

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

LANGUAGE TEACHING STRATEGY AND GRADE 12 LEARNERS' METACOGNITIVE
AND PROBLEM SOLVING SKILLS IN GENERAL PHYSICS 1

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
(Physics)

by

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Abstract

This quasi-experimental study was conducted to improve the metacognitive and problem solving skills of Grade 12 STEM learners in General Physics 1 by means of Language Teaching Strategy such as Building of Taxonomies, Composing of Keywords and Metacognition for Responses, Stating of Knowledge and for Stating Knowing How during the 1st semester of the School Year 2020–2021. This study utilized 60 Grade 12 STEM learners of Capiz National High School who opted for online learning modality, 30 learners were assigned to the Language Teaching Strategy (experimental group) and the other 30 to the Non-Language Teaching Strategy (control group). The learners were matched paired according to their first quarter grade in General Physics 1, sex, and pretest scores. To gather the data needed, a researcher-made instrument consisted of 10-item problem solving on different topics in General Physics 1 which include universal law of gravitation, gravitational potential energy, periodic and simple harmonic motion, mechanical waves, density, pressure, Pascal's principle, Bernoulli's principle and temperature and the adapted and revised metacognitive questionnaire were used to determine the metacognitive and problem-solving skills of the participants before and after the intervention. The results revealed that the levels of metacognitive

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and problem solving skills of STEM learners are poor and novice prior to the implementation. The learners don't have a favorable knowledge in terms of the subject which is a good foundation for better problem solving. After exposure to Language Teaching Strategy and Non-Language Teaching Strategy, learners' problem solving and metacognitive skills level became skillful and very satisfactory in both groups. Learners really need to acquire different kinds of skills and strategies to help them solve the problems successfully. Learners must be equipped too with relevant knowledge skills and strategies to perform well. The learners under Language Teaching Strategy obtained higher posttest scores in both metacognitive and problem solving skills compared with the learners under Non-Language Teaching Strategy. Teaching strategy is associated with the students' problem solving and metacognitive performance. Mean gain scores of the learners' metacognitive and problem-solving skills using Language Teaching Strategy is significantly higher compared with those using Non-Language Teaching Strategy. Cohen's D results of 0.55 and 0.82, respectively revealed that the strategy had a medium and large effects to the learners. There is a correlation between metacognitive awareness and learners' performance in Physics. The higher the metacognitive skills, the higher the problem solving skills of the learners. This implies that language teaching strategy is deemed to be effective. Moreover, learners are always present and active in the Google classroom schedule though they are not comfortable in an online learning modality. They find activity sheets using Language Teaching Strategy helpful. They find building of taxonomy helpful in understanding the

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topic. In general, learners found the modules and activities helpful in dealing the problem solving in General Physics 1.

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