Research Methods
in computer science
Spring 2024

Lecture 9

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February 14, 2024

Agenda

CS Experiments

HW4

Experiments

What experiments are useful?

Critical for the main arguments of the paper

What experiments are not useful?

Pointless experiments that generate pointless numbers, graphs, and tables

Types of Experiments

From the "context" perspective

Controlled

Uncontrolled

There are other perspectives to be covered in future lectures

Group Activity

Experiment Design

Metric Selection

Group 1

A new algorithm that translates English text to Spanish.

Group 2

A new wireless networking technology.

Group 3

Impact of doing court proceedings in metaverse.
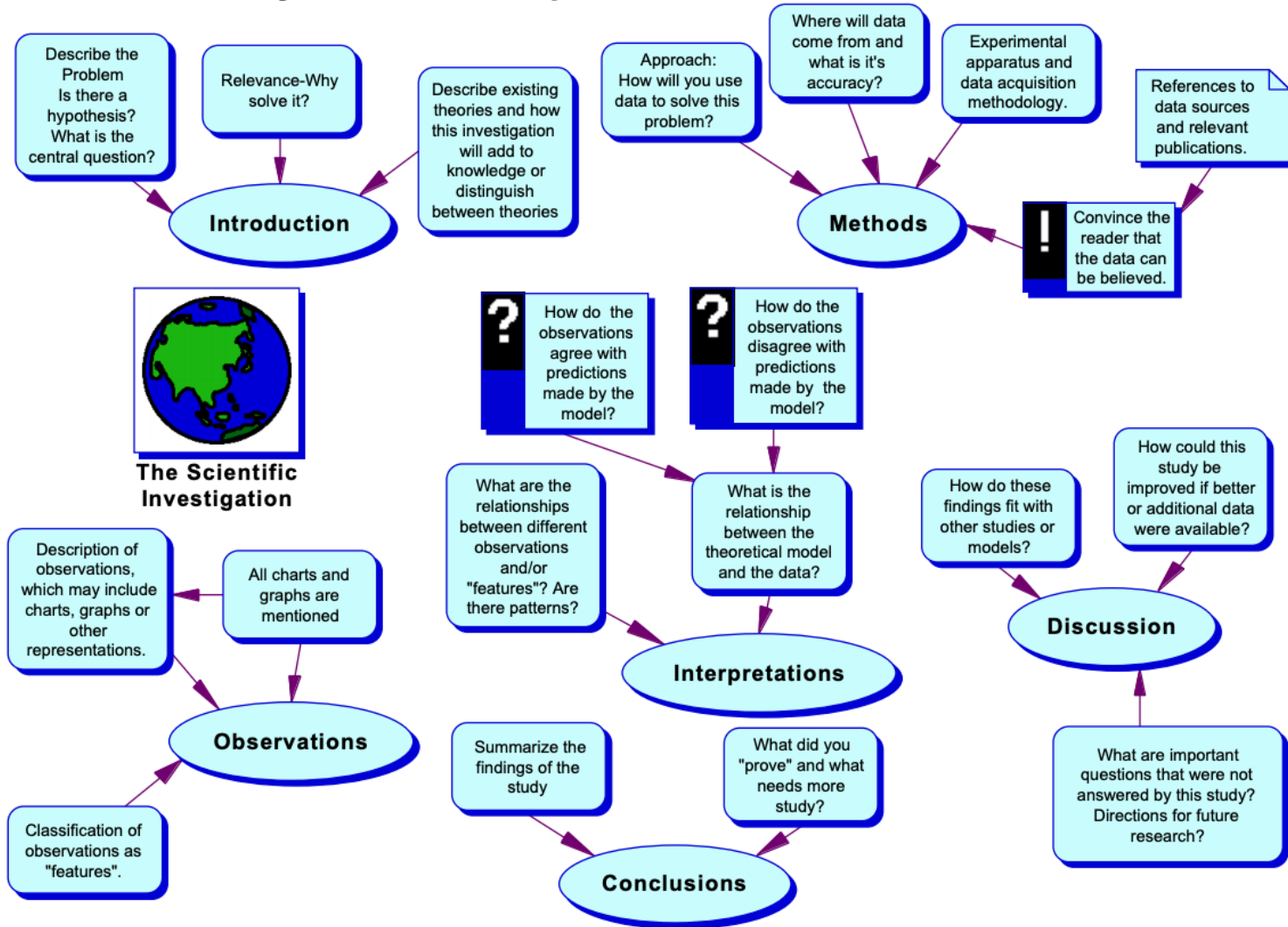
Anatomy of a Science Paper

