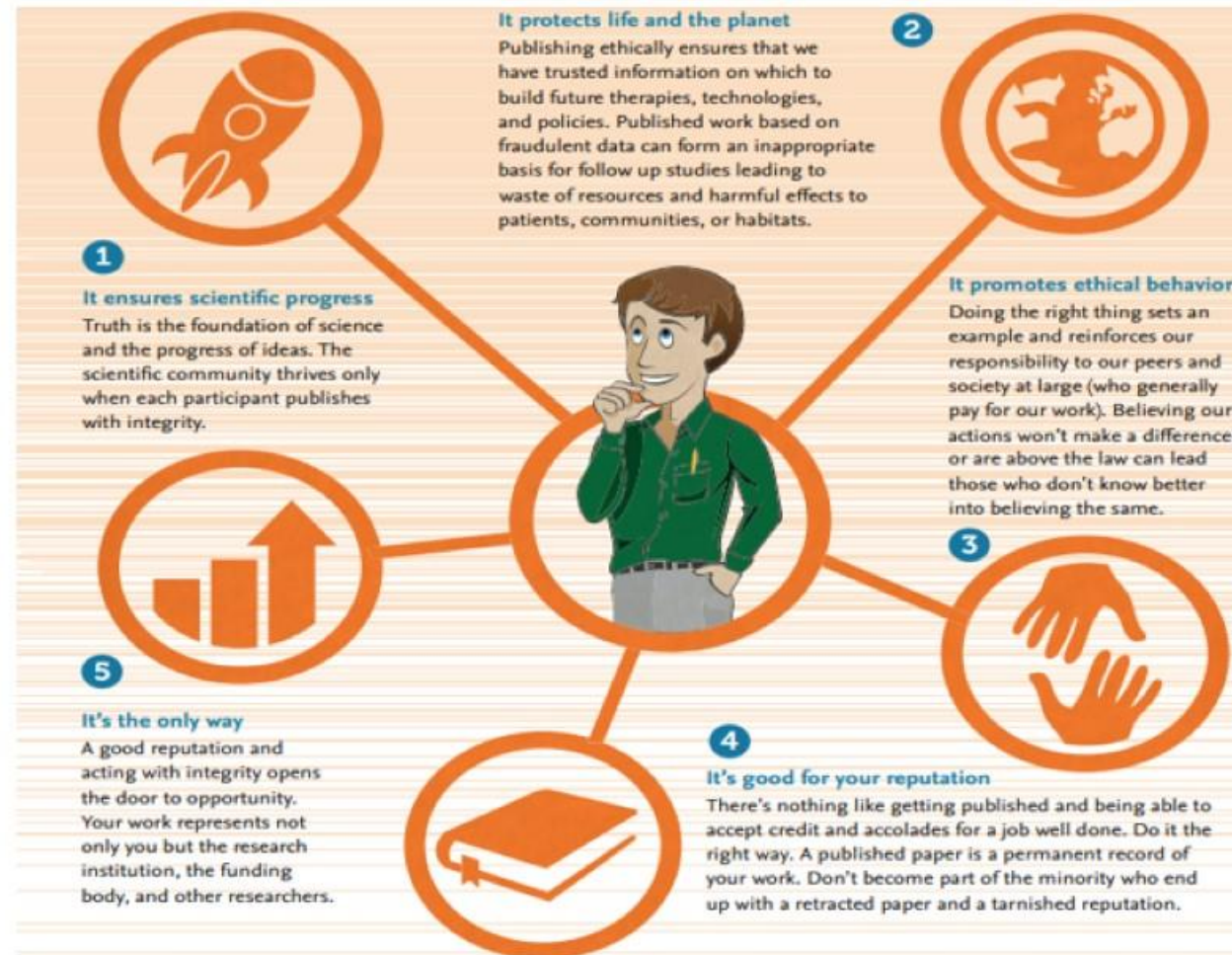
Ethics in research is **important** for the following reasons:

1. **Scientific Integrity:**
 - ✓ The validity and integrity of the research process are upheld by research ethics.
2. **Compliance:**
 - ✓ Legal and regulatory standards are adhered to in accordance with ethical norms.
3. **Ethical Decision-Making:**
 - ✓ Researchers use ethics to help them navigate difficult moral conundrums.
4. **Cooperation and Reputation:**
 - ✓ Researchers and organizations with a strong ethical code are better able to collaborate with one another.
5. **Credibility and Trustworthiness:**
 - ✓ Research findings that adhere to ethical standards are more credible and reliable.



