

## GAMIFIED EVALUATION FOR MATHEMATICS 10 IN ENHANCING THE MASTERY OF SELECTED COMPETENCIES

R-Ley John M. Gacis, [rleyjohn.gacis5300@deped.gov.ph](mailto:rleyjohn.gacis5300@deped.gov.ph)

Schools Division Office of Puerto Princesa City, Region IV-B MIMAROPA

### INTRODUCTION

Educators are required to refine their teaching methods to help the learners understand the lessons clearly, especially in Mathematics. Mathematics is perceived as a subject where learners are not very much eager or motivated to learn. Because of this, the researcher has come up with the idea of gamifying the classroom activities to evaluate their learnings and for better retention.

According to Merriam Webster, gamification is the process of adding games or games like elements to something (such as a task) to encourage participation. Tanaka (2018) said, "If you want an effective intervention, you'd better gamify it; you'd better make it fun for kids. "Also, gamifying classroom activities will encourage students to be more active and participative, thereby improving their learnings and achievements.

This study sought to create an instructional design that is game-based to improve the achievement of Grade 10 students in Mathematics. Specifically, it sought to answer the following questions:

1. What describes the Teacher-Made Diagnostic Test in terms of (a) learning competencies, and (b) item placements?
2. Based on the Teacher-Made Diagnostic Test, which of the competencies did the students perform poorly?
3. What describes the result of the Achievement Test in Mathematics 10 based on the 5 least mastered learning competencies on which the gamified evaluations have been used?

4. Is there a significant difference between the result of the diagnostic test and Achievement test in Mathematics 10?

In this study, the researcher used the following gamified evaluations:

- "1 for All, All for 1" - a gamified evaluation that will show the individual's ability to answer the question that would affect the group's performance.
- "You Bet!" - a gamified evaluation that uses "point cards". This is a betting game, so the more point cards collected, the more chances to win the game.
- "Answer's Relay" is an outdoor gamified evaluation that is almost similar to the game "Message Relay".
- "Call Your Answer!" is an outdoor gamified evaluation that integrates technology by using a cellphone to answer a question.
- "Around the Qs" is an outdoor gamified evaluation that is almost similar to the game "Moving Examination".

Further, this study used a descriptive analysis in understanding the results of the diagnostic and achievement tests of 83 Grade 10 students of *Marcelino A. Javarez National High School* in School Year 2019-2020. The researcher personally administered the diagnostic test with the respondents. The diagnostic test result identified five (5) least mastered learning competencies wherein the gamified evaluation was used. At the end of the first quarter, the researcher personally administered the achievement test to the

respondents. Then, the researcher gathered the data and subjected it to statistical treatment where the results were tabulated and interpreted. As part of the special ethical considerations, the researcher submitted a request letter to the Office of the Schools Division Superintendent asking permission to conduct the study noted by the School Principal of Marcelino A. Javarez National High School.

## DISCUSSION OF RESULTS

The Teacher-Made Diagnostic Test has 51 multiple-choice questions having 3 questions per learning competencies. This is used to identify the least mastered learning competencies in Mathematics 10 for First Quarter.

Below is the table that shows the 5 least mastered learning competencies, the average weighted mean of diagnostic test and achievement test results and the gamified evaluation activities used by the researcher in each competency:

LEAST MASTERED LEARNING COMPETENCIES (LMLC)	Diagnostic Test Result (Average Weighted Mean)	Gamified Evaluation Used	Achievement Test Result (Average Weighted Mean)
The learner illustrates an arithmetic sequence. M10AL-Ib-1	0.5904	1 for ALL, ALL for 1	2.2771
The learner performs division of polynomials using long division and synthetic division. M10AL-Ig-1	0.9277	You Bet!	1.9277
The learner proves the Remainder Theorem and the Factor Theorem. M10AL-Ig-2	0.5181	Answer's Relay	1.9398
The learner solves polynomial equations. M10AL-Ia-1	0.855	Call Your Answer	1.0241
The learner solves problems involving polynomials and polynomial equations. M10AL-Ia-2	0.867	Around the Qs	1

The results revealed that after applying the gamified activities, the performance of the learners was improved based on the difference of the average weighted means of the results of their diagnostic test and achievement test.

Dependent Samples	Mean	z-value	Critical value	Decision	Remarks
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Diagnostic Test	3.75	-11.759	1.645	Reject Ho	Significant
Achievement Test	3.71				

The computed z-value is less than the critical value. This means there is a significant difference between the diagnostic test and achievement test.

## CONCLUSION AND RECOMMENDATION

Based on the findings, the mastery of the learners was enhanced. There is a significant difference between the diagnostic test and achievement test. This implies that a gamified evaluation is effective to enhance the mastery of the students in selected learning competencies in Mathematics 10 for the first quarter. A possible reason for the improvement of their scores is because the students working together, helping one another, are motivated to learn because they want to win.

The gamified evaluation activities may be used not only in Mathematics but also in other subjects. The teachers shall make more gamified evaluation activities that may be used in different learning competencies within or across the curriculum teaching areas. After the study has been approved by the research panel, the G.A.M.E. (Gamified Activities Mechanics for Evaluation) booklet may be shared with the other teachers through School Learning Action Cell, In-Service Trainings, Focused-Group Discussions and Trainings and Seminars, or through online by sending a pdf copy. Also, future researchers may use this study to help their related research improve.

## REFERENCES

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*This Research Bulletin is an abridged version of the full manuscript of Mr. Gacis and supplements his research presentation during the Research O'clock last August 08, 2023, under the topic, "Count and Compute: Enabling Learners' Competence in Numeracy". To request a copy of their manuscript, send an email to [ps.prd@deped.gov.ph](mailto:ps.prd@deped.gov.ph).*