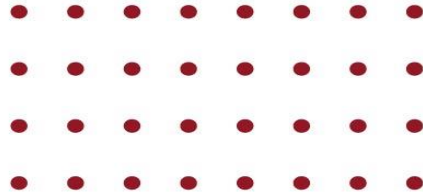# Research Methodology for PhDs

JUST GETTING TO KNOW EACH OTHER

Professor: **Danil Dintsis**

- **Dr. Sci** in System analysis in information systems
- PhD. Management and Control in Technical systems
- ~100 publications

Program and project manager (PfMP®,PgMP®, PMP® certified), ITSM ITIL® Expert, Managing Professional, Strategic Leader, DevOps Product owner, Agile Master

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- Introduce Yourself (VLE forum)
- Your experience
  - Business
  - Academic
  - Publications – if any
- Your Ph.D. research motivation
- Course expectations

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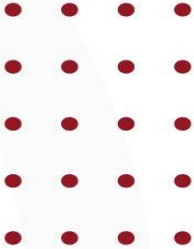
COURSE OBJECTIVES

The **main purpose** of the module is to introduce students (Ph.D. candidates) to quantitative and qualitative methods for conducting meaningful inquiry and research

The module will provide an overview of the important concepts of research design, data collection, data analysis, and final report presentation

Students will become acquainted with a variety of approaches to research design and are helped to develop their own research projects and to evaluate the products of quantitative and qualitative research.

Upon completion of this module, you will have acquired the responsibility to make judgements of the research methods best suitable for a particular study and of the quality of data and arguments presented in different research studies
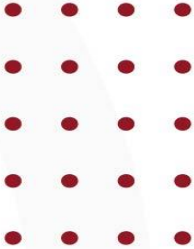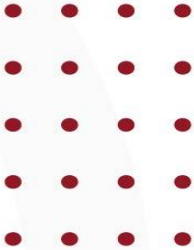
Course structure

Instructor-led video

Self-paced preparation (readings, practices)

VLE Forum discussions

Formative assessments

Summative assessments

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Academic Integrity

Academic integrity means acting in a way that is honest, fair, respectful and responsible in your studies and academic work. It means applying these values in your own work, and also when you engage with the work and contributions of others.

© Monash University

Academic integrity, per the ICAI,

is a commitment to these values.

the International Center of Academic Integrity (ICAI), which was founded in 1992 by leading researchers

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Integrity. Academic Integrity

In ethics, integrity is regarded as the honesty and truthfulness or earnestness of one's actions. Integrity can stand in opposition to hypocrisy.

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Academic Integrity. Five Values

honesty,

trust,

fairness,

Respect

responsibility.

Breaching academic integrity is also known as 'academic misconduct' or 'academic dishonesty'.

Academic Integrity. Five Pillars

Pillar 1: Honesty. Honesty is the foundation of integrity. It means being truthful and transparent in all your dealings, even when it is difficult or uncomfortable. Honesty builds trust and credibility, and it is essential for maintaining strong relationships with others.

Pillar 2: Responsibility. Responsibility means taking ownership of your actions and being accountable for the consequences. It means fulfilling your obligations and commitments, and being reliable and dependable. Responsibility is essential for building trust and respect, and it is critical for success in any field.

Pillar 3: Respect. Respect means treating others with dignity, empathy, and kindness. It means valuing diversity and recognizing the worth of every individual. Respect is essential for building strong relationships and creating a positive work environment.

Pillar 4: Fairness. Fairness means treating others equitably and impartially. It means avoiding favoritism and discrimination, and making decisions based on merit and objective criteria. Fairness is essential for building trust and credibility, and it is critical for creating a just and equitable society.

Pillar 5: Courage. Courage means standing up for what is right, even when it is difficult or unpopular. It means taking risks and speaking up against injustice and wrongdoing. Courage is essential for building integrity and creating positive change in the world.

Why is academic integrity important?

