Assignment 1 – Critical appraisal – Experiment

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Results of applying the checklist:

Table 1

ID	Evaluation item	Answer (Yes/No/NA)[1]	Justification (please elaborate)
1	Is the experiment understandable and interesting in general?	Yes	1). In the given experiment the factors applied for software readability is easy to understand and interesting to analyze 2). the role of code snippets made easier the work in larger projects 3). method chains explain unnecessary use of code may lead to violation law of Demeter 4). the difference between readability and comprehensive is Cleary explained
2	Does the experiment have any practical value?	yes	The practical value for the study shows that the presence or absence of method chains does not shows any significant change in précised readability and comprehension
3	Are other experiments addressing the problem summarized and referenced?	**yes**	To prove the main intended objective of the

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[1] Please note for item with ID 1, in the first row of Table 1, will be the population used in the study and not a yes/no.

			experiment, the author had taken few examples and compared code snippets with individual and group. The results are summarized and referenced with the test results obtained from interviews and from experiment overall statistics.
4	What is the population in the experiment?	yes	As the experiment done on 104 group of members, so the population worked in the study is 104 in different aspects of subjects.
5	Is the sample used representative of the population?	Yes	As a sample of 255 group of members are taken in the experiment among 255 some of the low coding perspectives outliers are deleted.
6	Are the dependent and independent variables clearly defined?	Yes	1). Dependent variables are cleared explains the measures how accurately the gaps of a snippet variant were completed. 2). Independent variables are mentioned properly stating that they are under investigation
7	Are the hypotheses clearly formulated?	No	The hypothesis is done on independent variables and those are not clearly mentioned in this study.
8	Is the type of design clearly stated?	Yes	1). The design had carried research in between method chains and source

			code comments 2). Factorial design is used in this experiment with blocking
9	Is the design correct?	Yes	The snippets are clearly mentioned in a sequence and in each sequence no variant is shown twice
10	Is the instrumentation described properly?	no	As the programmer need to done the study in detail, the experiment need to describe the study in future work.
11	Is the validity of the experiment treated carefully and convincing?	Yes	The validity of the subjects is done carefully has the students participated voluntarily in the experiment
12	Are different types of validity threats addressed properly?	Yes	1). The internal validity worried about dependent and independent variables. 2). In the external validity worried about generalizability of other contexts. 3). In the construct validity worried about operationalization of the extent context. 4). In the conclusion validity worried about the correctness of the conclusion and the standard statistical algorithm mentioned in the text books.
13	Has the data been validated?	Yes	The data validation for undergraduate and professionals is different by their experience in programming.
14	Is the statistical power sufficient, are there enough subjects in the experiment?	Yes	overall 255 subjects started the survey, but after removing short time outlier's subjects only 104 subjects are taken into the experiment.

15	Are the appropriate statistical tests applied? Are Parametric or non-parametric tests used and are they used correctly?	yes	Parametric tests are used in the experiment for obtaining statistics in the experience, for all snippets, for individual snippets, for male and female précised readability and method chain for précised readability. In all these areas parametric test is applied.
16	Is the significance level used appropriate?	No	With respect to comment variants there are significant difference in précised readability and also, we find statistical significance difference in low and high experienced subjects.
17	Is the data interpreted correctly?	yes	The role of method chain and comments for individual snippets and all snippets is interpreted correctly.
18	Are the conclusions correct?	yes	the study of this experiment need to be in detail for future work, for easy reading and for coding perspective
19	Are the results not overstated?	No	In this experiment as given in the results only the subjects which are useful for the study are taken and only those are stated in the results.
20	Is it possible to replicate the study?	N	The statistics in the experiment differ for different studies
21	Is data provided?	yes	The experiment shows the reading perspectives of experienced candidates and undergraduates representing in the form of statistics.
22	Is it possible to use the results for performing a meta-analysis?	yes	The combining of

			statistics gives an overall result in one graph and it is easy to compare all the statistics in different methods.
23	Is further work and experimentation in the area outlined?	Yes	In future the study on précised readability should be done in detail

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 main objective of method of chain and comments in software readability are to make easy the reading and the coding perspective. The other important objective discussed in this study is validation threats and their measures.

B. What is the practical value of the given experiment?

The practical value for the study shows that the presence or absence of method chains does not shows any significant change in précised readability and comprehension. Study shows that code with bad comments are easier for the reader. Further studies are important for an empirical evidence in a method of chaining in an object-oriented programming.

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

Personal intensions, integrity, confidentiality, consent, review board approval are the main ethical issues addressed in the experiment. Validation threats are more complicated issue arisen in the given experiment and measures taken to control threats by following: construct validity, conclusion validity, internal and external validity.

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

Comparison is shown clearly by applying statistics in the study which shows the difference to be noted in an easy manner to the reader. The main strengths are comparing with an individual and a group. Limitations are the instrumentation study occurs and the study need to be done in detail.

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 formulations 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.

   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?

Yes, Comparison with other checklist, unified checklist, research execution, evaluation, design validation, quality and ethics are used as the guidelines for a qualified study. Following all these factors in the study makes a research elaborative and understandable to reader.