SOFTWARE INTERVIEW STUDY: A STUDENT'S GUIDE

Agile Software Engineering

Daniel Russo, Ph.D.

Department of Computer Science

Aalborg University

Copenhagen

1 Preparation for the Interview: Literature Review

Conducting an insightful interview requires a foundation built on understanding and knowledge. This foundation aids not only in formulating precise questions but also in analyzing the answers you receive. This preparatory phase, encompassing a thorough literature review, is pivotal.

1.1 Purpose of the Literature Review

- **Identify Gaps & Trends**: A literature review helps you recognize the prevailing gaps and trends in software development. This aids in framing questions that are relevant to the current industry standards and practices.

- **Informed Understanding**: Familiarizing yourself with key terms, tools, and methodologies ensures that when the interviewee mentions certain specifics, you are well-equipped to understand and delve deeper.

- **Comparative Analysis**: Knowledge of what the literature states versus the practices of the organization can guide your critical assessment of the company's tools and processes.

1.2 Starting Your Literature Review

- **Class Materials on Moodle**: Begin with what's familiar. The class materials on Moodle would have covered essential topics, models, and methodologies. Revisit these to refresh your understanding.

- **Google Scholar Search**: Google Scholar is a reservoir of academic papers, articles, and studies. Begin with keywords that are broad, such as "software development best practices" or "challenges in software engineering". Gradually, narrow down your search based on the insights you gather.

1.3 Taking Effective Notes

- **Highlight Relevant Information**: Not every part of a paper or article will be relevant to your interview. Highlight or underline the parts that are directly related to software processes, tools, and methodologies.

- **Summarize**: For each paper or article you read, write a brief summary. This exercise ensures you've understood the content and provides a quick reference later on.

- **Connect to Class Material**: As you review the literature, continually draw parallels or contrasts to what you've learned in class. These connections can become pivotal points in your interview and subsequent report.

1.4 Organizing Your Findings

After conducting your interview and transcribing the responses, it is crucial to systematically organize the gathered data to facilitate a coherent and insightful analysis. Below is a structured approach to categorize your findings based on the newly proposed questions:

1. **Projects' Outcomes**:

   - Consolidate findings related to the primary reasons for software projects' successes and failures within the company.

   - Relate these to existing academic literature and theoretical models to ascertain patterns or deviations.

2. **Professional Alignment in Development**:

   - Compile insights on how different professional roles align in the software development process, specifically in relation to The Agile Success Model.

   - Critically assess the degree and effectiveness of this alignment in promoting project success and efficiency.

3. **Development Process Discussion**:

   - Organize information describing the company's development process and discuss the aspects influencing its current form.

   - Contrast this real-world process against academic literature to identify consistencies or disparities.

4. **Monitoring and Improvement Strategies**:

   - Gather and analyze data on how the company monitors and enhances various aspects like Management Support, Team Autonomy, Continuous Improvement, Stakeholder Concern, Responsiveness, and Team Effectiveness. Use the Scrum Team Effectiveness Model as a guideline.

   - Evaluate the effectiveness of these strategies in maintaining and boosting software project success.

5. **Stakeholder Mapping**:

   - Collate responses related to the company's approach to stakeholder mapping.

   - Examine the identified approach's efficacy and its role in project planning and execution.

6. **Quality Management Practices**:

   - Assemble findings concerning the company's strategies for managing quality assurance, planning, and control practices.

   - Discuss these practices' alignment or deviation from recognized best practices in academic literature.

7. **Software Production Pipeline**:

   - Organize and analyze information regarding the company's software production pipeline.

   - Reflect on its robustness, efficiency, and adaptability in relation to academic insights and best practices.

Organizing your findings in this structured manner will ensure a smooth transition into the analysis phase, allowing for a clear, comprehensive, and critical examination of each aspect of your study.

2 Conducting the Interview

Executing a successful interview demands more than just a list of well-drafted questions. The environment, your demeanor, and how you engage with the interviewee play pivotal roles in obtaining rich and valuable insights.

2.1 Introduction

Begin the interview with a concise introduction. This sets the stage and ensures the interviewee is comfortable and informed.

- *Example*: "Thank you for taking the time today. My name is [Your Name], and I'm conducting this interview as part of my [Course Name] at [University Name]. The goal is to assess and critically discuss the software processes and tools used within organizations like yours."