Academic integrity is critical to some of the following areas:

- Learning
- Fostering the positive reputations of institutions and individuals
- Future workplace behavior
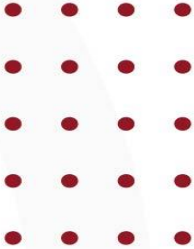
Academic Integrity. Application

Collectivist cultures, for example, define respect in a way that can uphold mimicry, prioritizing rote memorization above all else. Mimicry itself is a sign of respect

Yamamoto states, "Academic integrity is, I believe, a philosophical mindset to reflect the learning mind to the mirror of honesty, sincerity, contribution to the future society, and also scientific attitude and ethics and morals. However, on the other hand, education in Japan is focused on rote memorization and regurgitation and understanding" (Yamamoto, 2021).

In fact, there may be instances in which paraphrasing or adding original ideas to a text is seen as a form of disrespect. Mimicry makes plagiarism a very possible outcome. This cultural context with regards to respect, then, runs counter to intentions of the ICAI definition of academic integrity.

https://www.turnitin.com/blog/what-is-academic-integrity-definition#:~:text=The%20components%20of%20academic%20integrity,responsibility%20for%20our%20own%20actions

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Stay Away: Avoiding Acts of Academic Misconduct

Academic misconduct, the term used for when individuals do not act with integrity in an academic setting, is something you want to actively stay away from.

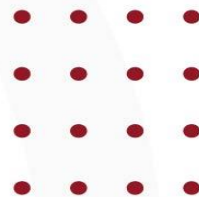**Types of academic misconduct can include (but are not limited to):**

- plagiarism
- impersonating another person in a test
- buying term papers or assignments
- cheating
- unauthorized collaboration on an individual assignment
- submitting the same piece of your own work from another course without permission
- falsifying, misrepresenting, or forging an academic record or supporting document

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The Plagiarism Spectrum 2.0

The Plagiarism Spectrum 2.0 identifies twelve types of unoriginal work. Familiarity with traditional forms of plagiarism and emerging trends helps students develop original thinking skills and do their best original work.

Original Thinking
When someone submits assignments that are their own work, composed of original ideas built on attributed sources.

Student Collusion
Working with other students on an assignment meant for individual assessment.

Word-for-Word Plagiarism
Copying and pasting content without proper attribution.

Self Plagiarism
Reusing one's previously published or submitted work without proper attribution.

Mosaic Plagiarism
Weaving phrases and text from several sources into one's own work. Adjusting sentences without quotation marks or attribution.

Software-based Text Modification
Taking content written by another and running it through a software tool (text spinner, translation engine) to evade plagiarism detection.

Contract Cheating
Engaging a third party (for free, for pay, or in-kind) to complete an assignment and representing that as one's own work.

Inadvertent Plagiarism
Forgetting to properly cite or quote a source

Paraphrase Plagiarism
Rephrasing a source's ideas without proper

Computer Code Plagiarism
Copying or adapting source code without

Source-based Plagiarism
Providing inaccurate or incomplete

Manual Text Modification
Manipulating text with the intention of

Data Plagiarism
Falsifying or fabricating data and improperly

Examples are here -
https://www.turnitin.com/static/plagiarism-spectrum/

https://www.turnitin.com/instructional-resources/plagiarism-spectrum-2-0

O N L I N E

Ontology

1: a branch of metaphysics concerned with the nature and relations of being. Ontology deals with abstract entities.

2: a particular theory about the nature of being or the kinds of things that have existence

(c)Merriam-Webster

The simplistic ontology definition is the branch of philosophy that studies existence. The word ontology comes from the stem of the Greek word on or ontos, meaning "being."

Ontology studies and attempts to understand the very nature of existence, reality, being, and becoming.

