

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

DEVELOPMENT OF MOBILE APPLICATION IN GENERAL BIOLOGY USING THE
DESIGN THINKING MODEL

A Dissertation Presented to the
Faculty of the Graduate School
College of Education
West Visayas State University
La Paz, Iloilo City

In Partial Fulfilment
of the Requirements for the Degree
Doctor of Philosophy in Science Education
(Biology)

by

Glenn J. Dador

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APPROVAL SHEET

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Abstract

Learners of the future will demand the appropriate learning support for their situation or context, nothing more, nothing less. They want it at the moment. Not sooner, not later. Mobile devices will be a crucial technology for providing that learning support. The study's main objective was to develop and evaluate an educational mobile application in General Biology 2 based on the learning gaps, specifications, preferences, needs, wants, and desires identified by learners and teachers and supported by local studies. Developmental research design following the Design Thinking Process was utilized in this study. Participants were twenty-five Grade 12 STEM learners and three STEM science teachers purposely chosen because of their direct involvement in the learning and teaching of General Biology 2, respectively, from two (2) public secondary schools in one of the municipalities in the Schools Division Iloilo. For triangulation, five (5) senior high school STEM alumni were also interviewed. Learning competencies in the 4th quarter were identified as the least mastered. A light-colored Ebook-like mobile application in General Biology 2 can be used anytime, anywhere is needed. Data were utilized to develop GES (Genetics, Evolution, and Systematics) Whiz mobile app (an offline mobile application for learning Genetic, Evolution, and Systematics using the software). Online classes were organized, with fifteen learners, a teacher implementer,

and five teacher observers to evaluate the app using tools duly validated by experts: GES Whiz Mobile Application Evaluation Form for Content and GES Whiz Mobile Application Evaluation Form for 21st Century Skills revealed that learners and teachers found the mobile app to be "Highly Acceptable" in terms of Content and 21st Century Skills. ISO/EIC 25010 Evaluation for GES Whiz Mobile App Tool adopted from ISO/EIC25010 Software Model Characteristics results showed that IT experts evaluated the mobile app "Very Good." Thematic analysis revealed that end-users found the mobile app accessible, simple, easy to use, and useful. Fosters critical thinking and independent learning, making learning enjoyable, fun-filled, and an exciting learning experience. The GES Whiz Mobile App was a success for it served its purpose of bridging the gaps in General Biology 2 and enhancing learners' 21st-century skills. This will be an excellent help for Biology teachers and Senior High School (SHS) learners alike because teaching and learning can now be done and occur anytime and anywhere. It will also be invaluable in assisting learners in improving technological skills, sharing knowledge, and developing learning capabilities even in this pandemic where face-to-face classes are not yet allowed and distance learning is the only option for education.

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