2.2 Recording the Session

Always ensure transparency regarding the recording:

- Inform the interviewee upfront that you'd like to record the session.

- Get explicit permission before starting the recording.

- Assure them of confidentiality, if necessary.

2.3 Duration and Respect for Time

Maintain professionalism by respecting the interviewee's time:

- Ask them how much time they have at the start.

- Try to keep the interview within the agreed timeframe, but also ensure all critical topics are covered.

2.4 Active Listening

Active listening is key to understanding and can also lead to more in-depth discussions.

- Maintain eye contact, nod occasionally, and provide feedback like "I understand" or "That's interesting."

- Avoid interrupting. If you have a follow-up question, note it down and ask once they've finished their thought.

2.5   Follow-up Questions

Don't be afraid to deviate slightly from your prepared questions if the conversation leads to valuable insights.

- *Example*: If the interviewee mentions a unique tool or process they've recently adopted, you might ask, "How has this new tool changed the workflow or outcomes for your team?"

2.6   Concluding the Interview

End the interview gracefully:

- Summarize key points discussed.

- Thank the interviewee for their insights and time.

- Inform them about the next steps, such as how and when the results will be shared.

In summary, conducting the interview is a dynamic process that requires adaptability, active listening, and respect for the interviewee. Approach the session with an open mind, and remember that each interview is a unique opportunity to learn and bridge theory with practice.

3   Post-Interview

The completion of the interview marks only the beginning of your analysis. The post-interview stage is crucial for synthesizing the information gathered, drawing comparisons with your literature review, and crafting a comprehensive report.

3.1   Transcription

Transcription is the meticulous process of converting the spoken words from your interview into written text. This written record forms the basis for your analysis, ensuring that you can repeatedly refer back to the interviewee's exact words. Here's an aid for you in this pivotal phase:

3.1.1   Choosing a Transcription Tool

While manual transcription (listening and typing out the content) provides an in-depth familiarity with the interview content, it can be time-consuming. Hence, using transcription tools can expedite the process:

- **MS Word Transcription**: A feature available in Microsoft Word allows users to transcribe recorded conversations directly within the application. To use this:

    - Open MS Word and navigate to the "Home" tab.
    - Select the "Dictate" drop-down and choose "Transcribe".
    - Upload your audio file and wait for Word to process and transcribe it.
    - Once transcribed, review the content for accuracy, as no automated tool is perfect.

- **Other Tools**: There are numerous other transcription software and services available online. Some may offer higher accuracy or additional features, but they might also come with associated costs.

3.1.2 Ensuring Accuracy

Regardless of the transcription method chosen:

- Always listen to the recording while reading the transcription to ensure that the content matches.

- Pay special attention to technical terms or jargons, as they might be misinterpreted by automated tools.

3.1.3 Organizing and Time-stamping

- Divide the transcription into sections or topics for easier reference.

- Timestamping key insights or sections can prove invaluable during the analysis phase, allowing for quick access to crucial parts of the interview.

In summation, while transcription can be a labor-intensive task, its value in the qualitative analysis process is immeasurable. Taking the time to ensure its accuracy and clarity will greatly benefit the subsequent phases of your assessment.

3.2 Review and Initial Reflection

After transcribing, review the entire transcript at least once.

- Note down initial reactions, insights, or patterns that emerge.

- Highlight statements that align or contrast sharply with the literature.

3.2.1 Thematic Analysis

Thematic analysis is a systematic approach to identifying, analyzing, and interpreting patterns or "themes" within qualitative data. These themes capture something meaningful about the data concerning the question and represent some level of patterned response or meaning within the dataset.

1. **Familiarization**: Start by immersing yourself in the data.

   - Read and reread the transcription to become intimately familiar with its content.
   - Make initial notes or highlight potential patterns or areas of interest.

2. **Generating Initial Codes**: Begin breaking down the data into analyzable chunks.

   - Code for as many potential themes or patterns as possible.
   - Each code should encapsulate a distinct idea or piece of information relevant to your question.

3. **Searching for Themes**: Group your codes into potential themes.

- This step is about sorting the different codes into themes based on how they are related or interconnected.
- Consider using visual aids like mind maps or tables.

4. **Reviewing Themes**: Ensure that your themes work in relation to your coded extracts and the dataset.

