Seminar in Empirical Software Engineering

Session 3
Agenda for today’s session

- Preparing a presentation
- On literature reviews
An academic presentation (talk) gives the audience information about a scientific study or topic

- The talk is about an idea, not about a paper
- Your paper is about the same idea but presented differently

A good presentation

- Conveys the essential information to the audience
- Persuades the audience that the arguments and evidence are true
- Is easy to listen to: interesting and (intellectually) entertaining
- Inspires the audience to read the paper!
Planning the presentation

• Consider the **audience**
  • Don’t spend time on things they already know
  • But position your work into a familiar context

• Consider the **time available**
  • Plan how much time you can use for each part of the presentation
  • If there are essential details that need explanation, give more time to them

• Consider carefully **what material to include**
  • You cannot and should not include everything
  • First, choose only the essential things
Presentation structure

- IMRAD – but differently; for example:

  **Paper**
  - Introduction
  - Methods
  - Results
  - Discussion

  **Presentation**
  - Introduction
  - Main point 1
  - Main point 2
  - Main point 3
  - Conclusion

Tell what you are going to tell
Tell it
Tell what you told
Presentation structure: Introduction

- Introduce yourself
  - But only if you were not introduced
  - Or if you want to express why you personally are interested in the topic
- Introduce the topic
  - Not the same as reading the presentation title
  - Put the topic in context, perhaps using an example
  - Motivate the topic – why is it important?
- State the goal of the study
  - What did you plan to do about the topic?
  - Your research questions
- All this in just the first few minutes of the presentation
Presentation structure: Main points

• Main point 1: Method
  • What did you do?
  • How did you do it?
  • What data did you have (e.g. a set of papers)?
  • This can be brief but make sure the audience knows what you did and how

• Main points 2 & 3: Results
  • What results did you get?
  • This is the interesting part, so spend some time here
  • Show, don’t tell: if possible, use visual aids like diagrams or figures
Presentation structure: Conclusion

• Very briefly make sure the audience is still with you:
  • Summarise the goal of the study
  • Summarise what you did to address the goal
  • Summarise the most important result(s)
• Now you have a moment to talk about what this means
  • Was there enough strong evidence to draw a strong conclusion?
  • Perhaps the results indicates there are open questions?
• Finally, thank the audience for their attention
• Remember to leave time for questions!
Presentation tips

• The audience wants to hear about your work!
• The slides are there to aid your story
• Practice!
• Especially practice the start and end
• Keep to your time limit!
• Being nervous is ok
On literature reviews

- A literature review surveys scientific articles related to a topic
  - Answer research questions about the topic
  - Answer research questions about the body of knowledge
- Systematic literature review (SLR)
  - Answers research questions about a topic
  - Aggregates results from several papers to a stronger result
  - Follows a systematic design
  - Is repeatable
- Systematic mapping study (SMS)
  - Answers research questions about the body of knowledge
  - Finds and classifies primary studies
  - Follows a systematic design
  - Is repeatable

(e.g. “Is testing technique A more effective at defect detection than technique B?”)

(e.g. “What is known about topic X?”)

Kitchenham & Charters, 2007
Literature reviews in the seminar

• Should be repeatable
  • Include the search strings or otherwise document how the final set of papers was found

• Should be tightly scoped
  • Limit by year or to specific conferences/journals
  • Limit by narrowing the topic

• If your primary article is already a literature review, you could reuse the search strings and scope them further
Choosing source material

- Prefer papers from leading journals and conferences
- Evaluate the papers yourself
  - Validity of the results, credibility of the claims
  - How was the research conducted
  - Are results traceable to evidence or do the authors mix evidence with their own opinions and views?
  - In Software Engineering, it is rarely possible to reach final proof
Evaluating paper quality

• Finnish forum rating system: Publication Forum
• Level 3 (highest)
• Level 2
• Level 1 (most conferences)
• If the forum is not ranked here, it is either very new or may be suspect
## ISI JOURNALS - SOFTWARE ENGINEERING

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<th>Journal</th>
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<th>11</th>
<th>10</th>
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http://www.cse.chalmers.se/~feldt/advice/isi_listed_se_journals.html
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Submission Deadline: Aug 29, March 16, May 4, March 19, Dec 17, Jan 30, Oct 2

http://web.engr.illinois.edu/~taoxie/seconferences.htm
Developing the topic and research question

• The general topic usually stays the same
• Let the literature you find steer the focusing of the topic
• The research questions are often refined as you go
  • Scope down
  • Shift to fit papers found
• Think about the concepts in the topic and what can be asked about them
• What does the literature cover?
How to report the outcome

- A literature review is concept-centric
- Not just a summary, but analysis and critical judgement of your own

Table 1. Approaches to Literature Reviews

<table>
<thead>
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<th>Concept-centric</th>
<th>Author-centric</th>
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<tbody>
<tr>
<td>Concept X … [author A, author B, …]</td>
<td>Author A … concept X, concept Y, …</td>
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<tr>
<td>Concept Y … [author A, author C, …]</td>
<td>Author B … concept X, concept W, …</td>
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Table 2. Concept Matrix

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<th>C</th>
<th>D</th>
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<td></td>
<td><strong>x</strong></td>
<td></td>
<td></td>
<td><strong>x</strong></td>
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<td>2</td>
<td><strong>x</strong></td>
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<td></td>
<td><strong>x</strong></td>
<td><strong>x</strong></td>
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Table 3. Concept Matrix Augmented with Units of Analysis

<table>
<thead>
<tr>
<th>Articles</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>...</th>
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</table>
| Unit of analysis: O (organizational), G (group), I (individual)
1        |   | **x** |   |   | **x** |
2        | **x** |   | **x** | **x** | **x** |
...      |   |   |   | **x** | **x** |

(Webster & Watson, 2002)
Next steps

- September 28: Deadline for extended abstract at 12 noon
- October 12: Feedback session
- October 19: Bidding deadline at 12 noon

- More information about EasyChair will follow by email

- Optional: workshop session October 5