

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

KNOLLS: TRAINING BASED ON PRE-SERVICE SCIENCE TEACHERS' KNOWLEDGE OF
PRINCIPLES BEHIND LABORATORY INSTRUMENTS AND THEIR SELF-ASSESSED
IMPROVISATION SKILLS

A Thesis 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
Master of Arts in Education
(Biological Science)

by

Aira Mae C. de la Cruz

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APPROVAL SHEET

A Thesis for the Degree
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Aira Mae C. de la Cruz

Approved by the Research Committee:

CHRISTINE C. CORIENTO, MAEd, Chair

ROBERTO G. SAGGE JR., PhD Member

CRISANTO S. LOPEZ JR., PhD, External Expert

JEANNEMAR GENEVIVE YAP-FIGUERAS, PhD, Adviser

LOREY F. TANALEON, PhD, FHEA
Dean

April 2024

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Abstract

This research aimed to design and conduct a training program on laboratory instrumentation and improvisation based on pre-service science teachers' knowledge of principles behind laboratory instruments and their self-assessed improvisation skills. This study used descriptive-evaluative research design. The research participants were fourth-year Bachelor of Secondary Education Major in Science (4-C) students enrolled at West Visayas State University College of Education during the Academic Year 2023-2024. The data needed in the study were obtained in three phases. The first phase determined the knowledge of pre-service science teachers of the principles behind laboratory instruments and their self-assessed improvisation skills. Researcher-made instruments namely: Principles Behind Laboratory Instruments Knowledge Analysis Test and Improvisation Skills Self-Assessment Form were used respectively, and were administered to thirty-five (35) pre-service science teachers. The Principles Behind Laboratory Instruments Knowledge Analysis Test was pilot-tested to twenty-five (25) Bachelor of Secondary Education Major in Science students enrolled at Iloilo Science and Technology University College of Education during the Academic Year 2022-2023 before it was used in the actual study, and yielded a reliability of 0.76 using KR20 as

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the statistical tool. The second phase included the design of the training based on the result of the assessment in the first phase. The last phase was the implementation and evaluation of the training, where sixteen (16) pre-service science teachers participated. Mean and standard deviation were used for the data analysis. The results revealed that pre-service science teachers have moderate knowledge of principles behind laboratory instruments, and good improvisation skills according to their self-assessment. KNOLLS, the training program that was designed and conducted, was evaluated as excellent in all criteria overall. The findings of the study can enlighten pre-service science teachers through their awareness of the importance of laboratory improvisation and training programs related to it. By equipping them with teaching strategies, fostering collaboration among professionals in the field of education, as well as addressing specific areas of need, these opportunities will continually improve their knowledge, skills, and practice.

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