© www.study.com

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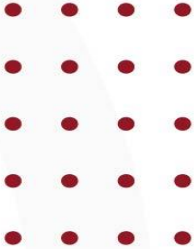
Ontology Example

An ontology is a study of what things exist. An example would be fundamental physics. This discipline is in the business of determining which particles exist. The atom, proton, and quark are examples of the refining process of determining physical ontology

In AI, an ontology is a specification of the meanings of the symbols in an information system. That is, it is a specification of a conceptualization. It is a specification of what individuals and relationships are assumed to exist and what terminology is used for them.

Basic Concepts

Ontology concepts follow separate hierarchies and are augmented by associations and properties to link up with each other, also with practical objectives, models, data of different sources

Ontologies are used to sort individuals, objects, and events into different groups.

©A Study Investigating Typical Concepts and Guidelines for Ontology Building by Thabet Slimani

5 elements (components) of ontology

classes,

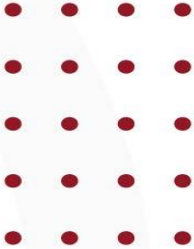instances,

relations,

functions,

Axioms

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Types of ontology

- Realism,
- Idealism
- Materialism
- Empiricism,
- Positivism
- Post-modernism.

©(Snape & Spencer 2003) &
(Bhuvinder S. Vaid. Ontology and the nature of being, Reached on Internet Aug. 2024)

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Some specific comments on Ontology's Types

Realism concerns itself with the notion that there are universal truths and facts which can be discovered through active exploration.   These facts are independent of the context in which they are found, so the systems and hierarchies they enable are essentially static.

Empiricism rejects the notion of universal truths and facts that simply exist, but rather postulates that facts can only become clear by a careful observation and evaluation of the world around us .   This idea presupposes that the world around us is real, what we know; and therefore takes no account for the notion of perceptions of or interpretations of reality.

Positivism takes the ideas of empiricism one step further, by rejecting the notion of clear facts to be found, and rather concerns itself almost entirely with what can be observed and therefore codified.   It is through an analysis of these codified observations that some explanation (not necessarily a fact) can be offered. This idea is premised on the notion that which is real can be observed.

Post-modernism concerns itself with the very subjectivities first posited by Husserl (and Heidegger), in that facts are not rigid but rather shift according to an individual's interpretation of the world around them. Therefore there is a need for a greater understanding of the systems and hierarchies' individuals have established to understand the world.

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Positivism vs Post-modernism

Within the tradition of Qualitative Inquiry, positivism and post-modernism (phenomenology) exist as the two competing ontological approaches of seeing the world and understanding reality.

While positivism allows for an evaluation of what is observed (i.e. text), it does not allow for interpretation as to what it could mean to an individual taking part in the inquiry.   The individual's sense of reality is subjugated to that which comes through in the text.

Post-modernism allows for an interrogation of the individual's sense of reality to gain greater understanding to their interpretation of facts and truths as presented in the text.

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What Epistemology Is

Epistemology is the philosophical study of the nature, origin, and limits of human knowledge.

The term is derived from the Greek epistēmē ("knowledge") and logos ("reason"), and accordingly the field is sometimes referred to as the theory of knowledge

©https://www.britannica.com/topic/epistemology

What Epistemology Is

Epistemology is a branch of philosophy that concerns itself with the theory of knowledge. It is regarded as a core area of philosophy because it deals with the nature of our knowledge.

Drawing on the literature on epistemology, this article provides some basic definitions of the term epistemology and answers some key epistemological questions such as:

- "what is knowledge?"
- "what are the sources of our knowledge?"
- "what do we know?"
- "what differentiates knowledge from wisdom and opinion?"

©Koemhong Sol, Kimkong Heng (2022) Understanding epistemology and its key approaches in research

Important Issues in Epistemology are

whether knowledge of any kind is possible, and if so what kind;

whether some human knowledge is innate (i.e., present, in some sense, at birth) or whether instead all significant knowledge is acquired through experience (see empiricism; rationalism);

whether knowledge is inherently a mental state (see behaviourism);

whether certainty is a form of knowledge;

whether the primary task of epistemology is to provide justifications for broad categories of knowledge claim or merely to describe what kinds of things are known and how that knowledge is acquired

https://www.britannica.com/summary/epistemology#:~:text=Some%20historically%20important%20issues%20in,empiricism%3B%20rationalism)%3B%20(3)

Practical Application Focus

Even though epistemologies are not tied to specific research methods, the affordances and foci of these common epistemological paradigms have resulted in historically bifurcated research approaches, where quantitative methods are typically associated with (post-)positivism and qualitative methods are typically associated with constructivist, critical, or other non-positivist epistemologies (Tuli, 2010).