Why Research Ethics? (cont.)

Source: Elsevier,
*Ethics in
Research and
Publication.*





Research Ethics Types

1. Descriptive Ethics :

- ✓ Focuses on describing and understanding how individuals or groups behave when faced with ethical dilemmas.
- ✓ It involves studying moral principles, values, and beliefs that guide human actions.

2. Prescriptive Ethics : Also known as normative ethics

- ✓ Explores how people ought to behave based on certain ethical theories or principles.
- ✓ Seeks to provide guidelines for decision-making and prescribing morally acceptable courses of action in various situations.



Research Ethics Types(Cont...)

3. Meta Ethics:

- ✓ A branch of philosophy that explores the nature of ethical concepts and moral judgments.
- ✓ It focuses on understanding the underlying principles and the meaning of ethical language, rather than directly addressing specific moral issues or providing guidance on what is right or wrong

4. Applied Ethics:

- ✓ The ethical principles and guidelines that are specific to domains or disciplines, such as business, biomedical research, engineering ethics, and many more.
- ✓ Address unique ethical considerations and challenges that may arise within each domain, considering the potential impact on stakeholders, participants, and society .



Objectives of Research Ethics

1. **Ensure** the *protection* and *well-being* of research participants, **promote** *scientific integrity*, and **maintain** public *trust* in the research process.
 - ✓ Protection of Participants: protect study participants' rights and well-being by minimizing risks, obtaining informed permission, and putting in place suitable protections.
 - ✓ Scientific Integrity: supporting objective data collection, analysis, and reporting, discouraging fraud, and fostering study reproducibility, research ethics preserves the validity and integrity of the research process.
 - ✓ Social Responsibility: make sure that the work is done in a way that helps people or the community at large.



Objectives of Research Ethics(cont...)

2. **Aim** to *prevent* any harm or exploitation of *vulnerable populations*, *ensure* informed consent and voluntary participation, and *uphold* the principles of *fairness*, *transparency*, and *accountability* in conducting research.
3. **Seek** to *address* potential *conflicts of interest*, *maintain confidentiality* and *privacy* of participants' data, and *encourage* responsible *dissemination* of research *findings*.



Ethical considerations in the research process

1. *Conceptualization and design*
 - ✓ scientific merit, identify risks and ways to mitigate the risks.
2. When participants are recruited
 - ✓ the process of informed consent, right to privacy.
3. *During the intervention or measurement procedure* to which participants are subjected
 - ✓ management of risk.
4. In the *release of results* obtained
 - ✓ protection of confidentiality and anonymity.
5. After the *release of results*
 - ✓ ensure that participants and communities involved in the research benefit.



Ethical Issues in Research

Validity	• Research techniques should be in line with the goals of the study and the research questions.
Sampling	• Samples must be impartial, rationally supported, and in line with the study plan.
Confidentiality	• It is important to safeguard and maintain participant names and data.
Vulnerable populations	• When include vulnerable populations in research, more caution should be used.
Informed Consent	• All information on the study's possible hazards and benefits should be provided to participants.
Plagiarism	• Researchers must not pass off someone else's work as their own or claim originality for work they have done in many formats.
Fabrication	• It is immoral to manipulate or change the results of research.
Falsification	• To fake their findings, scientists shouldn't alter their data or leave out important details.



What is Plagiarism?

- **Plagiarism** refers to the act of using someone else's work or ideas without giving them proper credit.
- **Plagiarism** involves copying and presenting someone else's work as your own
 - ✓ Written
 - ✓ Visual (Images and Videos).
 - ✓ audio content.
- **Plagiarism** is considered unethical and can have serious consequences in academic and professional settings.

