The PhD Psyche and Process: A Guide for Newcomers to Academic Research

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Part A: The PhD Psyche
- What is a PhD? (as a degree, as an objective)
- Why start a PhD?
- Differences from BSc/MSc studies
- Common worries of PhD students
- Psychological Aspects
- The student-supervisor relationship
- How to manage your supervisor
- How NOT to get a PhD
Part B: The PhD Process
- Characteristics of Research
- An Archetypal PhD Thesis Form
- How to conduct the empirical research
- Writing up your work
- Presenting your work
- Formal matters: entering, while in, exiting
- Further readings
Part B

The PhD Process
How to do RESEARCH

• What is research?
  – Finding out something we don’t know?

• What vs. Why
  – What is the profile of people that react better to the AZT cocktail of anti-HIV drugs?
  – Why do young women that live in Nebraska and their surname starts from ‘K’ react better?

• Research goes beyond Description
  – It looks for explanations, relationships, predictions, generalizations, theories

• Research is Cautious but Aggressive
  – Careful definition of terms
  – Unbiased collection of information
  – Meticulous Treatment of data
  – Careful Argumentation
Characteristics of good research

• Based on an open system of thought
  – It’s not about finding answers; It’s about asking right questions
  – Continual testing, review, and criticism for its own sake is a normal way that collective knowledge develops
  – Avoid aphorisms!

• Based on Critical Examination of Data
  – Understanding vs. acting (we’re not managers!)
  – Avoid stereotypes!

• Based on Generalizations
  – Data – theory – testing – confidence (or whatever other epistemological stance you want to adopt)
  – Generalizations have limits that MUST be stated
  – ‘All generalizations are dangerous – including this one’ (A. Dumas)
Conducting Empirical Research (1)

• The inductive (Newtonian) vs. the hypothetico-deductive (Popperian) epistemological paradigms
• The myth of the unbiased observation
• Forming a hypothesis
  – ‘Hypotheses are imaginative and inspirational in character; they are adventures of the mind’ (Medawar 1964)
  – Hypotheses will dictate the choice of methodologies employed, experiments performed, and observations made
  – Don’t worry if you have imagined your hypothesis; worry only if you haven’t rigorously tested it
Conducting Empirical Research (2)

- The myth of the scientific method
  - Even in hypothetico-deductivism, the psychological process is very much different from the logical process
  - You may think of the logical process as a method for *writing up* your research, rather than a method of conducting it.
  - Read *The Double Helix*, Watson, 1968!
The Form of a PhD Dissertation (thesis!)

- No doctrines
  - Depends on subject, method, and time
  - However, at a high level of abstraction, certain rules of form do exist
- Background Theory
  - You must demonstrate that you possess it
  - This is done through the ‘literature review’
- Focal Theory
  - It takes time to emerge/develop
  - Keep your thesis in focus at all times
- Data Theory
  - Appropriateness, relevance, reliability, and validity of your data sources and theoretical/empirical analyses
  - Unfortunately this is a common PhD failure factor...
- Contribution
  - Significance, limitations, future work openings
‘Technical’ Matters

• How long should my thesis be?
  – As long as it needs to!

• Basic Storyline
  – Introduction (incl. Aims)
  – Literature Review
  – Method
  – Results
  – Discussion
  – Conclusions
Examples that you may know (1)

• Title:

• Structure:
  – Ch 1: Simulation Modelling
  – Ch 2: Introduction to Expert Systems
  – Ch 3: Empirical Research and the Expert System Approach
  – Ch 4: Theoretical Background to the First Prototype Simulation NLUS
  – Ch 5: Program Structure of the First Prototype Simulation NLUS
  – Ch 6: SPIF: A Simulation Problem Intelligent Formulator
  – Ch 7: Conclusions and Future Research

• 160 pages (+80 in 7 Appendices), 130 refs

• Doukidis, 1985, LSE
Examples that you may know (2)

- **Title:**
  - Dynamic Process Modelling for Business Engineering and Information Systems Evaluation

- **Structure:**
  - Ch 1: Introduction
  - Ch 2: Background Research Material
  - Ch 3: Case Study I: Sectoral EDI Evaluation
  - Ch 4: A Design Theory for IS Evaluation by Simulation
  - Ch 5: Case Study II: Inter-Company EDI Evaluation
  - Ch 6: Theory Evaluation and Extension
  - Ch 7: Summary and Conclusions

- 199 pages (+70 in 4 Appendices), 285 refs
- Giaglis, 1999, Brunel University
Examples that you may know (3)

• Title:
  – Stakeholder Analysis for Interorganisational Systems in Healthcare

• Structure:
  – Ch 1: Interorganisational Systems Research Issues
  – Ch 2: The Stakeholder Concept in the Strategic Management and Information Systems Literature
  – Ch 3: Research Methodology
  – Ch 4: An Interpretive Approach to Identify and Analyse Interorganisational Systems Stakeholders
  – Ch 5: Describing the Drug Use Management Domain From a Stakeholder Perspective
  – Ch 6: Instrumental and Normative Aspects of Interorganisational Information Exchange in Healthcare
  – Ch 7: Conclusions and Further Research Directions

• 248 pages (+28 in 3 Appendices), 305 refs

• Pouloudi, 1998, LSE
Examples that you may know (4)

• Title:
  – A Contingency Approach to Knowledge Acquisition: Critical Factors for Knowledge Based Systems Development.

