

Mathematics Modules in Siquijor

The pandemic gripped the world for two years, endangering education for a vast amount of students when face-to-face classes were halted. Since the education sector was highly affected, it underwent some of the most change we witnessed from 2020 onward. Society will always need education no matter the calamity; education provides the tool set we need for an ever-changing world. Secretary Briones of the Department of Education called for distance learning with a blended approach, much to the approval from multiple senators. What arose was “modular learning”, printed materials distributed to households from teachers or governmental officials when students did not have access to the Internet for online classes. Many neglected, poverty-stricken, and vulnerable students in the Philippines were at risk for being left behind due to the impossibility of Internet subscription costs; however, modular learning became the answer. As a whole, the information communication technology infrastructure is still struggling to keep up with more developed nations despite its continuous growth. Connectivity has low speeds or shortages of bandwidth, and software and technology can be quite expensive. Throughout the Philippines, families that could afford the demands of going online struggled to retain a consistent connection. Teachers came up with modules around the nation that were self-contained and self-instructional to address each student’s needs, including their pacing and academic levels.

FU graduate student Jennyvie A. Van Rozelaar assembled a mathematics module for Grade 7 students at Banban National High School in Siquijor due to the fact that it’s the most difficult subject for students to grasp. Its curriculum revolves around sets, addition/subtraction/multiplication/division of integers, forms of rational numbers, arranging real numbers in increasing and decreasing order on a number line, and the representation of real life situations. It was Rosezlaar’s mission to develop and deliver resources to provide direct support for the students as well as to determine their effect on their academic performance. Her module drew on engaging prior knowledge to connect with new information and avoided anything non-essential. Needless to say, her diagrams were useful for students to grasp new material, plus the activities had clear instructions and they did not take up too much time. One of the goals of the module was to have students come up with alternative ways of solving problems and establish similarities to improve their performance.

Rozelaar presented her module to an advisor for feedback and upon revision, it was cleared by three experts using criteria in the evaluation of instructional materials, adapted from *The Effects of Self-Made Workbook in Differential Calculus in the Performance of the Students* (Dolino, 2014). At FU, she distributed her module to 15 students that were enrolled in Algebra. Exams were given to identify the index of discrimination and an index of difficulty; any defective area of the module was either removed or fixed. Students' scores ranged from satisfactory to outstanding on the pretest except for comprehension of real life situation problems, which did not meet expectations. This was before receiving any modular material. After studying Rozelaar's module for mathematics, their posttest scores jumped to outstanding for most of the mathematical areas. Students received satisfactory grades for understanding real world situations too. While it may seem that Rozelaar's self-made module is effective in improving students' academic performance, we must consider that students could have asked for help from family members, browsed the Internet for more examples, etc. Either way, there is a significant relationship between performance of the evaluations, and multiple studies have also concluded that modules promote better math comprehension. What we can glean from Rozelaar's research is the importance of instructional materials when it comes to comprehending difficult math subjects. The better the modular package, the better a student performs. Teachers can take to heart just how much their lesson planning matters, whether it's in the classroom, online, or in an educational, modular package.