Plagiarism



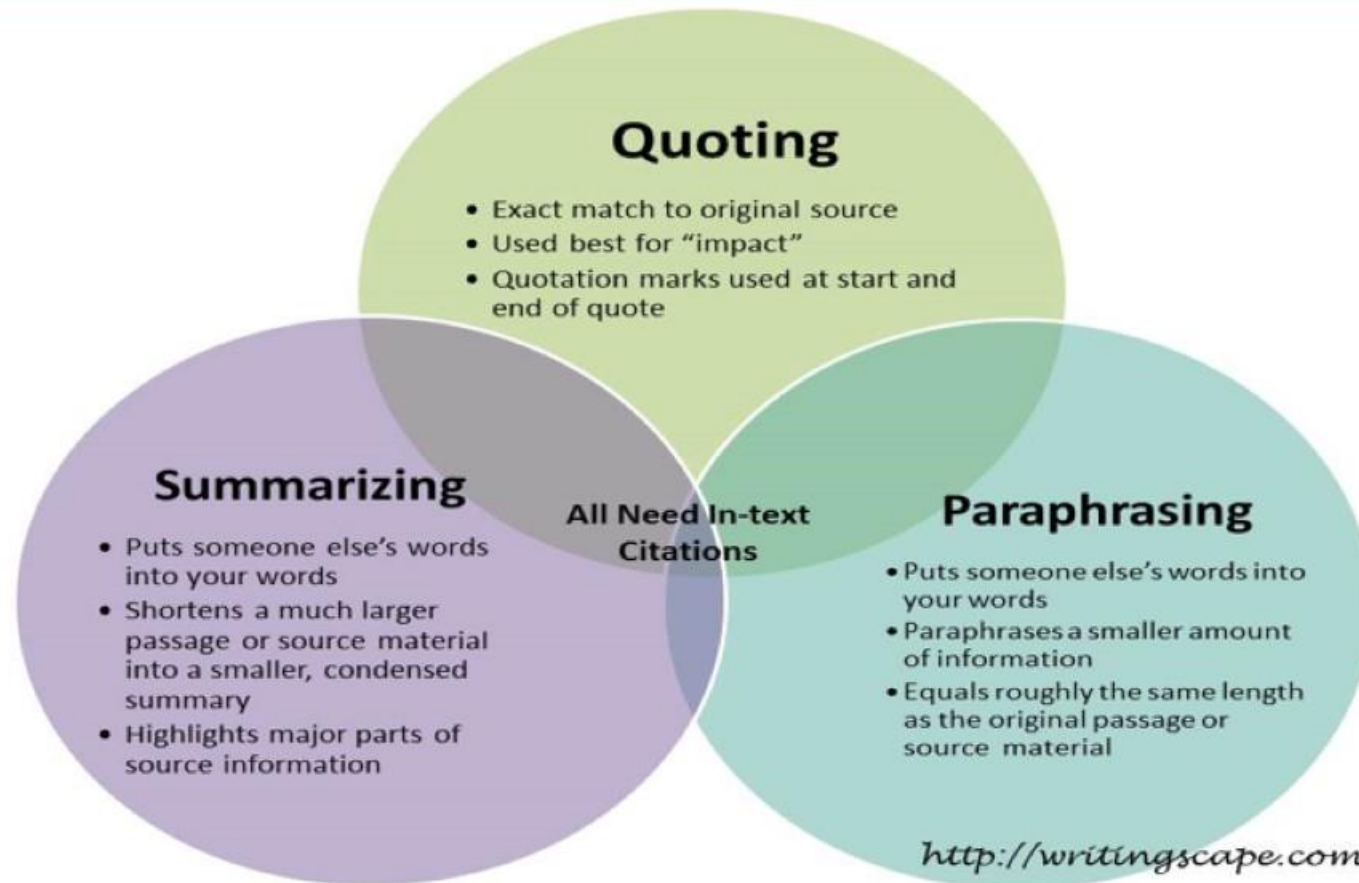


Legal Incorporation of Another's Work

- *Legal incorporation* of another's work refers to the process of using someone else's work in your own without infringing on their copyright.
- Legal incorporation done through :
 - Summarizing involves condensing the main ideas of the original work into a shorter version.
 - Paraphrasing involves restating the original ideas in your own words.
 - Direct quotations involve using the exact words of the original author, enclosed in quotation marks. It is important to properly cite and give credit.



Legal Incorporation of Another's Work (cont.)