Figure 3.1. This diagram shows the headings that must be used for this science paper. Please pay careful attention to the boxes with arrows pointing at each elliptical heading box. These boxes are reminders of the content that belongs with each heading.

https://earthweb.ess.washington.edu/creager//ess202/Ch3.Anatomy.pdf

Types of Papers (mechanical)

Technical Reports
- Project description
- Research paper

Conference

Journal

Magazine

Find out what type your group and community writes.

Which papers are more important?

Conference

Journal

Magazine

Impact factor

CORE ranking

What makes a paper more important than others?

Types of Papers (purpose)

Research Paper

Survey Paper

Tutorial

Technical Report

- E.g., NIST, Other Orgs

White Paper

Vision Paper

Challenge Paper

Publications – Looking Ahead

Blogs?

Facebook?

Twitter?

LinkedIn?

GitHub?

YouTube?

arXiv?

…..

Citation and References

Clean! Clean! Clean!
(esp. for websites, links, datasheets)

Consistency! Consistency! Consistency!

Examples

ALIZAI, M. H., WIRTZ, H., KIRCHEN, B., VAEGS, T., GNAWALI, O., AND WEHRLE, K. 2011. TinyWifi: Making Network Protocol Evaluation Portable Across Multiple Phy-Link Layers . In WiNTECH '11 Proceedings of the Sixth ACM International Workshop on Wireless Network Testbeds, Experimental Evaluation and Characterization.

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References

Can take a long time to format references.

Is it worth it?

Citations – Google Scholar

Scholar   About 6,880 results (0.07 sec)   YEAR ▾ ≡

Language independent analysis and classification of discussion threads in Coursera MOOC forums   [PDF] ieee.org
LA Rossi, O Gnawali - … Reuse and Integration (IRI), 2014 IEEE …, 2014 - ieeexplore.ieee.org   Find This Item @ UH
… Aside from students and instructors, other categories of **Coursera forum** users: are Course Staff
(teach- 655 Page 3 … 4.1. Different usages of posts and comments As we mentioned in Sec.
a discussion thread on a **Coursera forum** is composed of posts and possibly com- ments …

☆ ⁹⁹ Cited by 38   Related articles   All 7 versions   »

×   Cite

MLA   Rossi, Lorenzo A., and Omprakash Gnawali. "Language
         independent analysis and classification of discussion threads
         in Coursera MOOC forums." *Information Reuse and
         Integration (IRI), 2014 IEEE 15th International Conference on*.
         IEEE, 2014.

APA   Rossi, L. A., & Gnawali, O. (2014, August). Language
         independent analysis and classification of discussion threads
         in Coursera MOOC forums. In *Information Reuse and
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         independent analysis and classification of discussion threads
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BibTeX   EndNote   RefMan   RefWorks

Citations – ACM DL

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Citations

- Systems and artifacts
  - Generally immediately after the names

    AnguLoc [5] is better than SideLoc[6].

- Narrative
  - Generally at the end of the sentence

  Researchers have made a lot of progress in this field in the last five years [6]

This solution is scalable as the number of transmitting anchors can be small and can be scheduled in different time slots. With the usage of inter-anchor concurrency, solutions like AnguLoc [1] managed to make it more efficient. However, this architecture is not cost-effective as described earlier.

In addition to that, new light-emitting technologies, such as LEDs, become more popular and accessible, enabling new perspectives for optical wireless communication [7], [8]. Finally, the increasing interest and exploration of the

Bad form:
  [1] presents a new technique.

Citation Format

Number: [n]

Author / year: [Gnawali et al. 2020]

In text without [] or (), e.g., Gnawali et al. proposed a new technique.

Consult the instruction for your conference or journal. Number [n] format common in our fields.

HW4

Introduction

Your writeup should answer all the questions we discussed in the stated sequence.