



GIREP-EPEC

Transforming physics learning via Research & Practice
LEIDEN, 2025

Contribution ID: 279

Type: **Oral presentation**

A Structural Model of Grit, Expectancy-Value and 21st Century Skills on the Physics Achievement of STEM College Freshmen Students and Its Implications on Tertiary STEM Education

Wednesday 2 July 2025 09:20 (20 minutes)

Recent results of the Basic Education Exit Assessment (DepED, 2019; Manila Times, 2020), a national achievement test that was administered to all Grade 12 students, showed that students had a low mean percentage score (MPS) of 41.6% in Language, 32.1% in Science, and 27.9% in Mathematics. Furthermore, 21st century skills were below proficiency. Specifically, the MPS in problem-solving was 38.1%, 35.9% in information literacy, and 34.9% in critical thinking. The low proficiency in STEM and 21st century skills ran counter to the broader agenda of the country, which was to accelerate human capital development in STEM fields to sustain inclusive economic growth. Similarly, Almerino et al. (2020) evaluated the performance of K-12 students using a standardized test known as the Scholastic Abilities Test for Adults (SATA). Results showed concerns regarding the mismatch between coursework offered in Philippine K to 12 educational institutions with industry demands. Their study showed that many students may still need to prepare for higher education and obtain jobs despite the K to 12 curriculum reforms.

Education level

Age over 18 (excluding teacher education)

Physics topic

Full curriculum

Research focus

Students' identity, inclusion and wellbeing

Research method

Mixed method (qualitative & quantitative)

Organizing preference criteria

Education level

Author: BELLO, Alwielland (Bukidnon State University)

Co-author: Dr MONTEROLA, Sheryl Lyn (University of the Philippines Diliman)

Presenter: BELLO, Alwielland (Bukidnon State University)

Session Classification: Parallel oral presentations

Track Classification: Educational research methodology (METHOD)