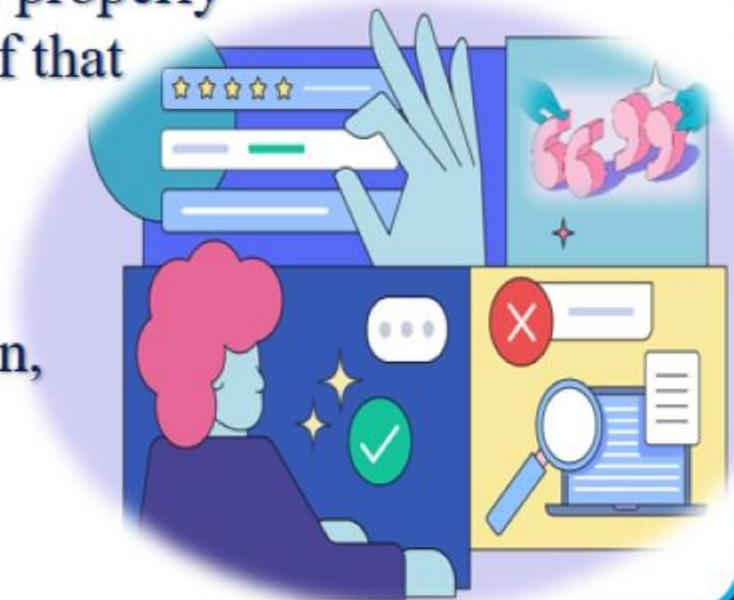
Tips to Incorporation of Another's Work

1. Always give proper credit and attribution to the original author or creator of the work you are incorporating.
 - ✓ Including citations, references, or acknowledgments in your own work.
2. Understand and follow the guidelines and regulations regarding copyright laws and fair use when incorporating another person's work.
 - ✓ Ensure that you are not infringing on someone else's intellectual property rights.
3. Seek permission from the original author or copyright holder if you plan to use a substantial amount of their work.



Inadvertent & Deliberate Plagiarism

- Inadvertent plagiarism refers to the unintentional act of using someone else's work without proper citation or acknowledgment.
- Inadvertent plagiarism often occurs when a person fails to properly paraphrase or quote sources, leading to the mistaken belief that the work is their own.
- Deliberate plagiarism involves intentionally copying or stealing someone else's work and presenting it as one's own, which is a serious ethical violation in academic and professional settings.





Why do students plagiarize?

- ✓ Pressure to achieve high grades
- ✓ Lack of time management skills
- ✓ Lack of preparation
- ✓ Lack of understanding the assignment.
- ✓ lack of confidence in their own abilities or a fear of failure.
- ✓ Availability of online resources and the ease of copying and pasting information.



Un-Ethical Research Conduct

Deception (issues of full disclosure)

Conducting research that does not have a scientific base (ill-formed problem statement)

Lack of objectivity and integrity in the design and conduct of research

Fabrication or falsification of data

Not following the appropriate ascription of authorship to a publication

Not respecting the right to: privacy, anonymity and confidentiality, and vulnerable groups

Not having due consideration for the environment



Components of Ethical Research

Integrity

- During the study process, researchers must follow moral guidelines and maintain the veracity and honesty of their results.

Objectivity

- To ensure a focused and objective approach, research endeavor should have a well stated and directed aim.

Professional Competency

- To ensure the authenticity of the study output, researchers must have the skills and knowledge required to manage, analyze, and interpret data correctly.

Confidentiality

- To safeguard participants' welfare and avert any potential harm down the road, their anonymity must be maintained and safeguarded.

Professional Conduct

- When engaging with participants, researchers should act professionally to uphold objectivity and prevent biases in the study's findings.



Ethical Principle in Research and Publication

Authorship

There are three kinds of authorship that are not acceptable:

- "Ghost" writers, who make significant contributions but go unrecognized (often sponsored by businesses).
- "Guest" writers, named to assist improve publishing prospects but contributing nothing of note.
- "Gift" writers, whose involvement stems only from a loose connection to a research project.



Ethical Principle in Research and Publication (cont.)

