DEVELOPMENT OF VIRTUAL LABORATORY SIMULATION: E-SCILAB ON WAVES FOR GRADE 7 SCIENCE

Tongco, John C.¹
Salanawon, Pamela Joy E.¹
Silvederio, Wesley Clarke S.¹
Mercado, Justine C.²

Researchers
INTRODUCTION/BACKGROUND

The COVID-19 pandemic brought an accelerated change in the methods of delivery of the curriculum content. The study develops a Virtual Laboratory Simulation, an e-Scilab caters to the needs of the students without compromising the pedagogical content of the concepts. It will provide not only learning materials online but also help students to enjoy learning even in the virtual setting. Virtual Laboratory Simulations not just enhance the conceptual abstraction of the students but also their mathematical comprehension especially in physics subjects (Wästberg et al., 2019).

In line with this, the researchers developed a virtual laboratory simulation: an e-Scilab on Waves for Grade 7 Science. The developed virtual laboratory simulation was validated in terms of content, technical, and instructional qualities. The result and responses gathered after the validation of the experts were used by the researchers to improve the e-Scilab.
METHODS

This study aimed to develop virtual laboratory simulation (VLS) with a complementary manual for Grade 7 Physics. The study used Research and Development (R & D) approach with the ADD Model as the instructional methods. These allows the researchers to analyze the need of VLS, identify the design of the VLS, development of VLS, and evaluate the VLS based on the content quality, technical quality, and instructional quality.

The study was conducted in the five (5) high schools in Region XII. It utilized the following research instruments: DepEd K to 12 curriculum guide for science, Grade 7 science learning module, and evaluation tool for laboratory simulation. Lasly, to determine the validity of the activities/experiments in the research paper, it was validated and evaluated by five science teachers using the weighted mean. The researchers used the 5-point Likert scale below as an interpretation in the evaluation of its content, technical, and instructional quality.
RESULTS AND DISCUSSION

Results for the Developed e-SciLab Simulation
For the evaluation conducted, the results of the developed e-SciLab in terms of the content quality is 4.68, for technical quality is 4.65, and the instructional quality is 4.57. The results dictates that the evaluators strongly agree that the developed e-SciLab has a very high quality. The results of the assessment of the five (5) selected science experts dictates that the developed e-SciLab serves as a simulation that supplements learning in science. The developed e-SciLab provides a new avenue in learning science through a simulation.

Results of the Activity Manual
For the assessment conducted, the results of the activity manual in terms of the content quality is 4.62, for technical quality is 4.54, and the instructional quality is 4.55. The results dictates that the evaluators strongly agree that the activity manual has a very high quality. The results from the selected evaluators affirmed that the activity manual serves as an adequate material that supplements learning
CONCLUSION

Considering the data gathered and organized, the following are concluded:

- The developed virtual laboratory simulation met the expected standards and deemed as functional, interactive and aligned to the learning competencies in the curriculum guide for the grade 7 science of the Department of Education (DepEd).
- The virtual laboratory simulation together with the teacher’s and learner’s manual supplements learning by promoting interactive animations in the activities and coincides with the needs of the learners.
- The developed E-SciLab was considered by the evaluators to have met the intended standards and satisfied the quality components. The result of the assessment indicate that the developed simulation adheres to all the descriptors under the content quality, technical quality, and instructional quality.