• Structure:
  – Ch 1: Introduction
  – Ch 2: Knowledge Acquisition: A Review
  – Ch 3: Foundation of the Research
  – Ch 4: Knowledge Acquisition in Context: A Case Study
  – Ch 5: A Survey on Knowledge Acquisition Practices
  – Ch 6: Applying the Contingency Approach
  – Ch 7: Rethinking the Role of Knowledge Acquisition: Four Modalities for Analysis

• 260 pages (+46 in 1 Appendix), 240 refs
• Poylymenakou, 1995, LSE
Examples that you may know (5)

• Title:

• Structure:
  – Ch 1: Introduction
  – Ch 2: Related Work: Multiparadigm Programming
  – Ch 3: The Approach
  – Ch 4: System Design
  – Ch 5: Implementation
  – Ch 6: Critical Analysis
  – Ch 7: Future Work
  – Ch 8: Conclusions

• 300 pages (+52 in 3 Appendices), 334 refs

• Spinellis, 1994, Imperial College
Examples that you may know (6)

- **Title:**
  - A Usability Evaluation Technique for Retail Sites.

- **Structure:**
  - Ch 1: Introduction
  - Ch 2: SMEs and e-commerce: Exploratory Investigation and the Role of a Proposed Usability Evaluation Technique
  - Ch 3: Review of Usability Evaluation Techniques for Web Sites – Selection of a Technique
  - Ch 4: Candidate Usability Attributes
  - Ch 5: Development of Questionnaire for Retail sites
  - Ch 6: Establishing Validity and Reliability of the Questionnaire
  - Ch 7: Contribution and Future Research

- 211 pages (+33 in 4 Appendices), 265 refs
- Vassilopoulou, 2001, UMIST
Examples that you may know (7)

• Title:

• Structure:
  – Ch 1: Introduction
  – Ch 2: Background Research Material
  – Ch 3: Research Methodology
  – Ch 4: Initial Research
  – Ch 5: Developing Alternative Virtual Store Layouts
  – Ch 6: Analysis of the Laboratory Experiment Results
  – Ch 7: Conclusions and Recommendations

• 253 pages (+110 in 4 Appendices), 273 refs
• Vrehopoulos, 2001, Brunel University
Writing it up

• It can be the single most difficult part of your journey
  – Wason (1974) describes the procrastination and incoherence into which many doctoral candidates fall when attempting to present their results in written form
  – Baddeley (1979) has pointed out the difficulties experienced by most supervisors in the training of students’ writing skills
  – Lowenthal and Wason (1977) distinguish between ‘serialists’ and ‘holists’. They also document that some of us love it and others find it a painful experience.

• Why is that?
  – ‘Written language is the means of discovery of new knowledge’ (Olson 1975)
  – Many academics, authors, and poets only think when they write (Murray 1978)
  – Writing makes people think about their work in a very different way

• Solutions
  – Practice (papers, reports)!
  – Start writing from the very beginning!
Writing papers and chapters

• Publication Outlets
  – Journals
  – Conferences
  – Chapters in Edited Books
  – Other publications (e.g. trade magazines)
  – Technical Reports, White Papers
  – (Books)
Presenting your work

• ELTRUN seminars
  – Pros: Informal atmosphere, Good early feedback (even on ideas), no need to be polite!
  – Cons: Limited exposure to the academic community

• Conferences
  – Pros: Peer-reviewed system (in good conferences), opportunities for getting to know the people you cite (if chosen well)
  – Cons: Ideas must be reasonably developed

• Doctoral Symposia
  – Pros: Feedback from seniors and peers, not so formal, good fun
  – Cons: Can be indifferent if not organised well
Formal matters

• Entering the system
  – Position announcements (twice a year – Dec, Jun)
  – Preparing an application (and a research proposal)
  – Being accepted (or not)
  – Induction (responsibility of the host institution)
  – First steps in the work (responsibility of the supervisor)

• While in
  – The supervising committee (3 members)
  – Your responsibilities

• Exiting
  – Submitting
  – The examination committee (7 members)
Further Readings


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