- Check if themes form a coherent pattern.
- Some themes might be broken down into sub-themes, while others might be merged or discarded.

5. **Defining and Naming Themes**: Refine the specifics of each theme, and analyze what each theme is about.

- Create clear definitions and names for each theme.
- Ensure that the theme name captures the essence of the data it represents.

6. **Writing the Analysis**: Craft a narrative around your themes, integrating extracts from the data to support your assertions.

- It is a working document for you that will help you to write exam assignment.
- This narrative should be coherent and should offer insights into the data in relation to the question.
- Always use verbatim extracts from the interview to illustrate the themes.

In essence, thematic analysis is a recursive process, where you'll often find yourself moving back and forth between stages as new insights emerge and patterns become clearer. It's not merely about condensing the data but interpreting it. This method allows for flexibility, ensuring that the analysis remains grounded in the data but is also shaped by your questions and objectives.

3.3 Comparison with Literature

Revisit your literature review and class materials.

- Compare real-world practices, as described by the interviewee, with academic findings or best practices.
- Identify areas where the organization excels, and where there's room for improvement.

3.4 Writing the Exam Assignment

Constructing a clear and well-informed report is essential to articulate your findings. Your thematic analysis will feed into each of the main discussion points, and the literature review and class materials will offer the academic perspective against which you will contrast the company's practices.

1. **Introduction**:

- Provide a succinct context for your assignment, highlighting its importance.

- Offer a brief overview of the chosen company or department and the profile of the interviewed professional.

2. **Main Discussion Pillars**:

   (a) **Software Projects' Failures and Successes**:
   - Discuss the principal reasons for successes and failures in the company's software projects.
   - Relate these findings to the literature and course materials, elucidating any patterns, anomalies, or noteworthy insights.

   (b) **Professional Alignment - The Agile Success Model**:
   - Analyze how different professional figures in software development align within the company, focusing particularly on the implementations and deviations from the Agile Success Model.
   - Compare these alignments to academic literature and course materials to critically evaluate their efficacy and impact on project outcomes.

   (c) **Development Process Discussion**:
   - Detail and critique the company's development process, with a focus on understanding the factors that have shaped it.
   - Evaluate how well the company's processes align with academic literature and what this alignment or lack thereof implies about its approach to software development.

   (d) **Monitoring and Improvement of Organizational Aspects**:
   - Assess how the company monitors and enhances Management Support, Team Autonomy, Continuous Improvement, Stakeholder Concern, Responsiveness, and Team Effectiveness.
   - Evaluate the impact of these strategies on the company's software development practices and overall project success, drawing parallels with academic insights.

   (e) **Stakeholder Mapping**:
   - Analyze the company's approach to stakeholder mapping and discuss its significance and efficacy in the software development process.
   - Evaluate how the stakeholder mapping strategy influences project planning and execution, comparing it to the strategies discussed in the class and found in the literature.

   (f) **Software Quality Management**:
   - Examine the company's strategies and practices for quality assurance, planning, and control, assessing their alignment with academic principles and industry best practices.
   - Critically discuss the implications of their quality management approach on project outcomes and organizational success.

   (g) **Software Production Pipeline**:

- Explore and discuss the company's software production pipeline, scrutinizing its strengths, weaknesses, and uniqueness.
- Compare the observed production pipeline with academic literature to discern its level of sophistication, adaptability, and effectiveness in software delivery.

3. **Wrapping Up - Conclusions and Recommendations**:

- *Recap*: Summarize the pivotal findings and insights derived from your analysis.
- *Forward-looking Suggestions*: Propose actionable recommendations, suggesting how the organization can align closer with academic best practices or innovate its processes.

4. **Backing Your Claims - References & Appendixes**:

- *Comprehensive List*: Enumerate all sources, from literature to class materials, that you've referenced or consulted for the assignment.
- *Consistency*: Ensure your citations follow a uniform style, adhering to the guidelines prescribed by your institution or course.
- *Appendix*: Please remember to enclose the transcripts of the recording (in English or Danish) as well as your thematic analysis as attachments to the exam assignment.

It's paramount to remember that this isn't a mere presentation of findings. Instead, view it as a stimulating conversation between academic theory and real-world application. Your assignment should be a testament to your prowess in critical thinking, amalgamating insights from both the classroom and the corporate world.