

# Prideaux Centre for Research in Health Professions Education



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## Research Proposal Guidelines for Consideration for PhD Candidature

A research proposal is a written plan of what you intend to do and needs to demonstrate your:

- Familiarity with your chosen field
- Ability to identify a research area that warrants attention
- Knowledge of research processes (i.e., how to conduct research)

*These guidelines are designed to assist you in developing a 3000 word research proposal for consideration for PhD candidature in the Prideaux Centre for Health Professions Education. While you may not address all of these elements in your written proposal, it is advised that you at least consider them all.*

*\*Note: Examples provided are excerpts from research conducted by Prof Lambert Schuwirth & Prof Steven Durning, from the United States.*

### WHAT will you research?

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#### Working Title

Provide a clear and concise title that reflects the content of your proposed research.

#### The Research Problem

A description of the research problem should include:

- An outline of the central problem you will address
- A summary of the research aims and objectives
- Expected research outcomes

#### Describe the topic

Establish a context to assist the reader to understand your position.

- *What is your research about?*
- *What is the current discourse?*
- *What current ideas do we have about the topic?*

*“... In assessment of medical competence, assessing clinical reasoning is still considered the holy grail. It is still widely believed that successful clinical reasoning also leads to successful problem solving and better transfer...”*

#### Describe the scientific problem

Locate the scientific problem you would like to address in the context of the research topic.

- *What is not yet known about your research area?*
- *How is our understanding of this scientific problem incomplete?*
- *What reason(s) is/are there for conducting this research?*

“... there are different opinions in the literature regarding the position that clinical reasoning takes in the whole process. Some authors, especially in the field of reflective practice, assume that clinical reasoning is a process that should always take place during clinical problem solving and decision making because the awareness of the individual steps in the problem-solving process induces a better use of the knowledge and experiences stored in the long-term memory... Others, however, see the clinical reasoning activities as mainly being a post-hoc activity to account for unconscious non-analytical decisions and see reflection-in-action as an activity which is more associated with a surplus in cognitive resources ...”

## WHY conduct this research?

### Background and Literature Review

Establish a context for your research and provide details about what is known (and what remains unknown) about your research area, with reference to relevant literature.

#### Describe what is known

Provide a brief, appropriately referenced review of the literature in sufficient depth to demonstrate your familiarity with your chosen research area. The literature review does not need to be complete, but it does need to be sufficient to demonstrate a gap in knowledge or understanding in this area.

- What is known about the scientific problem?
- What key concepts underpin your research area?
- Where is the gap in knowledge or understanding?

“... The notion of hindsight reasoning is not new. Boreham (1991) already reported that most of our decision making in real life depends on pattern recognition and this is further substantiated by the literature on naturalistic decision making (Klein 2008). This has a clear pendant in clinical decision making where the notion of illness scripts as highly automated disease-specific pattern recognition and instance scripts including contextual factors, have led to dominant theories about the development of human expertise (Hobus, 1987, Norman, 1985, 1988, Schmidt 1993)...”

#### Describe what is not yet known

Describe the gap in knowledge and understanding of your research area. This may be methodological, contextual, or content-based.

- What type of gap in knowledge or understanding exists?
- What is the basis for conducting this research?

“... this has never been studied prospectively ...” [methodological]

“... although this has been studied with airline pilots, it still remains to be seen whether this is also true for clinicians as there are striking differences between the largely algorithmical expertise of pilots and the mainly heuristical processes of clinicians...” [contextual]

“... understanding of how exactly people decide to switch between pattern recognition and analytical reasoning, in other words how people decide that the pattern recognition is not good enough to solve the problem, is not well understood...” [content-based]

## Justification and Significance

Establish a rationale for conducting this research.

- Why does this problem need to be addressed?
- Why is this research important?
- What are the benefits?
- How will this research contribute to the field?

## Describe the scientific relevance

Clarify how the scientific problem you plan to investigate will add to the current scientific debate.

- How does your proposed research fit in with current scientific debate?
- Why is your proposed research important?
- How will your research add to our scientific understanding?

*“... will shed more light on the ongoing debate between system 1 and system 2 reasoning. Currently, both are viewed as being mutually exclusive and the prevailing assumption is that a problem is either solved by non-analytical, system 1, reasoning or by slow and effortful analytical, system 2, reasoning. Yet, this does not sit well with the mainstream cognitive psychological views of chunking, which assume that expertise development and the ability to see the deep structure of a problem are related to increased aggregation of knowledge networks into chunks and scripts...”*

## Describe the relevance to practice and/or society

Describe the possible implications for the practice of health professional education and/or medical education, and its outcomes.

- What does your proposed research mean for practice in health professional education and/or medical education?
- What outcomes will your research generate?

*“... this has implication for the position of the basic sciences in a medical curriculum, as they are currently seen as being fundamental to our reasoning and a prerequisite for the future doctors to be able to reason to solve a case in which pattern recognition will not work. It may well be that the function of basic sciences lies more in affirming and contextualising pattern recognition more efficiently and thus to facilitate the development of expertise...”*

## HOW will you conduct this research?

### Conceptual and Theoretical Framework

- What paradigm will you use?
- What is your theoretical framework (i.e., what are your theoretical assumptions)?

### Describe your intended conceptual and/or theoretical framework(s)

Describe the approach you intend to take in conducting your research.

- What is your research paradigm (e.g., positivist, qualitative)?
- What disciplines will you draw from to conduct your research (e.g., cognitive psychology, sociology)?

“... we will use a cognitive psychological view on this. In particular, connections theories will be used to better understand the role of immediate decision making and parallel processing of information when dealing with complex problems. Cognitive load theory will be used to help us understand the methods that are used to overcome the limitations of our short-term memory in information processing through effective use of various processors...”

### Research Design

Describe your research design (i.e., how you will conduct your research). This may include:

- Methodology
- Data Collection Methods and Data Analysis Procedures
- Resources Required
- Ethics Approval Requirements (if applicable)

### Describe your intended research project

- What are your central research questions (usually 3-4)?
- What research methodologies do you intend to use?
- Data collection:
  - How will you collect data?
  - Who will be involved in data collection?
  - Where will you collect your data?

“... use fMRI imaging techniques in combination with a subvocalized think aloud technique to explore the activation of the medial prefrontal cortex in the switch between system 1 and system 2 reasoning when the subjects are presented with video vignettes based on validated ABIM cases...”

### Resources and Timeframe

Indicate any specific resources that you think you will need (e.g., access to particular machinery). Include a timeline indicating the key stages of your research.

### Reference List

Provide a list of references which you used to support your research proposal.

Please email your completed research proposal and Curriculum Vitae to Professor Lambert Schuwirth ([lambert.schuwirth@flinders.edu.au](mailto:lambert.schuwirth@flinders.edu.au)). It will then be reviewed by Prideaux Centre Members.