Learning the Art of Research: Combining organizational skills, critical thinking & creative thinking

Creative commons license

Professor Carmel McNaught

http://tinyurl.com/gradss1
http://tinyurl.com/gradss2
http://tinyurl.com/gradss3
http://tinyurl.com/gradss4
The Island of Research
One Rule: Do Not Block the Path of Inquiry

Ocean of Experience

- Serendipity Mine
- Forest of Fatigue
- Peaks of Confusion
- Problem Range
- Delta of Editors
- Bay of Literature
- Delta of Fundless Desert
- No budget trail
- Bog of lost manuscripts
- Bay of Leisure
- To Administration Island
- D.D.D. Delta of "dirty" data
- Wreck heap of discarded Hypotheses
- More data trail
- Ridge of Boredom
- Money pit
- Study Design
- Entree Tactics
- Population Data
- Run
- Where-ami Fog
- Where-ami.

BEGIN HERE

END
Why are you doing a higher degree?

http://tinyurl.com/honsmastdoct
Skills needed in the 21st century

21st Century Literacies

- Visual Literacy
- Cultural Literacy
- Network Literacy
- Computer Literacy
- Written Literacy
- Media Literacy
- Library Literacy
- Linguistic Literacy
- Global Literacy

After blogs.ubc.ca/dean/files/2009/02/bloom1.gif
Organizational skills

http://tinyurl.com/skorg
Critical thinking

http://tinyurl.com/thicr
Creative thinking

OCC reflection
Steps in the process

1. Choosing a supervisor
2. Setting the main research question
3. Understanding paradigms of research
4. Deciding on methodology and methods
5. Avoiding “temptation” – plagiarism and fraud
6. Academic writing
Getting the right (?) research supervisor

https://lh6.googleusercontent.com/-mM6yePwYceE/TYKLJ0vshII/AAAAAAAAA2o/_R5Z_u-sacl/s1600/Supervisor.gif
Boundaries for student–supervisor relationship

How big is the overlap area?

http://4.bp.blogspot.com/-qzHbCYpGp8k/Tz8qtYTCEBI/AAAAAAAABys/ULi88o_qKoI/s1600/hpv.boundaries.gif
The importance of trust

- Integrity
- Competence
- Openness
- Loyalty
- Consistency

TRUST
OCC reflection
Research questions
Evaluation and research – a simple distinction

- **Evaluation** is the process and answering the question “Does *it* work the way *it* was intended to work?” (*it* being a learning design or innovation or device, etc.). The answer could be “yes”, “no” or “maybe”.

- **Research** is the process of finding out why it works, of gaining deeper understanding about how best to advance the area of knowledge.
OCC reflection
Paradigms of research

https://1john417.files.wordpress.com/2015/01/paradigm-shift-cartoon.gif
## Some heavy terms … but important

<table>
<thead>
<tr>
<th>Paradigm</th>
<th>Descriptive terms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Positivist (Post-positivism)</strong></td>
<td>scientific, objective, empirical, quantitative, analytic, hypothetical deductive, functionalist</td>
</tr>
<tr>
<td><strong>Interpretivist</strong></td>
<td>relativist, constructivist, naturalistic, humanistic, hermeneutic, systemic, qualitative</td>
</tr>
<tr>
<td><strong>Critical theory</strong></td>
<td>neomarxist, postmodern, inductive, praxis, feminist</td>
</tr>
<tr>
<td><strong>Pragmatic</strong></td>
<td><strong>critical realist, eclectic mixed methods, disciplined eclectic</strong></td>
</tr>
</tbody>
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Phillips, McNaught, & Kennedy (2012)
OCC reflection
Methods and Methodology

http://tinyurl.com/methmethod
The quantitative/qualitative divide

- Quantitative data can be summarized numerically.
- Qualitative data often requires description in words.
Quantitative data types

- Nominal
- Ordinal
- Interval
- Ratio

- Non-parametric statistics
- Parametric statistics

<table>
<thead>
<tr>
<th>Type of Design</th>
<th>Parametric Test</th>
<th>Nonparametric Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two independent samples</td>
<td>Independent-samples t-test</td>
<td>Mann-Whitney U or Wilcoxon Rank Sums test</td>
</tr>
<tr>
<td>Two dependent samples</td>
<td>Dependent-samples t-test</td>
<td>Wilcoxon T-test</td>
</tr>
<tr>
<td>Three or more independent samples</td>
<td>Between-subjects ANOVA</td>
<td>Kruskal-Wallis H test</td>
</tr>
<tr>
<td>Three or more dependent samples</td>
<td>With-in subjects ANOVA</td>
<td>Friedman x2 test</td>
</tr>
</tbody>
</table>

Analysis of qualitative data

- Grounded analysis
- Comparative analysis
Research strategies

- *Science experimental work*
- *Surveys*
- *Interviews*
- *Focus-group discussions*
Research matrix

- Have the plan on ONE page

<table>
<thead>
<tr>
<th>Research question(s)</th>
<th>Methods to be used/Instruments/Data to be collected. Some indication of scale needs to be included.</th>
<th>Method of analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 …</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 …</td>
<td></td>
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</tr>
</tbody>
</table>
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Challenges, not “temptations”

- Ethical dilemmas?
- Follow ethics requirements scrupulously!
Plagiarism?

“Yes, I downloaded my book report from the Internet, but I collated and stapled the pages all by myself.”

“I didn’t have time to download my report and print it out. It’s already paid for, so you can download it directly from Book Reports-R-Us.”
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Academic writing

Carmel’s ‘C’ principles:
Coherence, Clarity & Completeness
Let’s start at the very beginning …

“I don't believe in writer's block. I sit my butt on a chair and I start writing. You can edit crap. You can’t edit a blank page.”

Jodi Picoult interview, SCMP, 5 June 2005
Structure of a good academic piece of writing

• Five ‘hooks’:
  1. title
  2. abstract
  3. first sentence(s)/ chapter
  4. sequence of (chapter) headings
  5. last sentence(s)/ chapter
CLARITY

Two aspects here:

1. Need to have **one key idea** in a chapter. Use ‘advance organizers’ and summaries.

2. **Editing**
Editing

- In phases – it takes time
- Peer review **does** work
- Find your own style
  - active & passive voice
  - present & past tense
  - avoid generalizations; be succinct
  - avoid over-quoting
  - use suggested word lists
COMPLETENESS

1. Role of the literature
2. Going beyond description
3. Describing your data
4. Attention to detail
Attention to detail

- Get into the habit of correct form for submission of EACH draft.
- Don’t wait till you think you are near the end.
- Format the dissertation/thesis properly
- This includes referencing, inc. URLs.
Synergy b/w writing & presenting

- Practice, practice, practice …
Peer support for viva preparation
OCC reflection
KEEP CALM IT'S JUST A THESIS

http://agsci.oregonstate.edu/sites/agsci.oregonstate.edu/files/thesis.png
A moment of reflection

Think about the three things you learnt that you want to continue to reflect on …

Photo by David M. Kennedy
Reference