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Axiology

Axiology refers to the researcher's understanding of values and their role in research.

It examines values, deals with issues of right and wrong and measures the level of development and types of perceptual biases.

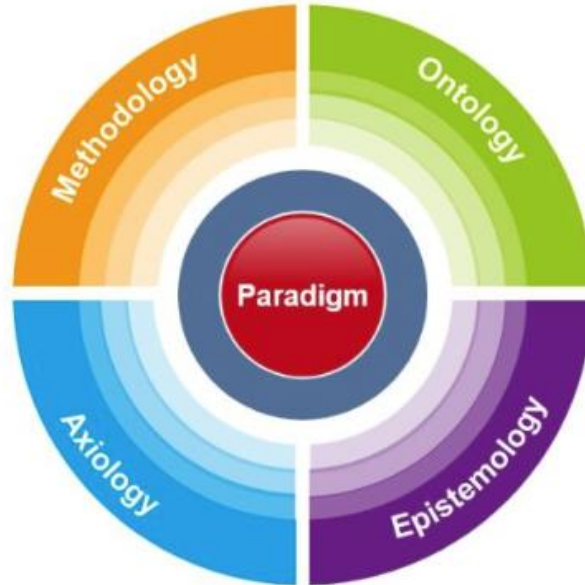Axiology refers to the ethical issues that need to be considered when planning a research proposal.

The Research paradigm

Methodology
The strategy and justifications in constructing a specific type of knowledge

Ontology
The nature of reality and of what really exists

Axiology
What we value: the ultimate worth of research

Epistemology
The relationship between the inquirer and what is known
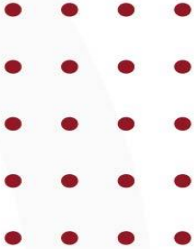
1 The purpose of academic writing

Writers should be clear why they are writing. The most common reasons for writing include:

- to report on a piece of research the writer has conducted
- to answer a question the writer has been given or chosen
- to discuss a subject of common interest and give the writer's view
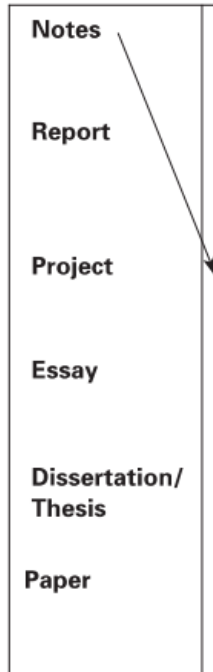- to synthesise research done by others on a topic

■ **Can you suggest any other reasons?**

-

In all cases it is useful to bear in mind the likely readers of your work.

(c)Bailey (2020). Academic Writing. 2nd Ed.

Common Types of Academic Writing

Notes

Report

Project

Essay

Dissertation/
Thesis

Paper

(c)Bailey (2020). Academic Writing. 2nd Ed.

Common Patterns

Short essays (including exam answers) generally have this pattern:

Introduction

Main body

Conclusion

Longer essays may include:

Introduction

Main body
  Literature review
  Case study
  Discussion

Conclusion
References
Appendices

(c)Bailey (2020). Academic Writing. 2nd Ed.

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Common Pattern for a Dissertation

Dissertations and journal articles may have:

Abstract
List of contents
List of tables
Introduction

Main body
    Literature review
    Case study
    Findings
    Discussion

Conclusion
Acknowledgements
References
Appendices

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Thank You!
You're welcome with your discussions and questions in VLE!

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