Source: Elsevier,
*Ethics in
Research and
Publication.*

Guide to Authorship Disputes and How to Prevent Them*

Action	What is it?	Is it unethical?	What should you do?
Misrepresenting a scientist's relationship to their work	Listing names of people who took little or no part in the research, omitting names of people who did take part,¹ or the 'ordering of a byline that indicates a greater level or participation in the research than is warranted'.³ This includes submitting a manuscript without the permission of an author/contributor.¹	Yes. According to ICMJE: "All persons designated as authors should qualify for authorship, and all those who qualify should be listed."¹ Misrepresentation also includes "ghost," "guest" and "gift" authors.²	- Review the journal's Instructions for Authors before submitting a paper and be forthright about all contributors. - This includes "substantial" contributions, paid writers, and any others who contributed to the study. - To avoid disputes, set clear expectations from the outset about who is doing what and how authorship will be handled. - If you feel you have been treated unfairly in regards to authorship, seek the counsel of a trusted advisor.
Ghost Authorship	This usually refers to professional writers (often paid by commercial sponsors) whose role is not acknowledged. Unattributed contributions to data analyses may also constitute ghost authorship.³	Yes. Not acknowledging a writer's contribution is considered dishonest.	- Professional writers who participated only in drafting of the manuscript and did not have a role in the design or conduct of the study or the interpretation of results should be identified in the acknowledgements section along with information about potential conflicts of interest, including whether they were compensated for the writing assistance and, if so, by which entity(ies).³ - Consult the authorship guidelines of the journal. - Consult other helpful resources including: ICMJE,² World Association of Medical Editors (WAME),⁴ European Medical Writers Association (EMWA),⁵ and the American Medical Writers Association (AMWA).^{6,3}
Gift and Guest Authorship	Authorship based on a tenuous affiliation with the study or solely on an expectation that inclusion of a particular name will improve the chances that the study will be published.	Yes. Guest and gift authors make no discernible contributions.³	- Any "gift" and "guest" contributions should be vetted prior to submitting a paper. - If in doubt about whether a contribution is acceptable or not, consult the authorship guidelines of the journal and the editor.



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6. AMWA-EMWA-ISMPP Joint Position Statement on the Role of Professional Medical Writers. Available at: c.ymcdn.com/sites/www.amwa.org/resource/resmgr/about_amwa/JointPositionStatement.Profe.pdf. Accessed on June 17, 2017.



Ethical Principle in Research and Publication

Competing Interest

Academic rivalry, intellectual enthusiasm, and interpersonal interactions can all lead to competing interests. One example of this situation might involve a researcher who own:

- A family member employed by the organization whose merchandise the investigator is assessing.
- A self-serving interest in the research findings (e.g., possible career progress or promotion based on outcomes).
- Personal convictions that directly contradict the subject of the research



Ethical Principle in Research and Publication

Guide to Declaration of Competing Interests*

Action	What is it?	Is it unethical?	What should you do?
An undisclosed relationship that may pose a competing interest.	Neglecting to disclose a relationship with a person or organization that could affect one's objectivity, or inappropriately influence one's actions.	Yes. Some relationships do not necessarily present a conflict. Participants in the peer-review and publication process must disclose relationships that could be viewed as potential competing interests. ²	■ When submitting a paper, state explicitly whether potential competing interests do or do not exist. ■ Indicate this in the manuscript for single-blind journals or in the title page for double-blind journals. ■ Investigators must disclose potential competing interests to study participants and should state in the manuscript whether they have done so. ■ Reviewers must also disclose any competing interests that could bias their opinions of the manuscript. ²
An undisclosed funding source that may pose a competing interest.	Neglecting to disclose the role of the study sponsor(s), if any, in study design; in the collection, analysis, and interpretation of data; in the writing of the report; and in the decision to submit the paper for publication.	Yes. Undeclared financial conflicts may seriously undermine the credibility of the journal, the authors, and the science itself. ²	■ When submitting a paper, a declaration (with the heading 'Role of the funding source') should be made in a separate section of the text and placed before the References. ■ Describe the role of the study sponsor(s), if any, in study design; in the collection, analysis, and interpretation of data; in the writing of the report; and in the decision to submit the paper for publication. ■ Editors may request that authors of a study funded by an agency with a proprietary or financial interest in the outcome sign a statement, such as "I had full access to all of the data in this study and I take complete responsibility for the integrity of the data and the accuracy of the data analysis." ²

