BINUS UNIVERSITY

People
Innovation
Excellence

Course : COMP6575 – Research Topics in Computer Science

Effective Period : December 2019

Writing Strategies and Ethical Considerations

Session 05

Learning Outcomes

At the end of this session, students will be able to:

- LO 1: Describe the basics of writing research paper and the research lifecycle
- LO 2: Select the research topic, literature and writing strategies used in the project

People
Innovation
Excellence

BINUS UNIVERSITY

People
Innovation
Excellence

Outline

1. Writing the proposal
2. Writing as thinking
3. Readability of the manuscript
4. Journal Guidelines, Structure and Organization
5. The standard structure of a scientific paper
6. Introduction
7. Method
8. Results and Discussion
9. Ethical issues

Writing the Proposal

- It is helpful to consider early in planning the study the major points that need to be addressed in a proposal:
  1. What do readers need to better understand your topic?
  2. What do readers need to know about your topic?
  3. What do you propose to study?
  4. What is the setting, and who are the people you will study?
  5. What methods do you plan to use to collect data?
  6. How will you analyze the data?
  7. How will you validate your findings?
  8. What ethical issues will your study present?
  9. What do preliminary results show about the practicability and value of the proposed study?

People
Innovation
Excellence

Writing as Thinking

- Early in the process of research, write ideas down rather than talk about them
- Work through several drafts of a proposal rather than trying to polish the first draft
- Do not edit your proposal at the early-draft stage

People
Innovation
Excellence

Readability of the manuscript

- Use consistent terms throughout the proposal
- Consider how narrative thoughts of different types guide a reader. Tarshis (1982) advanced the idea that writers should have in mind the purpose of different-sized and purposes for segments of text.
  1. Umbrella thoughts

     The general or core ideas one is trying to get across
  2. Big thoughts in writing

     Specific ideas or images that fall within the realm of umbrella thoughts and serve to reinforce, clarify or elaborate upon the umbrella thoughts
  3. Little thoughts

     Ideas or images whose chief function is to reinforce big thoughts
  4. Attention or interest thoughts

     Ideas whose purposes ore to keep the reader on track, organize ideas, and keep an individual's attention

Journal Guidelines

Structure and Organization

- Writing is inherently a creative process
- Many scientists do not think of themselves as qualified readers, finding the task of writing both intimidating and arduous
- There is a formula for how to structure and organize a scientific paper, so that the scientist/writer can focus on what they know best– the science – and worry less about the writing

People
Innovation
Excellence

The Standard Structure of a Scientific Paper

- The vast majority of papers published in scientific journals today follow a fairly simple structure. With some variations, most papers use an “IMRaD” format:
  1. Introduction
  2. Method (experiment, theory, design, model)
  3. Results and Discussion
  4. Conclusions

People
Innovation
Excellence

BINUS UNIVERSITY

People
Innovation
Excellence

Introduction

- In standard rhetoric, the introduction section should answer 2 questions: “What” and “So What?” what is paper about, and why should the reader care?
- An introduction should inform the reader as to what the paper is about and motivate the reader to continue reading
- A paper must meet 4 criteria before it is publishable in a scientific journal:
  1. The content of the paper must watch the scope of the journal
  2. The quality of the paper (method and execution of the research, as well as the writing) must be sufficiently high
  3. It must present novel results (with the exception of review papers)
  4. The results must be significant enough to be worth

BINUS UNIVERSITY

People
Innovation
Excellence

Method

- The method section (sometimes called the materials and method section) describes how the results were generated.
- It should be sufficiently detailed so that an independent researcher working in the same field could reproduce the results sufficiently to allow validation of the conclusions.
- A method is used here more broadly than an experimental method. The method can include the development of a theory, the establishment of a specific device design, or the development or description of a modeling tool to be used
- A good method section should not only describe what was done and how it was done, but it should justify the experimental design as well.

BINUS UNIVERSITY

People
Innovation
Excellence

Results and Discussion

- The results of a paper, if included as its own section, should be very short.
- It is simply a presentation of the results obtained corresponding to the methods described in this previous section, organized to make them accessible to the reader.
- Often these results are presented in tables and/or graphs
- The results that are usually combined with a discussion of them in the results and discussion section
- An important goal when presenting results is to clearly designate those results that have been previously published.

Ethical Issues

Where in the Process of Research the Ethical Issues Occurs	Type of Ethical Issue	How to Address the Issue
Prior to conducting the study	Negotiate authorship for publication	Give credit for work done on the project; decide on author order in future publication
	Gain local permission from site and participants	Select sites that will not rise power issues with researchers

People
Innovation
Excellence

Where in the Process of Research the Ethical Issues Occurs	Type of Ethical Issue	How to Address the Issue
Beginning the study	Identify a research problem that will benefit participants	Conducts a needs assessment or informal conversation with participants about their needs
	Respect norms and charters of indigenous societies	Find out about cultural, religious, gender and other differences that need to be respected
	Disclose purpose of the study	Contact participants, and inform them of the general purpose of the study

People
Innovation
Excellence

People
Innovation
Excellence

Where in the Process of Research the Ethical Issues Occurs	Type of Ethical Issue	How to Address the Issue
Collecting data	Make certain that all participants receive the same treatment	Put into place wait list provisions for treatment for controls
	Avoid deceiving participants	Discuss purpose of the study and how data will be used
	Respect potential power imbalances and exploitation of participants (e.g., intervieweing, observing)	Avoid leading questions. Withold sharing personal impressions. Avoid disclosing sensitive information. Involve participants as collaborators
	Do not “use” participants by gathering data and leaving site	Provide rewards for participating

People
Innovation
Excellence

Where in the Process of Research the Ethical Issues Occurs	Type of Ethical Issue	How to Address the Issue
Analyzing data	Avoid siding with participants (going native)	Report multiple perspectives
	Avoid disclosing only positive results	Report contrary findings
	Respect the privacy and anonymity of participants	Assign fictious names or aliases develop composite profiles of participants
Reporting, sharing, and storing data		

Where in the Process of Research the Ethical Issues Occurs	Type of Ethical Issue	How to Address the Issue
Reporting, sharing, and storing data	Avoid falsifying authorship, evidence, data, findings, and conclusions	Report honestly
	Avoid disclosing information that would harm participants	Use composite stories so that individuals cannot be identified
	Provide complete proof of compliance with ethical issues and lack of conflict of interest, if requested	Disclose funders for research. Disclose who will profit from the research
	State who owns the data	Give credit to ownership

People
Innovation
Excellence

References

- John W. Creswell. (2017). Qualitative, Quantitative, and Mixed Methods Approaches Research Design:5th edition. SAGE Publications, Inc. ISBN: 978-1-5063-8671-3
- Chris A. Mack. (2018). How to Write a Good Scientific Paper. Society of Photo-Optical Instrumentation Engineers (SPIE). ISBN: 978-1-5106-1913-5

In Class Assignment

BINUS UNIVERSITY

People
Innovation
Excellence

- As mentioned the standard structure of scientific paper has format IMRaD: Introduction, Method, Result and Discussion, and Conclusion.
- Along with your group member, discuss about your contents in those sections!
- Discuss with your lecturer to verify your contents!

Thank you