

# **Research Methods** *and* **Research Ethics**

Dr Varun Ojha

Computer Science  
University of Reading

# Research

“a detailed study of a subject, especially in order to discover (new) information or reach a (new) understanding”

– *Cambridge English Dictionary*



# Why we do research?

Solving challenging problems

Intellectual joy

Employability

Service to society

# Research Paradigm

STEM

Humanities

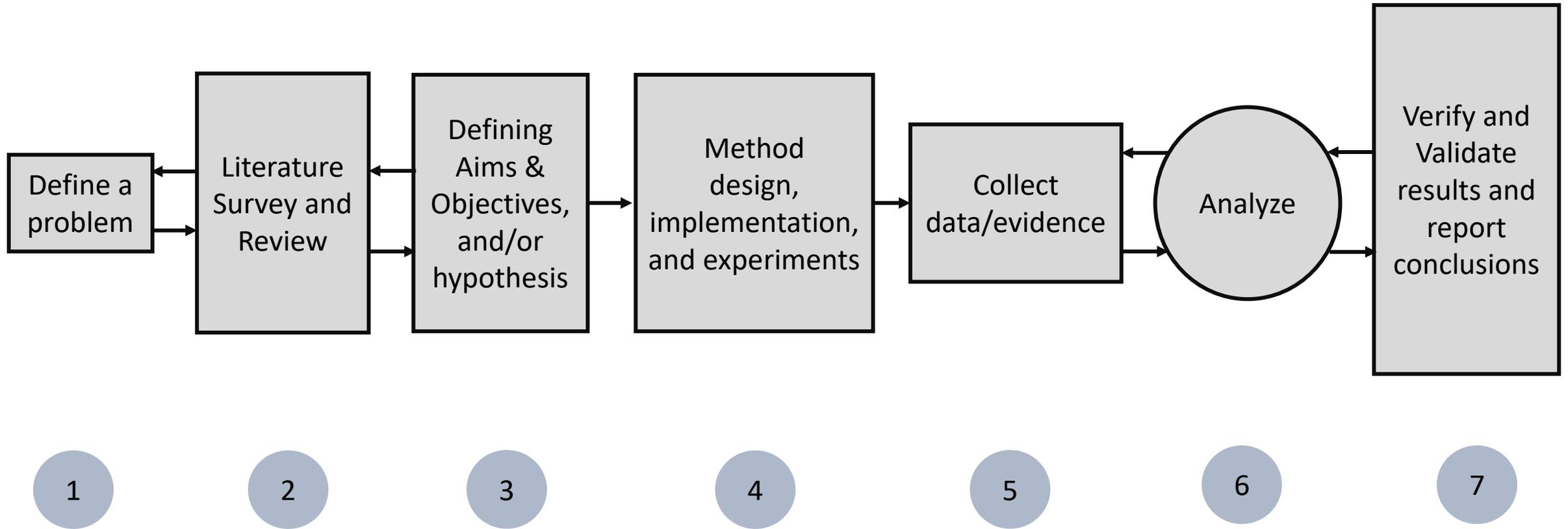
## Quantitative

- Assumption:
  - Problem has identifiable and measurable variables
- Purpose:
  - Generalization and prediction
- Approach
  - Experimentalist, deductive, and analysis
- Researcher viewpoint
  - Impartiality

