




Assignment 1 – Critical appraisal – Case study1

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Results of applying the checklist:

Table 1

ID	Evaluation item	Answer (Yes/No/NA)	Justification (please motivate your answer)
1	Are the objective, research questions, and hypotheses (if applicable) clear and relevant?	Yes	There is clear relevance stated in the objective, research questions, and hypotheses as there is detailed explanation given about each of the point mentioned in the objectives.
2	Are the case and its units of analysis well defined?	yes	Here, each unit of analysis Namely core software, application software and product composition having further test activities (feature testing, integration testing, system testing) which were the heart of analysis. So the units of analysis were well defined.
3	Is the suitability of the case to address the research questions clearly motivated?	yes	The case study highlights the problems of product line development which the research questions point out. This clearly shows the suitability of the case.
4	Is the case study based on theory or linked to existing literature?		The case study involved an interview and a detailed analysis of the overlays in each test activity has been recorded, which makes it clear to us that the case study is based on existing literature.
5	Are the data collection procedures sufficient for the purpose of the case study (data sources, collection, validation)?	Yes 	As the data is being collected by interviewing the employees from a large scale industry considering, they are often exposed to critical situations, the data source can be considered as sufficient for the case study.
6	Is sufficient raw data presented to provide understanding of the case and the analysis?	Yes	The data provided seemed sufficient as we are dealing with a large organisations
7	Are the analysis procedures sufficient for the purpose of the case study (repeatable, transparent)?	Yes	Each coverage item consisted of 'focus' and 'purpose' parameters which is a statistical proof of the amount of effort put into analysis.

			They were sufficient.
8	Is a clear chain of evidence established from observations to conclusions?	Yes	The required observations were made and research questions were framed to which clear explanation was provided in the conclusion.
9	Are threats to validity analyses conducted in a systematic way and are countermeasures taken to reduce threats?	Yes	We came across three types of threats to validity in which each threat was explained and counteractions were clearly mentioned.
10	Is triangulation applied (multiple collection and analysis methods, multiple authors, multiple theories)?	Yes	There are multiple theories based on which hypotheses were formed. Each hypotheses was in turn analyzed by different interviewees. Hence we concluded that triangulation was applied.
11	Are ethical issues properly addressed (personal intentions, integrity, confidentiality, consent, review board approval)?	Yes	We looked into the references given in the case study, which clearly states that there were legal permissions obtained from all sources.
12	Are conclusions, implications for practice and future research, suitably reported for its audience?	No 	We analyzed conclusions and practices that can be adopted to make testing more effective were stated, but the future research was not clearly stated.

Briefly answer the following questions (where possible support your answer with results of the checklist based evaluation):

- A. Does the chosen research method (experiment/case study) address the objectives in the study? Which other research methods could address the same objectives?

The objective in the case study was to remove overlay in product line development and avoid redundant tests, both of which were clearly addressed and justified in the case study. A structured interview and a Questionnaire are other research methods that could address the above objectives.

- B. What is the practical value of the given case study?

The case study has great practical value where the techniques for avoiding redundancy are mentioned which when practiced might yield better results (improving delta analysis in Software Product Line and by having more consistent documentation).

- C. Which if any are the unaddressed ethical issues/concerns in the study?

We did not find any unaddressed ethical issue as there were citations given in the case study where ever necessary and each and every participant in the case study is fully aware of their participation.

- D. What is your overall assessment about the quality of the case study? What do you consider are the main strengths and major limitations of the study?

The case study can be called as a good quality as most of the questions abide to the guidelines.

The strength of this study is the detailed overlay provided at different levels of abstraction.

The major limitation of the case study is that it was not performed across organizations. More information could have been gathered as there would be some significant differences due to regional and cultural aspects also.

- E. Please answer the following questions regarding the use of the given checklist:

- a. Please respond to what extent do you agree or disagree with the following statement:
Overall, the checklist was easy to use.

strongly agree	agree	Neutral	Disagree	strongly disagree
Yes				

- b. Please respond to what extent do you agree or disagree with the following statement:
The questions were easy to understand.

strongly agree	agree	Neutral	Disagree	strongly disagree
	Yes			

- c. Please write the question numbers (from Table 1), if any, that were difficult to understand.

Question number 3 (Is the suitability of the case to address the research questions clearly Motivated?)

- d. Please respond to what extent do you agree or disagree with the following statement:
The questions were easy to answer.

strongly agree	agree	Neutral	disagree	strongly disagree
	Yes			

- e. Please write the question numbers (from Table 1), if any, that were difficult to answer.

- f. What made it difficult to answer these questions?

- g. Does the checklist cover all the important aspects (as mentioned in the guidelines for conducting case study research) for high quality case study research?

For the case study “Test overlay in emerging software product line”, the checklist consisted of all important aspects that are necessary to make it a high quality case study. The Research questions formulation is performed at the beginning followed by consistent and planned data collection where threats to validity need to be answered systematically.