



Assignment 1 – Critical appraisal – Case study

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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	<ul style="list-style-type: none"> - As the intended objective of the case study is described properly on software product line (SPL) development approach described using PLUSS and extended version of PLUSS approach methods. - Research questions are not appeared in following case study. - Hypotheses is tested on comparison between PLUSS and clone-and-own reuse of requirement specifications, as which performs better or worse.
2	Are the case and its units of analysis well defined?	NA 	The case and unit of analysis is not analyzed in the case study. To predict the suitable case and unit of analysis differs between the users view and the author's view.
3	Is the suitability of the case to address the research questions clearly motivated?	NO 	As there are no research questions provided it is bit difficult to judge. but in

			forming research questions the following case is well suited for brief explanation and understanding the concept.
4	Is the case study based on theory or linked to existing literature?	yes	The case study is based on theory knowledge about what exactly the content represents or defines and own perspectives that are described in the case study. whether it may be PLUSS or clone-and-own.
5	Are the data collection procedures sufficient for the purpose of the case study (data sources, collection, validation)?	Yes	<ul style="list-style-type: none"> - The information from different journals, articles, books, have been collected and presented well in user's point of view. data sources are very much sufficient for the case study. - Collection of different types of data and presenting it with suitable purpose, problem solving, issues, hypothesis, case studies, analyzing, feedback is a difficult work. But in the case study it has been described well and understandable. - Based on the test results between project A and B the validation is done perfectly and for further verification, results from interviews had also been conducted.
6	Is sufficient raw data presented to provide understanding of the case and the analysis?	yes	The data that is presented in the study describing about PLUSS and its extension is compared with statistical data collected from different data sources and analyzed using models and examples that are presented, is sufficient for better understanding of the case and the analysis performed.

7	Are the analysis procedures sufficient for the purpose of the case study (repeatable, transparent)?	yes	The analysis procedures performed are sufficient for the case study in repeatable analyzing our data once doesn't mean that mistakes don't occur again, but it means that mistakes will occur consistently every time you analyze the data so that it can be tracked and corrected.in this Case study the author had analyzed repeatedly at every comparison so that he can avoid mistakes. Whereas transparency or sharing helps in reviewing the analyses done.
8	Is a clear chain of evidence established from observations to conclusions?	yes	From observation to conclusion the work done is clear and presented with proof of experiment done. The work done is also cited in the references.
9	Are threats to validity analyses conducted in a systematic way and are countermeasures taken to reduce threats?	Yes	The threats to validate analyses are conducted by collecting data from different types of methods and it uncovered unexpected types of information.IT was done in a systematic way and as early as possible to identify correct variables. The countermeasures are followed to minimize the threats to study internal validity by using normal staff allocation procedures and represented group of stakeholders and concluded that their answers reflected their views correctly.
10	Is triangulation applied (multiple collection and analysis methods, multiple authors, multiple theories)?	yes	- Multiple collections of data is mainly of qualitative type data with three different types document examination, participant observation, and semi-structured interviews. - Analysis methods used is qualitative approach. Whereas in case study qualitative is represented as numbers and quantitative is

			<p>represented words and sentences according to case study guidelines.</p> <p>- Multiple authors are the people who had studied the following case study and analyzed. this case study is done by three authors MagnusErikssona, bürgeBörstlerb, KjellBorga.</p> <p>-multiple theories had been taken into account and explained in order to know the theoretical knowledge from different data sources. The triangulation is applied in the following case study.</p>
11	Are ethical issues properly addressed (personal intentions, integrity, confidentiality, consent, review board approval)?	yes	<p>The ethical issues depended on authors views and addressed according to the guidelines and strictly followed rules in research case study. personal intentions are proved with experiments and examples clearly to obtain the intended meaning. Integrity of the study design is validated according to the studies. Confidentiality is not shared with everyone it is the perspective views of the author. review board approval had been taken into account and results for interviews and feedback for experiments and examples had been stated with evidence.</p>
12	Are conclusions, implications for practice and future research, suitably reported for its audience?	yes	<p>Complete requirements specification can be developed and maintained for a whole product line. Variability is modeled and managed by feature model. checking every feature in</p>

			<p>products and validating. PLUSS was applied and evaluated in industrial case study based on two product lines is the best conclusion provided.</p> <p>Implications for this practice are</p> <p>developing and maintaining of complete specification of requirements for a product takes lot of resources and time consuming.</p> <p>Future scope of this case study leads to PLUSS support tool extension versions, and manipulation of data using feature model modules.</p> <p>Improving of understandable in feature model is leded to further investigating.</p> <p>The conclusion, implications for practice and future work is very much suitably reported for audience according to my analysis.</p>
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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?

Yes, the chosen research method is very suitable for the understanding the requirement specifications which the main objective of the study. Product line core assists is maintained behalf of developing product specifications, which is the change of mindset by performing research it is obtained. The analysis method that is qualitative type of data is used in this case study. case study follows different types of methods for collecting data and obtained different type of knowledge and validated to avoid threats and minimize them. Example of experiments and article reviews and feedbacks is also conducted in order to obtain the main content of the objective. So, the chosen research method that is case study is suitable to address the objectives in the study. The other research methods that is survey approach in suitable by taking feedback from different companies or organizations can be obtained.

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

The practical value of the given case study defines about complete requirements specification implemented and constructed for whole product line. This method can be developed and used with previous use case models. The feature model is used to create views to those requirements using respective product. Additional information available in feature model could be presented and utilized to use on product instance level and improve understanding. This is the practical value of the given case study.

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

personal intentions, integrity, confidentiality, consent, review board approval have described clearly and suitable for case study. As mentioned above in tabular form.

- 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 quality of the case study is up to the research terminology and very good in understanding the intended meaning of the author to the audience. Analysis methods, examples, related research work is done according to the guidelines and followed rules perfectly. 90-95% assessment to the quality of the case study is given. Main strength of the case study is that the complete specifications requirements validation and testing for maintains, gives the overall product feature model for product line development which solves most bugs in development phase. The major limitation of the study is that the different methods obtained for collecting data and integrity between them causes a lot of overlay that is repeated information can't be avoided.

- 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.

Answer: NO

- 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.

no

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

no

- 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?

The checklist covers all the important aspects according to the guidelines for conducting a case study research and suitable for a high-quality case study research. the different types of checklist are:

Design checklist is full satisfied in the case study but case and unit analysis is not mentioned by author and it is difficult to predict from users view. Other than that, every design checklist had been satisfied.

Preparation and conduct of data collection which fully depends on triangulation. multiple data sources and collection are planned in triangulation and multiple data owners, authors are also present in the case study.

Analysis of collected data is written in alternative perspectives are single notations without duplicity can be used in the analysis. Or it may be opposite to the predicted way. Analysis methods are satisfied with evidence to the examples studied. another checklist component that is described in the guidelines is about reporting is the analysis procedures clearly reported and exported with status off ongoing research work.

These are the important components of checklist according to guidelines with some of the check points mentioned in order to analysis.