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Post Doctoral Research Fellowship

Research Group Workshop
15 to 16 August 2012
DUT, Steve Biko Campus

Prof George M. Ochieng'
Associate Professor and Supervisor
Civil Engineering Department



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Planning, Data, Output Structure & Deliverables

Prof. G M Ochieng': Department of Civil Engineering

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RESEARCH PLAN (1):

Goal (Why?):

You should have a goal; which is why you are doing the study?

Plan (How?):

Advantage: Planning is capacitated by preliminary research and it gives insight on potential problems and outcome of each task.

Methods: Define the methods to be used; you will able to identify matters of concern only if you know how you are going to do the study.

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RESEARCH PLAN (2):

Challenges (Risk Mitigation): Note all potential challenges and plan for them, consider your strengths and weaknesses in this regard.

Timelines: Subdivide your study and attach dates to deliverables; do them on time. Be realistic about the target dates. Plan backwards from the expected date of completion.

Determination: Key feature required towards a successful research.

Consistence: It Keeps the study flowing.

Consideration: Consider people and circumstances around your circle, family, mentors, etc.

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RESEARCH PLAN:

What to consider when planning:

Topic determination
Preliminary research
Hypothesis
Detailed research
Structure outline
Literature review
Study methods
Proposal (writing, submission and defending)
Writing schedule and chapter drafts
Bibliography
Editing
Publication

****Always discuss with your supervisors and let them know about your planning and schedules.****

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DATA REQUIREMENTS AND ANALYSIS (1):

Considerations:

- Research problem and the methods to be used.
- Project delineations and limitations.
- Availability of resources.
- Time frames.
- Data sources.

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DATA REQUIREMENTS AND ANALYSIS (2):

Data Collection:

- Acknowledge data.
- Consider relevance.
- Significance to your study.
- Reliability.
- Time/ currency

STRUCTURE OF THESIS (M & D)

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Institution dependent

(TUT – Guidelines for the preparation of dissertations and thesis):

Dissertation:

Written scientific report on research, which is the requirement for obtaining a master's degree

Mini dissertation:

Written scientific report (or paper) associated with a structured master's degree (research report supplemented by course work)

Thesis:

Written scientific report on creative and original research, which is the requirement for a doctorate

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WRITING A DISSERTATION OR THESIS:

DISSERTATION / THESIS AS A SCIENTIFIC COMMUNICATION:

- Factors for consideration:
  - Document must inform the reader about the problem. Implications must be explained in such a way that everyone reading the document has the same orientation towards the problem
  - Motivate necessity of the study. Explain the goal clearly.
  - Provide basic scientific background to understand the problem
  - Methodology used and other aids must be clearly described
  - Present data in such a way that all researchers' interpretations and inferences are supported
- NB: Nature of the research will determine the format.

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WRITING A DISSERTATION OR THESIS:…

Typical Format/Layout:

- Introductory section
- Presentation and discussion of the data
- Conclusion or final part of the report
- **Example:**
  - **Introduction (Chapter 1)**
  - **Literature review/survey (Chapter 2)**
  - **Theoretical consideration (Chapter 3)**
  - **Methods and materials (Chapter 4)**
  - **Results and discussion (Chapter 5)**
  - **Conclusion and recommendations (Chapter 6)**
  - **References/bibliography**

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Sections of a Scientific Paper

- Abstract
- Introduction
- Methods
- Results
- Discussion
- Conclusion
- References

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Sections of a Scientific Paper

- Results
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- Introduction
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POTENTIAL OUTPUT:

- Thesis/dissertation
- Scientific Journals/papers
- Conference proceedings
- Patents
- Books/book chapters
- Workshops?
- Collaborations (local/international)

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