## Qualitative

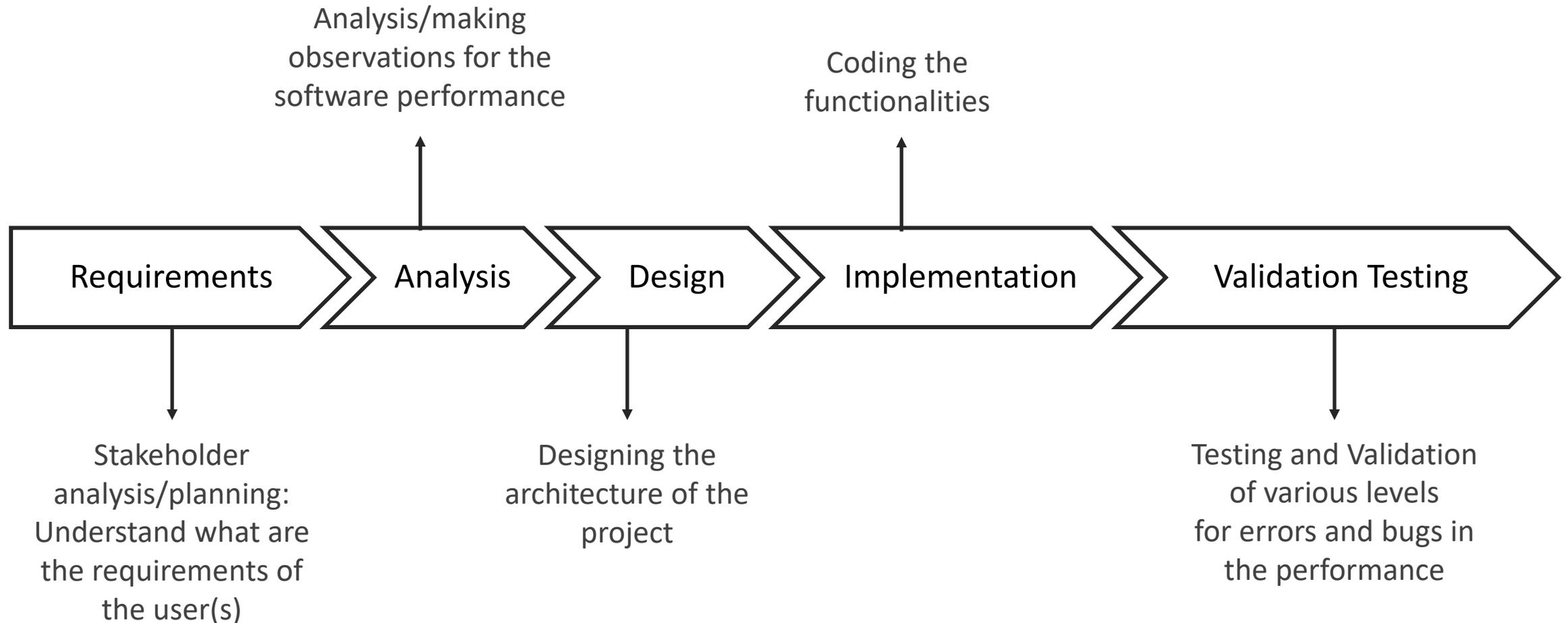
- Assumption:
  - Problem has complex and difficult to measurable variables
- Purpose:
  - Contextualization and interpretation
- Approach
  - Naturalist and inductive, and pattern search
- Researcher viewpoint
  - partiality

# Research recipe – 7 Steps



# Software/Web Application perspective

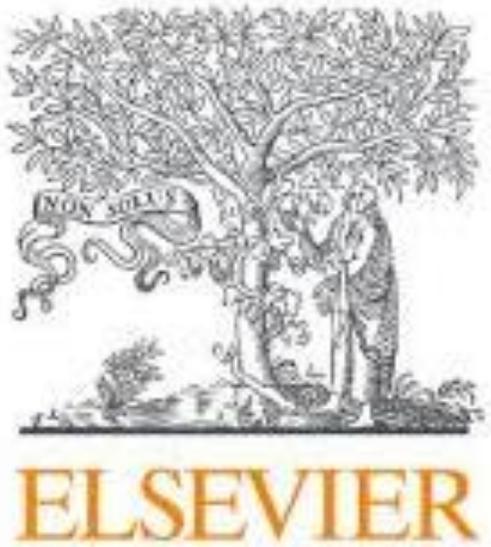
If your project is about software/web application development



# Literature Review

Methods in Sources	Features( also Functions, Attributes, Variables) of an existing method, (also product, techniques, tool, webpage, etc.)				
	Feature 1	Feature 2	Feature 3	....	Feature M
Method 1					
Method 2					
Method 3					
...					
Method N					

# Be Scientific!



**IEEE** Access<sup>®</sup>





# Google Scholar

Articles  Case law

**Stand on the shoulders of giants**

[Go to Google Scholar](#)

# Research Ethics Scope (Not limited to)

- **research involving human data** or records. Ethical concerns are strongest where these data are gathered directly from the subject and then ethical approval is usually required. Where records are in the public domain, or where the subject is deceased, ethical considerations may still be relevant but such research does not normally require ethical approval;
- **research using personal information** or samples stored from previous research (either initially or when a proposal is revised);