Source: Elsevier,
*Ethics in
Research and
Publication.*



References

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2. International Committee of Medical Journal Editors. Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Ethical Considerations in the Conduct and Reporting of Research: Conflicts of Interest. Available at: icmje.org/conflicts-of-interest/. Accessed on June 17, 2017.
3. Committee on Publication Ethics (COPE). Principles of Transparency and Best Practice in Scholarly Publishing, Version 2, 2015. Available at: publicationethics.org/resources/guidelines/. Accessed on June 17, 2017.



Ethical Principle in Research and Publication

Simultaneously Submission

“A person submits a paper to different publications at the same time, which can result in more than one journal publishing that particular paper.”

“Duplicate/multiple publication occurs when two or more papers, without full cross reference, share essentially the same hypotheses, data, discussion points, and/or conclusions. This can occur in varying degrees: literal duplication, partial but substantial duplication, or even duplication by paraphrasing.”



Ethical Principle in Research and Publication

Source: Elsevier,
*Ethics in
Research and
Publication.*

Guide to Duplicate Submission/Publication and How to Prevent It*

Action	What is it?	Is it unethical?	What should you do?
Simultaneous submission	Submitting a paper to two or more journals at the same time.	Yes. Submission is not permitted as long as a manuscript is under review with another journal.	■ Avoid submitting a paper to more than one publication at a time. ■ Even if a submitted paper is currently under review and you do not know the status, wait to hear back from the publisher before approaching another journal, and then only if the first publisher will not be publishing the paper.
Duplicate publication	When an author submits a paper or portions of his or her own paper that has been previously published to another journal, without disclosing prior submission(s).	Yes.	■ Avoid submitting a previously published paper for consideration in another journal. ■ Avoid submitting papers that describe essentially the same research to more than one journal. ■ Always provide full disclosure about any previous submissions (including meeting presentations and posting of results in registries) that might be regarded as duplicate publication.³ ■ This should include disclosing previous publication of an abstract during the proceedings of meetings.¹
Duplication by Paraphrasing or "Text-recycling"	When an author writes about his or her own research in two or more articles from different angles or on different aspects of the research without acknowledgment of the original paper.	Yes. Creating several publications from the same research, is considered manipulative. See our separate factsheet on plagiarism/ text recycling .	■ Put anything in quotes that is taken directly from a previously published paper, even if you are reusing something in your own words. ■ Make sure to reference the source accordingly.
Translations of a paper published in another language	Submitting a paper to journals in different languages without acknowledgment of the original paper.	Yes. Translated articles are acceptable when all necessary consents have been obtained from the previous publisher of the paper in any other language and from any other person who might own rights in the paper.	■ If you want to submit your paper to journal that is published in a different country or a different language, ask the publisher if this is permissible. ■ At the time of submission, disclose any details of related papers in a different language, and any existing translations.



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2. Elsevier Publishing Ethics policies: Duties of Authors. Available at: elsevier.com/publishingethics. Accessed on Nov 5, 2023.
3. International Committee of Medical Journal Editors. Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Publishing and Editorial Issues Related to Publication in Biomedical Journals: Overlapping Publications. Available at: <http://www.icmje.org/recommendations/browse/publishing-and-editorial-issues/overlapping-publications.html>. Accessed on Nov 5, 2023.



Ethical Principle in Research and Publication

Salami slicing

The “slicing” of research that would form one meaningful paper into several different papers is called "salami publication" or "salami slicing".

Unlike duplicate publication, which involves reporting the exact same data in two or more publications, salami slicing involves breaking up or segmenting a large study into two or more publications.

The breaking up of a complex study containing multiple dependent measures into separate smaller publications can have serious negative consequences for the integrity of the scientific database

1. Elsevier, *Ethics in Research and Publication*.

2. Office of Research Integrity. Salami Slicing (i.e., data fragmentation). Available at: ori.hhs.gov/plagiarism-16. Accessed on April 19, 2022.



