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Evidence Based Nursing: Research Made Simple Series

Title: What are the foundations of a good PhD?

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A PhD is a globally recognised postgraduate degree and typically the highest degree programme awarded by a University, with students usually required to expand the boundaries of knowledge by undertaking original research. The purpose of PhD programmes of study is to nurture, support and facilitate doctoral students to undertake independent research to expected academic and research standards, culminating in a substantial thesis, and examined by viva voce. In this paper – the first of two linked Research Made Simple articles - we explore what the foundations of a high-quality PhD are, and how a Doctoral candidate can develop a study which is successful, original and impactful.

Foundations of a 'good' PhD study

Supervision and support

Central to the development and completion of a good PhD is the supervisory relationship between the student and supervisor. The supervisor guides the student by directing them to resources and training to ensure continuous learning, provides opportunity to engage with experts in the field, and facilitates the development of critical thinking through questioning and providing constructive criticism.[1]

The support needs of students will be different and so a flexible yet quality assured approach to PhD research training is required. A good supervisory team (usually includes at least two post-doctoral academics) provide experienced guidance and mentorship and will offer students academic support, with regular meetings and timely feedback on written submissions, assist the student to develop a peer network and to access research communities relative to their field. Effective supervision has beneficial outcomes for students, including encouraging a positive work ethic and influencing engagement in a stimulating environment, allowing students to pursue their own ideas with educated encouragement. The quality of the supervisory relationship can highly impact on the PhD experience and ultimately sets the student on the road to producing an excellent Doctoral work.[1]

An environment that promotes personal and professional development is further aided by positive peer interactions. If students feel part of a community and have contact with others also working on doctoral studies, there is the scope for compassion and understanding during both challenging and rewarding periods. Students who access personal and professional support and guidance through mentoring models during their studies are more likely to succeed. These models include one-to-one peer mentoring or activities for example journal discussion or methods learning groups. Often, groups of students naturally come together and give each other support and advice about research process expectations and challenges, and offer friendship, and guidance.[2] Given the usefulness of different types of mentoring models, all can create a supportive and collaborative environment within a PhD program of study, to minimise working in isolation and enable students to achieve their greatest potential.

Characteristics of a good study: Originality and theoretical underpinning

A PhD should make an original contribution to knowledge. Originality can be achieved through the study design, the nature or outcomes of the knowledge synthesis, or the implications for research and /or practice.[3] Disciplinary variation however, influence the assessment of originality. For example, originality in Science, Technology, Engineering and Mathematics (STEM) subjects is often inferred if the work is published/publishable in comparison to intellectual originality in the social sciences.[4] Although PhD originality assumes different nuances in different contexts, there is a general acceptance across disciplines that there should be evidence of the following within the thesis:

1. An interplay between old and new- any claims of originality are developed from existing knowledge and practices;
2. There are degrees of originality, relating to more than one aspect of the thesis;
3. Any claims for originality are accompanied by clear articulation of significance.

A good PhD should be underpinned by theoretical and/or conceptual frameworks (that include philosophical and methodological models) that give clarity to the approach, structure and vision of the study.[5] These theoretical and conceptual frameworks can explain why the study is pertinent and how the research addresses gaps in the literature.[6] Table 1 provides a distinction of what construes theoretical and conceptual frameworks.

Table 1. Characteristics of Theoretical and Conceptual Frameworks[7]

Characteristic	Theoretical Framework	Conceptual Framework
Development	Draw on literature review/data collected/pre-existing theories	Draws on several conceptual/theories and further developed by researcher

Purpose/rationale	1. Identify study variables/concepts 2. Directs methodological approach (methodology, target population and related sample, data collection and analysis methods) 3. Underpins data collection/interpretation	1. Identify study variables/concepts 2. Directs methodological approach (methodology, target population and related sample, data collection and analysis methods) 3. Underpins data collection/ interpretation, where there is no existent dominant theoretical perspective 4. Informs future research
Status	Application of a whole or part of a theory	Synthesis of pertinent concepts
Related literature review process	Mostly deductive, hypothesis testing to verify/ascertain the 'power' of a theory for a given population/context	Mostly inductive, recognising not all issues can be studied effectively by drawing on one theory/approach Theories in whole or part may be used to position the research
Related methodological approach of study	Predominantly quantitative methods, using experimental designs, questionnaires, and tests. Efforts are undertaken to standardise	Qualitative or quantitative and increasingly mixed methods, using questionnaires, interview, and observation methods
Generalisability/transferability of study outcomes	Application beyond research problem/context	Application limited to research problem/context

Theoretical/conceptual frameworks must align with the research question/aims, and the student must be able to articulate how conceptual/theoretical framework were chosen. Key points for consideration include:

1. Is the research questions/aim and objectives well defined?
2. What theory/theories/concepts are being operationalised?
3. How are the theories/concepts related?
4. Are the ontological and epistemological perspectives clearly conveyed and how do they relate to theories and concepts outlined?
5. What are the potential benefits and limitations of the theories and concepts outlined?
6. Are the ways the theories/concepts outlined/or being used original?

A PhD thesis (and demonstrable in viva) must be able to offer cohesion between the choice of research methods that stems from the conceptual/theoretical framework, the related ontological and epistemological decisions, the theoretical perspective and the chosen methodology (Table 2). PhD students must be able to articulate the methodological decisions made and be critical of methods employed to answer their research questions.

Table 2. Relationship between research paradigms, perspectives, methodologies, and methods[8]

Paradigm	**Ontology** What is reality?	**Epistemology** How can I know reality?	**Theoretical Perspective** What approach to use to know?	**Methodology** How to go about finding out?	**Methods** What techniques are used to answer the question?
Positivism	A single truth/reality exists (realist)	Reality can be measured, using reliable and valid tools	Positivism/ post positivism	Experimental research Survey research	Generally quantitative: sampling, measurement, scaling, questionnaires, statistical analysis
Constructivist/ Interpretive	No single reality/truth exists; reality is created by individuals	Reality needs interpretation to discover underlying meanings	Interpretivism (reality needs interpretation) phenomenology hermeneutics symbolic interactionism	Phenomenological research methods Heuristic Inquiry Grounded Theory Ethnography Discourse Analysis Action Research Feminist standpoint research	Generally qualitative: Interviews, Observations, case studies, Life history, Narrative Thematic analysis
Pragmatism	Reality is reconstructed/ negotiated/ interpreted in different situations and contexts	The method used to solve the problem and bring about change	Pragmatism	Mixed methods Action research	Combination of quantitative and qualitative methods
Subjectivism	Reality is what it is perceived to be	All knowledge is determined by perspective	Postmodernism Structuralism Post-structuralism	Discourse theory Archaeology Genealogy Deconstruction	Autoethnography Semiotics Literary analyses Pastiche Intertextuality
Critical	Reality is socially constructed	Reality and knowledge are socially constructed, influenced by the power relationships that exist within societies	Marxism Queer Theory Feminism	Critical Discourse Analyses Critical ethnography Action research Ideology Critique	Ideological review Interviews Focus groups Open ended questionnaires Observations Journals.

Conclusion

In summary, we offer considerations of what the foundations of a good PhD should be. We have considered some of the key ingredients of quality PhD supervision, support and research processes and explored how these will contribute to the development of a study that leads to student success and which makes a valuable contribution to the evidence base. In the next paper, we will look in more detail at the assessment of the PhD through the submission of a thesis and an oral viva.

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