• Source and full document: <http://www.reading.ac.uk/internal/academic-and-governance-services/research-ethics/> (Accessed on 29 Sep 2021)

• Timetable: <http://www.reading.ac.uk/internal/academic-and-governance-services/research-ethics/RECcommitteedeadlines.aspx> (Accessed on 29 Sep 2021)

# Research Ethics (Easy Test)



- **Is it research on human subjects, human samples or human personal data?**

- If the answer to this question is "yes" then the research requires ethical approval, subject to the following considerations and questions:
  - **If it involves human data, are those data in the public domain?**
  - **Do they relate to deceased persons?**
    - If the answer to either of these questions is "yes", there is no need to obtain ethical approval.
    - If the answer to both these questions is "no", then ethical approval is needed.



# Research Ethics : Summary

- You **DO NOT** require Ethics Approval if you DO NOT use any human data.
- You DO NOT require Ethics Approval if you DO NOT use any living human personal data.
- You DO NOT require ethics approval if you do not do research on clinical trials, animals, etc.

# Ethics in Research: Plagiarism

- “ • **plagiarism is defined as the fraudulent representation of another's work as one's own.** This applies whatever the source of the material (for example, a published source, the web, or the work of another), whether the material is copied word for word or paraphrased, and whatever the extent of the material used. Wilful and deliberate disregard for good academic practice in respect of attribution of material will be construed as plagiarism.

Read Details: <https://www.reading.ac.uk/exa-misconduct.aspx>

”

# Ethics in Research: Unintentional Plagiarism

“ **Plagiarism** is when someone else’s work is passed off as your own. It may include:

- Using someone else’s words directly without accurately acknowledging their authorship (whether this is from a published source or another student)
- Using ideas from someone else’s work without accurately acknowledging their source
- Colluding with another student to produce the same or similar work
- Passing off someone else’s original work (e.g. a commissioned essay) as your own

”

# How to Avoid Plagiarism

- Make notes of the sources from which you take (read) text and idea.
- Write things in your word
- Use quotation where a sentence should not be written in your own words.
- Always acknowledge the source where you get your research idea from
- Use appropriate citation methods

# Cite Scholarly Source

× Cite

MLA Strack, Rita. "Deep learning in imaging." *Nature methods* 16.1 (2019): 17.

APA Strack, R. (2019). Deep learning in imaging. *Nature methods*, 16(1), 17.

Chicago Strack, Rita. "Deep learning in imaging." *Nature methods* 16, no. 1 (2019): 17.

Harvard Strack, R., 2019. Deep learning in imaging. *Nature methods*, 16(1), p.17.

Vancouver Strack R. Deep learning in imaging. *Nature methods*. 2019 Jan;16(1):17.

[BibTeX](#) [EndNote](#) [RefMan](#) [RefWorks](#)

## BibTeX

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@article{strack2019deep,  
  title={Deep learning in imaging},  
  author={Strack, Rita},  
  journal={Nature methods},  
  volume={16},  
  number={1},  
  pages={17},  
  year={2019},  
  publisher={Nature Publishing Group}  
}
```

# Check Unintentional Plagiarism Using Turnitin

## Where to find Turnitin for reports:

Blackboard -> Assessment Section



### Check your Report against plagiarism prior to Final Submission

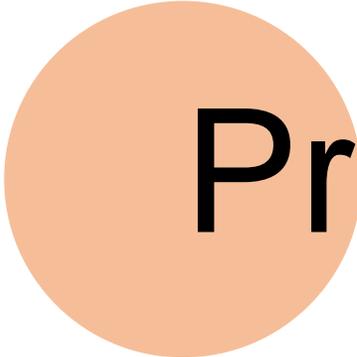
Please note that this is NOT your report submission for assessment. Please consult your s  
submit your FINAL report ELSEWHERE to the specified submission point.

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## How to interpret Turnitin Score

<https://libguides.reading.ac.uk/academicintegrity/turnitin> (Accessed on 29 Sep 2021)

# Next



Project management



Your requests/questions (if any)

# References

1. Kothari CR. Research methodology: Methods and techniques. New Age International; 2004.
2. Creswell JW. Research design. Qualitative and Quantitative Approach. Thousand Oaks: Sage, Publications. 1996.