CS3004: Research Methods

Literature Review
How?

1. Research Question
2. Literature Review
3. Research Design
4. Data Collection
5. Data Analysis
6. Write Report
7. Present
Literature Review – Assignment 1

1,500 words. It should:

- include any seminal and relevant recent works in the research field
- critically analyse the relevant literature
- cover any major and relevant theories in the field
- position the research question/problem in the context of the literature and of existing theory
What is a Literature Review?

- A literature review is a survey and discussion of the literature in a given area of study.

- It is a concise overview of what has been studied, argued, and established about a topic, and it is usually organized chronologically or thematically.

- A literature review is written in essay format.
And what it is *not*...

- It is *not* an annotated References, because it groups related works together *(syntheseses)* and discusses trends and developments *(analyses)* rather than focusing on one item at a time.

- It is *not* a summary; rather, it evaluates previous and current research in regard to how relevant and/or useful it is and how it relates to your own research.
Literature Review

What functions should the literature review perform??

1. Ensures that you are not "reinventing the wheel".

2. Gives credits to those who have laid the groundwork for your research.

3. Demonstrates your knowledge of the research problem.

4. Demonstrates your understanding of the theoretical and research issues related to your research question.
Literature Review

5. Shows your ability to critically evaluate relevant literature information.

6. Indicates your ability to integrate and synthesize the existing literature

7. Provides new theoretical insights or develops a new model as the conceptual framework for your research.

8. Convinces your reader that your proposed research will make a contribution to the literature (resolving an important theoretical issue / filling a gap in the literature).
Literature Review

- Common problems??
  - Lacking organization and structure
  - Lacking focus, unity and coherence
  - Being repetitive and verbose
  - Failing to cite influential papers
  - Failing to keep up with recent developments
  - Failing to critically evaluate cited papers
  - Citing irrelevant or trivial references
Literature Review - Structure

- Make use of headings and subheadings to bring order and coherence to your review.

- E.g., having established the importance of your research area and its current state of development, you may devote several subsections on related issues as: *theoretical models, measuring instruments, cross-cultural and gender differences*, etc.
How to?

- Topic (or problem area)
  
  ‘Success Factors in Innovation’

- What is your research question?
Step 1: Identify Data sources

- **Use research questions to produce list of topics**
  
  *What do I need to know about in order to answer my question?*

-- **Relevance tree method:**

  1. Start with your research question or objective at the top level.
  2. Identify two or more subject areas that you think are important.
  3. Further subdivide each major subject area into sub-areas that you think are of relevance.
  4. Further divide the sub-areas into more precise sub-areas that you think are of relevance.
  5. Identify those areas that you need to search immediately and those that you particularly need to focus on.
  6. As your reading and reviewing progress, add new areas to your relevance tree.
Relevance Tree  
(Saunders et al, 2009, p.80)

Is there a link between benchmarking and Total Quality Management?

- Benchmarking
  - Benchmarking theory*
    - Techniques
  - Benchmarking practice*
    - Types
- Links between BM and TQM
- ISO 9000
  - Implementation
    - TQM in practice*
      - Case studies
    - Precise standard
  - TQM theory*
    - Case studies
- TQM
  - Implementation process
    - Duran
    - Demming
Exercise 1: Literature Review Relevance Tree

- Start with your Research question:
  \textbf{What are the success factors in innovation?}

- In pairs take 5 minutes to identify the subject areas you feel are important. \textit{(What do I need to know about in order to answer my research question?)}

- Join with another pair and explain to your colleagues why you think those subject areas are relevant to your research.

- Give and receive feedback and advice.
Step 1: Identify Data sources

- Define search parameters:
  - language of publication (e.g. English);
  - subject area (e.g. accountancy);
  - business sector (e.g. manufacturing);
  - geographical area (e.g. Europe);
  - publication period (e.g. the last 10 years);
  - literature type (e.g. refereed journals and books).

- Select bibliographic databases and websites

- Choose search terms using your list of topics
Step 1: Identify Data sources

- Academic and professional journals
- Theses
- Conference proceedings
- Reports of government departments and corporations
- Textbooks
Step 2: Background Reading

- Review papers can provide good overview of subject

- Text-books are a good source of overviews but can date rapidly in some areas

- Introduction section of papers in the area provide good overviews and point to references to follow up on.
Step 3: Focus on Topic

- **5 critical questions to employ in critical reading:**
  1. Why am I reading this? (This is where the research question in particularly valuable. It acts as a focusing device and ensures that you stick to the purpose of the reading.)
  2. What is the author trying to do in writing this? (The answer to this may assist you in deciding how valuable the writing may be for your purposes.)
  3. What is the writer saying that is relevant to what I want to find out?
  4. How convincing is what the author is saying? (In particular, is the argument based on a conclusion which is justified by the evidence?)
  5. What use can I make of the reading?