Ethical Principle in Research and Publication

Guide to Salami Slicing and How to Prevent It*

Source: Elsevier,
*Ethics in
Research and
Publication.*

Action	What is it?	Is it unethical?	What should you do?
Breaking up or segmenting data from a single study and creating different manuscripts for publication	Publishing small 'slices' of research in several different papers is called 'salami publication' or 'salami slicing'.	Yes. Salami slicing can result in a distortion of the literature by leading unsuspecting readers to believe that data presented in each 'slice' is derived from a different subject sample. ²	■ Avoid inappropriately breaking up data from a single study into two or more papers. ■ When submitting a paper, be transparent. Send copies of any manuscripts closely related to the manuscript under consideration. ■ This includes any manuscripts published, recently submitted, or already accepted.⁵



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Ethical Principle in Research and Publication

Research Fraud

“Research fraud is publishing data or conclusions that were not generated by experiments or observations, but by invention or data manipulation.”

There are two kinds in research and scientific publishing:

- ✓ Fabrication. Making up research data and results and recording or reporting them.
- ✓ Falsification. Manipulating research materials, images, data, equipment, or processes.

Falsification includes changing or omitting data or results in such a way that the research is not accurately represented. A person might fabricate data to make it fit with the desired result of a study”.

1. Elsevier, *Ethics in Research and Publication*.

2. Office of Research Integrity. Salami Slicing (i.e., data fragmentation). Available at: ori.hhs.gov/plagiarism-16. Accessed on Nov 5, 2023.



Ethical Principle in Research and Publication

Guide to Fraud Allegations and How to Prevent Them*

Action	What is it?	Is it unethical?	What should you do?
Manipulating data	Intentionally modifying, changing, or omitting data.	Yes. Comprehensive guidelines on data management and ethical handling of digital images, can be found at The Office of Research Integrity. http://ori.hhs.gov/images/ddblock/data.pdf	■ Never tamper with or change data. Keep meticulous records of your data. ■ Records of raw data should be accessible in case an editor asks for them-even after your paper has been published. ■ Understand the publisher's policies on data before you submit a paper.
Manipulating data images	This can include research materials, processes, tables, or equipment.	Yes. Your manuscript may be rejected if the original data are not presented or misrepresented.	■ If you need to adjust an image to enhance clarity, make sure you know what is considered acceptable before submitting your paper. ■ Even if the image manipulations are considered acceptable, report it to the publication prior to submitting your paper.² ■ Review any data images used to support your paper against the original image data to make sure nothing has been altered.²

Source: Elsevier,
*Ethics in
Research and
Publication.*



References

1. Office of Research Integrity U.S. Department of Health and Human Services. Definition of Research Misconduct. Available at: ori.hhs.gov/definition-misconduct. Accessed on June 17, 2017.
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Guidelines and Regulations for Ethical Research

- Guidelines provide a framework for researchers to follow, ensuring that their work is conducted with integrity and respect for the rights of individuals.
- Guidelines outline the principles of informed consent, confidentiality, and voluntary participation.
- Guidelines emphasize the importance of minimizing any potential harm or discomfort to participants and require researchers to obtain approval from ethics committees before conducting their studies.
- By adhering to these guidelines and regulations, researchers can maintain the integrity and credibility of their work while upholding ethical standards in the field of research.



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Thank You



Ethical Decision-Making

Deductive or principle-based reasoning:

- Start with an ethical theory
- Continue with a specific principle
- Develop rules
- Make judgments

Inductive or case-based reasoning

- Decisions made – precedent
- Look to decisions and combine to make a judgment
- Judgments reflect on rules
- Rules reflect on our principles
- Principles reflect to the ethical theory





Principles of Ethical Research

Respect for Autonomy

- To provide research participants the freedom to decide whether to participate in the study, researchers must uphold their rights to autonomy.

Beneficence

- To minimize damage and maximize benefits, researchers should put participants' welfare and well-being first.
- To act morally.
- To take no unwarranted risks.

Justice

- To conduct ethical research, participants must be chosen fairly and equally.
- It entails considering how rewards and liabilities of research are distributed across various groups.

Fidelity & Responsibility

- Scholars must be aware of their responsibilities and take an active role in sharing their discoveries to advance society at large.

Participant Recruitment

- Logic and justification should underpin the selection process, with criteria considering the decision to pick a certain participant above others.