

# **Materials Used in the paper Titled: An Experience Report on the Use of Active Learning in Experimental Software Engineering Teaching: Understanding the Positives and Negatives from the Student's Perspective**

## **Document 1:**

### **INFORMED CONSENT FORM**

Research: "The Use of Active Learning in Experimental Software Engineering Teaching".

Dear Sir/Madam,

You are invited to participate in data collection research. We kindly request your participation in this study to research using the Active Learning approach in teaching Experimental Software Engineering (ESE). With your assistance, the results of this research will contribute to improving the quality of ESE teaching. It is worth noting that what is being evaluated is the use of the approach rather than you, and your participation in this research is optional.

#### **1) Procedure**

The approach was used during the ESE classes. To participate in this study, we ask for your cooperation in (1) allowing the data resulting from your work to be studied and (2) providing feedback regarding the contribution of ESE teaching. When the data is collected, your name will be removed from it and will not be used at any time during the analysis or presentation of the results.

#### **2) Handling Possible Risks and Discomforts**

During data collection, we will ensure your privacy and anonymity. The data collected during the study is strictly intended for research development on the approach and will not be used for any professional or personal evaluation.

#### **3) Benefits and Costs**

This study will contribute important results to research in Software Engineering in general. You will not incur any expenses or costs for participating in the study. If necessary, you will receive any form of reimbursement or gratification due to your participation in the research.

#### **4) Research Confidentiality**

All information collected in this study is confidential, and your name will not be identified in any way except in cases of explicit authorization.

#### **5) Participation**

Your participation in this study is essential and voluntary. You have the right not to want to participate or to withdraw from this study at any time without any penalties. Please notify the responsible investigator if you decide to remove from the survey.

#### **6) Consent Statement**

I have read, or someone has read, the information in this document before signing this informed consent form. I declare that all technical language used in describing this research study has been satisfactorily explained, and I have received answers to all my questions. I also confirm receiving a copy of this Informed Consent Form. I understand that I am free to withdraw from the study at any time without any penalty. I am over 18 years old and consent freely and voluntarily to participate in this study.

For clarification or questions, please get in touch with the research investigators:

Researchers:

**Document 2:**

**CHARACTERIZATION FORM**

**Research Theme: The Use of Active Learning in  
Experimental Software Engineering Teaching**

Participant:	
--------------	--

Dear

The form below will be used to understand your familiarity with Experimental Software Engineering (ESE) content. The collected information will be treated confidentially. For all questions, mark the items below that best apply to your response.

**1. What is your Level of Education?**

- a) ☐ Undergraduate.
- b) ☐ Master's Student.
- c) ☐ Doctoral Student.

**2. What is your level of knowledge in Experimental Software Engineering?**

- a) ☐ None. I do not know Experimental Software Engineering.
- b) ☐ Low. I acquired some basic understanding of Experimental Software Engineering through classes or books.
- c) ☐ Medium. I have used Experimental Software Engineering concepts in research project(s).
- d) ☐ High. I have used Experimental Software Engineering concepts in 5 or more projects.

**3. What Experimental Software Engineering content have you already used in conducting studies?**

---

---

---

---

### Document 3:

#### Data Collection Form

To assess your experience and the degree of satisfaction with the applied approach, a questionnaire will be used with information organized into three categories of learning:

- 1) Perception about learning:** aims to establish the level of students' learning.
- 2) Perception about motivation:** the degree of motivation the pedagogical approach brought to students' learning.
- 3) Perception of the value of learning:** aims to evaluate the relevance of what was taught in the course.

#### Survey Questions

##### Perception about Learning

1) Do you feel capable of conducting research with ESE content with more skill than before taking the course?

☐ Completely Agree

☐ Strongly Agree

☐ Partially Agree

☐ Partially Disagree

☐ Strongly Disagree

☐ Completely Disagree

2) Please justify your response to question 1.

3) Please assign a score (0 to 5) to assess your knowledge regarding the topic 'Research Strategies (Methods) in SE (Field Study, Field Experiment, Experimental Simulations, Laboratory Experiments, Judgment Studies, Sampling Studies, Formal Theory, and Computer Simulations)' **before the course**.

4) Please assign a score (0 to 5) to assess your knowledge regarding the topic 'Research Strategies (Methods) in SE (Field Study, Field Experiment, Experimental Simulations, Laboratory Experiments, Judgment Studies, Sampling Studies, Formal Theory, and Computer Simulations)' **after the course**.

5) Please assign a score (0 to 5) to assess your knowledge regarding the topic 'Systematic Literature Review (SLR) and Literature Systematic Mapping (LSM)' before the course.

6) Please assign a score (0 to 5) to assess your knowledge regarding the topic 'Systematic Literature Review (SLR) and Literature Systematic Mapping (LSM)' after the course.

7) Please assign a score (0 to 5) to assess your knowledge regarding the topic 'Controlled Experiment' before the course.

8) Please assign a score (0 to 5) to assess your knowledge regarding the topic 'Controlled Experiment' after the course.

9) Please assign a score (0 to 5) to assess your knowledge regarding the topic 'Survey' before the course.

10) Please assign a score (0 to 5) to assess your knowledge regarding the topic 'Survey' after the course.

11) Please assign a score (0 to 5) to assess your knowledge regarding the topic 'Experimental Studies' before the course.

12) Please assign a score (0 to 5) to assess your knowledge regarding the topic 'Experimental Studies' after the course.

13) Do you have any comments about the scores?

14) Do you think the concept of Active Learning (reading the material before class and discussing the topics in groups in the classroom) helped or hindered your learning? Please tell us why.

15) Please share your thoughts on the course being offered jointly for undergraduates and postgraduates. Also, provide some comments on what you thought about the beehive discussions.

### **Perception of Motivation**

16) Check the topics that motivated you.

(    ) Strategies (methods) of research in SE (Field study, Field experiment, Experimental simulations, Laboratory experiments, Judgment studies, Sample studies, Formal theory, and Computer simulations).

(    ) Types of research (formal, experimental, and exploratory).

( ) Philosophical stances (positivism, constructivism, critical theory, and pragmatism).

( ) Selection of methods (controlled experiments, opinion surveys, action research, case studies, ethnographic, and mixed methods approaches).

( ) Systematic Literature Mapping (SLM) and Systematic Literature Review (SLR).

( ) Metrics in SE and GQM.

( ) Controlled Experiment: Experiment process, scope, and planning.

( ) Controlled Experiment: Operation Analysis and interpretation of results.

( ) Statistical analysis of experiments.

( ) Personal Opinion Surveys.

17) Please share what motivated or demotivated you the most during the course.

### **Perception of the value of learning**

18) The course contributed to my education.

( ) Completely Agree

( ) Strongly Agree

( ) Partially Agree

( ) Partially Disagree

( ) Strongly Disagree

( ) Completely Disagree

19) Please, tell us a bit about how the course contributed to your education.

20) Is there anything else you would like to tell us?