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DEVELOPMENT AND EVALUATION OF AN INTERACTIVE LEARNING MATERIAL (ILM) ON CONIC SECTIONS

Paula Anne B. Alcantara¹, Lynie B. Dimasuay²

^{1,2}University of the Philippines Los Baños

pbalcantara1@up.edu.ph, lyniedimasuay@gmail.com

The nature of geometry requires figures and visualizations in mathematical space, but limited resources inside the classroom make it a challenge for teachers to illustrate this. One topic in geometry that requires illustration is the conic sections; where they come from and their properties. In this paper, an Interactive Learning Material (ILM) on the conic sections based on the Pre-Calculus subject offered in Grade 11 of the STEM track is developed using Microsoft PowerPoint and is evaluated by mathematics teachers from the University of the Philippines Los Baños and various high schools. The ILM makes use of PowerPoint's animation to create graphics of the conic sections in space and identifying their properties, but allows users to control the sections to view and the pacing of the ILM with the use of trigger buttons. An evaluation tool, containing a Likert scale and three (3) open-ended questions was created for evaluators to answer. The Likert scale contained a total of 28 items divided into 4 categories: *Design & Usability*, *Instructional Methods*, *Content & Effectiveness for Learning*, and *Assessment*. A total of 22 mathematics teachers evaluated the ILM over the course of a month, and their responses were recorded and analyzed. The evaluation's Cronbach's alpha (α) was 0.94, which indicates that the tool used is sufficiently internally reliable. Their responses in the Likert scale indicate moderate to strong agreement that the ILM was effective in all four categories, with a composite mean of 3.45, 3.54, 3.59, and 3.46 for each respectively. Answers to the open-ended questions cited visual quality, graphics, and animation among the strengths of the ILM. Overall, the ILM is an effective tool for teaching conic sections. It can be used both by teachers inside the classroom, and by learners to use on their own as supplementary material.

Room 4

GETTING INTO LEARNERS' PACE: 100 TEACHER-MADE BROCHURES IN GEN-MATH AND STAT

Elymar A. Pascual, Ed.D.

Talangan Integrated National High School, Nagcarlan, Laguna

elymarpascual@rocketmail.com

ABSTRACT. This study focused on determining the effectiveness of the use of teacher-made brochures in Gen-Math and Stat-and-Prob subjects of Grade 11 learners in Talangan Integrated National High School, Nagcarlan, Laguna, s.y. 2018-2019. The researcher developed 100 teacher-made brochures and used them in classes.

The experimental method of research was followed. The ABM-GAS section composed of 26 learners was divided into three groups (A, B, C). For three weeks, all the groups had their turn to be the controlled (no brochures were given), experimental 1 (brochures were given on the day of discussion), and experimental 2 (brochure were given a week before the discussion). Each week has three lessons with a 10-item quiz provided at the end of each session. Explanatory sequential mixed method was applied, i.e., after the gathering, encoding, statistical treatment, and analysis, a survey on the benefit of using brochures was conducted.

It was found out that using brochure, the controlled had a mean level of 6.22, experimental 1 gained 7.01, while experimental 2 obtained 8.13. The difference was found to be significant using ANOVA, proven by p-value 0.000 (alpha 0.05). Providing brochures to learners beforehand results into significantly high scores in quizzes. From the survey, the benefits for learners are: (1) facility in taking down lecture notes (2) preparation for classroom discussion, (3) easy comprehension of the lesson, (4) motivation for learning, (5) material for enhancement of skill, (6) serves as review material, and (7) increased academic performance. For Math teachers, the following were highlighted: (1) facility on teaching, (2) lecture adaptation to interest and capability of learners, (3) reduction of stress, (4) teacher fulfillment, and (5) contingency material for teacher's unavailability. Recommendations to math teachers, coordinators, school heads, education program specialists, and future researchers were given at the end of the study.