

# Competency Acquisition, Difficulty And Performance Of First Year College Students In Mathematics In The Modern World (MITMW)

Adriel G. Roman, Rogacion U. Villanueva

**Abstract**— Mathematics in the Modern World (MITMW) is one of the general education subjects taught in the new college curriculum in the Philippines. In this study, the self-assessment of students on their acquisition of the competencies set in the MITMW are being described as well as the extent of difficulties and performance. Using descriptive correlational research design, this study hypothesized that the perceived extent of acquisition of the first year college students on the competencies intended for Mathematics in the Modern World and their extent of difficulties experienced provide significant relationship to their performance. Two hundred seventy-one (271) first year college students were surveyed using validated questionnaires. Results revealed that the first year college students have higher extent of acquisitions on the competencies set in the MITMW (knowledge, values, and skills). Students experienced slight difficulties on the different topics of MITMW with satisfactory performances in the subject. Finally, the study concluded that acquired competencies and difficulties are both significantly related to students' performance in MITMW.

**Index Terms**— Acquisition, Competency, Difficulty, Mathematics Education, Performance, Modern, World.

## 1 INTRODUCTION

The Mathematics in the Modern World (MITMW) is a 3-unit subject which is part of the 36 general education units started in 2018 and implemented in all general education curriculum (GEC). MITMW involves the nature of explorative mathematics of patterns and as an application of inductive and deductive reasoning. Accordingly, MITMW is anticipated to become an instrument for dealing and understanding the complexity of present day living as to personal financial management, making social options, appreciation designs related to geometry, comprehending codes, and fairly allocating limited resources [1]. MITMW replaced the old general education mathematics subjects which had been used in the Philippines since 1996. Due to the effects of Senior High School as mandated by the RA 10533 (K-12 Law), all general education subjects were moved in the Senior High School and replaced by new set of general education subjects. The impact of this transition from the old curriculum to a more sophisticated curriculum is felt in the higher education especially teachers who have been teaching general mathematics subjects in the past years. The shifting from teaching traditional Algebra, Geometry, Trigonometry, Statistics to Problem Solving, Data Management, and Voting and Apportionment, provides new challenges to teachers. Several studies proved that teaching mathematics has a lot of challenges. According to Herheim and Kacerja [2], when doing mathematics in school, students often ask "why do I have to learn this?" or "when will I use this?". Often, answer to this problem is that "by the time that the examination period comes up" or "you are going to use that in your next mathematics school year" but according to Onion [3], answers do not address the core questions. When students ask questions similar to the abovementioned they are longing for the application of mathematics theories to the real world. In this kind of scenario, teachers are being challenged.

### 1.1 Objectives of the Study

This study was conducted with the aim of determining the extent of acquisition of expected competencies among students, the degree of difficulty/easiness they experienced after studying MITMW and its relationship to their performance. Likewise, this study solicited feedbacks from the students for the improvement of teaching MITMW. To attain this objective, the following questions were raised:

1. What is the perceived extent of acquisition of the first year college students on the competencies intended for Mathematics in the Modern World?
2. What is the extent of difficulty experienced by the first year college students in Mathematics in the Modern World?
3. What is the performance of first year college students in Mathematics in the Modern World?
4. Is there a significant relationship between the perceived extent of acquisition of the first year college students on the competencies intended for Mathematics in the Modern World and their performance?
5. Is there a significant relationship between the extent of difficulty experienced by the first year college students and their performance in Mathematics in the Modern World?
6. What are the suggestions of the first year college students to improve the teaching of Mathematics in the Modern World?

### 1.2 Hypothesis

It is hypothesized in this study that the perceived extent of acquisition of the first year college students on the competencies intended for Mathematics in the Modern World and their extent of difficulties experienced provide significant relationship to their performance.

## 2 METHODOLOGY

Respondents of the study were 271 first year college students (Agriculture, Agricultural Technology, Accountancy, Tourism, Criminology and Hotel and Management) during the first semester of the school year 2019 from One State University in the Philippines. With the informed consent of the respondents, their grades in the subject Mathematics in the Modern World

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# Competency In College Mathematics

**Ivan D. Stones**



## **Competency In College Mathematics:**

*Competency in College Mathematics* Jack C. Gill, Robert Blitzer, 1992     *A Study of Attitudes Toward Mathematics, Level of Mathematical Competency, and Relative Gains in Competency of College Students Enrolled in Selected Mathematics Courses* Ivan D. Stones, 1977

**Statement on Competencies in Mathematics Expected of Entering Freshmen** ,1989

**Statement on Competencies in Mathematics Expected of Entering College Students. April 2010. Revised May 2013** Academic Senate for California Community Colleges, 2013 The goal of this Statement on Competencies in Mathematics Expected of Entering College Students is to provide a clear and coherent message about the mathematics that students need to know and to be able to do to be successful in college While parts of this Statement were written with certain audiences in mind the document as a whole should be useful for anyone who is concerned about the preparation of California's students for college This represents an effort to be realistic about the skills approaches experiences and subject matter that make up an appropriate mathematical background for entering college students The first section describes some characteristics that identify the student who is properly prepared for college courses that are quantitative in their approach The second section describes the subject matter that is an essential part of the background for all entering college students as well as describing what is the essential background for students intending quantitative majors Among the descriptions of subject matter there are sample problems These are intended to clarify the descriptions of subject matter and to be representative of the appropriate level of understanding The sample problems do not cover all of the mathematical topics identified Appended are 1 Some Mathematical Skills Necessary for College Work and 2 Summaries of Subject Matter Topics with Related California and NCTM Standards

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