Wallace and Wray (2006)
Step 3: Focus on Topic

- **Apply Practical Screening**
  - Content covered
  - Years searched
  - Language
  - Setting
  - Participants
  - Interventions or programmes
  - Outcomes studied
  - Research design
Step 3: Focus on Topic

- **Apply Methodological Quality Screening**
  - Evaluate Study’s
    - Research Design
    - Sampling (eligibility of subjects, methods of sampling, sample size, response rate…)
    - Data collection (reliability, validity intervention/programme quality)
    - Data analysis
    - Results
    - Conclusions (based on study, methodological limitations)
Step 4: Outline Structure

There is no one correct structure for a critical review, although it is helpful to think of it as a funnel in which you start at a more general level prior to narrowing down to your specific research question(s) and objectives.

1. **Introduction** (What the review is about, what areas you chose to review)

2. **Research Area overview** (Background and context)

3. **Topic one - Review of most recent and relevant works**
   - Describe, Analyse, Evaluate
   - 3.1 Sub-topic one
     - Describe, Analyse Evaluate
   - 3.2 Sub-topic two
     - Describe, Analyse Evaluate

4. **Topic one - Review of most recent and relevant works**
   - Describe, Analyse, Evaluate
   - 4.1 Sub-topic one
     - Describe, Analyse Evaluate
   - 4.2 Sub-topic two
     - Describe, Analyse Evaluate

5. **Conclusion** (Overall evaluation of work in area, suggestions for further research linking to own proposed research)
Step 5: Start Writing

- Write overview of research area
- Reviews of most significant works
- Write introduction
- Write conclusion
Step 5: Start Writing

- **Synthesise and Analyse Results of Literature Review**
  - Describe current knowledge about topic
  - Support need for and significance of new research
  - Explain research findings
  - Describe quality of current research
Step 6: Create 1ˢᵗ Draft

- In one sitting if possible, re-write whole report ensuring:
  - Consistency of style.
  - Clear Narrative
  - Sections well linked
  - Evaluations consistent
Step 6: Review References

- Use Harvard Referencing system
- Reference all research mentioned in paper and provide full citation in references

Example:

Compared to topic, sentiment can often be expressed in a more subtle manner, making it difficult to be identified by any of a sentence or document’s terms when considered in isolation. (Pang and Lee, 2008)

References

Step 7: Edit

**Presentation**
- Ensure all sources are academic
- Spend time on presentation
- Use numbered section headings

**Content**
- Ensure literature review matches title
- Ensure there is a clear narrative throughout the literature review
- Ensure conclusions and evaluations are evidence-based
- Ensure style is concise and precise
Final Checklist  
*(courtesy of the University of Melbourne)*

**Selection of Sources**
- Have you indicated the purpose of the review?
- Are the parameters of the review reasonable?
- Why did you include some of the literature and exclude others?
- Which years did you exclude?
- Have you emphasised recent developments?
- Is the literature you have selected relevant?
- Is your bibliographic data complete?
Final Checklist

Critical Evaluation of the Literature

- Have you organised your material according to issues?
- Is there a logic to the way you organised the material?
- Does the amount of detail included on an issue relate to its importance?
- Have you been sufficiently critical of design and methodological issues?
- Have you indicated when results were conflicting or inconclusive and discussed possible reasons?
- Have you indicated the relevance of each reference to your research?
Final Checklist

**Interpretation**
- Has your summary of the current literature contributed to the reader's understanding of the problems?

**Note**
- The review needs to further the reader's understanding of the problem (and whether it provides a rationale for your research).
<table>
<thead>
<tr>
<th>Sources</th>
<th>Sources selected are relevant, multiple, and from academic research. Sources selected present all different perspectives on the subject.</th>
<th>Sources selected are relevant, multiple, and mostly from academic research. Sources selected present many different perspectives on the subject.</th>
<th>Sources selected are mostly relevant, limited in number, and many are not from academic research.</th>
<th>Sources selected are limited and most are not from academic literature.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme</td>
<td>Logical sequencing and structure of review. Overview of subject history and current state of research made clear. Good organisation.</td>
<td>Good organisation but some illogical sequencing and structure of research reviews.</td>
<td>Good organisation of sections but research not sequenced or is structured logically.</td>
<td>No structure, sequencing or organisation in literature review.</td>
</tr>
<tr>
<td>Information Synthesis</td>
<td>Subject is clearly explained. Research is clearly, concisely and accurately presented. Current state of research and differences in approaches highlighted.</td>
<td>Subject is clearly explained. Research is clearly, concisely and accurately presented. Current research highlighted.</td>
<td>Subject is clearly explained. Research is clearly, concisely and accurately presented.</td>
<td>Subject is explained. Research is clearly and accurately presented.</td>
</tr>
<tr>
<td>Criticism</td>
<td>Each research article is critiqued. Suggestions for further research or other conclusions are offered. Independent thought and creativity is evident in critiques.</td>
<td>Each research article is critiqued. Suggestions for further research or other conclusions are offered</td>
<td>Each research article is critiqued.</td>
<td>No criticism of research</td>
</tr>
<tr>
<td>Referencing</td>
<td>Information is cited correctly in Harvard referencing style.</td>
<td>Correct referencing style but some errors.</td>
<td>Information is cited, but has errors and style incorrect.</td>
<td>Information is not cited correctly</td>
</tr>
</tbody>
</table>
Finally…

- It is also helpful to keep in mind that you are telling a story to an audience - try to tell it in a stimulating and engaging manner.

- Do not bore them. (Remember: academics, even computer scientists, are human beings too.)