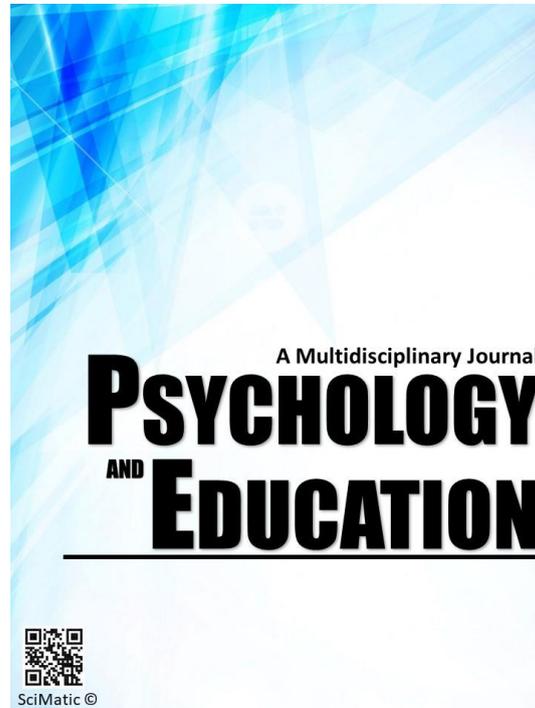


**QUIPPER-BASED ACTIVITIES IN DEALING WITH
LEAST MASTERED SKILLS IN MATHEMATICS 10
AT LAGUNDI-CCL NATIONAL HIGH SCHOOL**



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Quipper-Based Activities in Dealing with Least Mastered Skills in Mathematics 10 at Lagundi-CCL National High School

Ma. Maureen A. Calindog*

[For affiliations and correspondence, see the last page.](#)

Abstract

Education, as one of the basic rights of every person, plays an important role in the development of an individual's life towards a better future through the gained knowledge and skills needed in this fast-growing world. It is a significant asset that people strive to acquire in the civilized society in which we live; thus, it must be offered to everyone despite any situation. Furthermore, this action research aimed to know the effects of quipper-based activities in dealing with the least mastered skills in Mathematics 10. Based on the findings of the study, the least mastered skills in Mathematics 10 included Problem-Solving involving Polynomials and Polynomial Equations, Factoring Polynomials, and Polynomial Equations. It can also be concluded that the students' performance significantly increase after being exposed to the intervention activities. Thus, it has effects on the level of performance of the students in enhancing the expected learning competencies.

Keywords: *quipper-based activities, mastered skills, 21st century skills, mathematics*

Introduction

Education, as one of the basic rights of every person, plays an important role in the development of an individual's life towards a better future through the gained knowledge and skills needed in this fast-growing world. It is a significant asset that people strive to acquire in the civilized society in which we live; thus, it must be offered to everyone despite any situation.

Globalization is inevitable. Trends in technology are within reach at the tip of the fingers. Every individual can play almost any game online, search and learn online, chat online, and make and close deals online, anytime and anywhere. Not only that, this is all possible and available in one of the smallest communication gadgets, cellphone. Moreover, one does not need to own one, since everyone may access the internet especially in this era.

In our country, the educational landscape is continuously adapting and responding in the various alterations in the system specifically in the delivery of learning to ensure that education serves its purposes, including the acquisition of knowledge as well as the investigation of human empowerment and growth for one's own future well-being, whether socially or economically.

The K-12 Curriculum envisions "holistically developed learners with 21st-century skills" (DepEd Primer, 2011). At the core of this basic education program is "the complete human development of every

graduate" (DepEd discussion paper, p.6). This further means that every student would have an understanding of the world around him and a passion for life-long learning while addressing every student's basic learning needs: "learning to learn, the acquisition of numeracy, literacy, and scientific and technological knowledge as applied to daily life". Thus, engaging every learner to the true essence of education could turn them into globally competitive and equipped citizens.

Learning concepts in mathematics requires effort through problem-solving and investigative skills to unlock difficulties in learning mathematical concepts and ideas. In simple words, it is a hands-on, minds-on method. Meaning, it is significant to show the interconnectedness of the lessons to their everyday concerns and especially with their daily lives. Emphasis should be laid on development of clear concept in mathematics in a child, right from the primary classes. If a teacher fails here, then the child will develop a phobia for the subject as he moves on to the higher classes.

Mathematical competence opens doors to productive futures. A lack of mathematical competence closes those doors. Students have different abilities, needs, and interests. Yet everyone needs to be able to use mathematics in his or her personal life, in the workplace, and in further study. All students deserve an opportunity to understand the power and beauty of mathematics. Students need to learn a new set of mathematics basics that enable them to compute fluently and to solve problems creatively and resourcefully.



One of the ways to enhance and improve the performance of the learners with difficulties in learning the concepts and to get a passing rate is to provide them learning resources that will cater their different needs. Through this scenario, it only means that there is a need in developing and creating module for the diverse learners. Another consideration is the content itself. Although there are existing materials such as modules and learning materials, the contents are not sufficient enough to be understood by the learners.

Quipper provides a user-friendly online learning management system with engaging content aligned with approved curriculums for K-12. With competent and personalized support for your needs, you can focus on achieving the best learning experience for every type of learner, whether face-to-face or blended.

More significantly, the advantages of quipper school keep interaction between teacher and student in and out of the classroom, students still get lesson or review the material even though the teacher is not present in the classroom, and enhances students' learning experiences using new learning system.

With this, Mathematics, regarded as one of the most difficult subjects, faces challenging changes in the teaching-learning process. This is evident as reflected by the results in the national tests and local school examinations. With the outcome of the recently administered quarterly exams in Lagundi-CCL NHS, it came out that Mathematics 10 needs to run extra mile. It is the grade 10 teachers' desire not to let go of the grade 10 students without them ready for a more far, more demanding Senior High School.

To meet this obligation, a remediation program was waded to cater the mathematically challenged students, for more tangible and genuine instruction using the quipper application. The researcher utilized the learning management system to provide interventions to the identified learners.

Research Questions

This action research aimed to know the effects of quipper-based activities in dealing with least mastered skills in Mathematics 10 at Lagundi-CCL National High School during the first quarter examination.

Specifically, it sought answers to the following research questions.

1. What is the level of performance of Grade 10 Learners before and after exposure to the quipper-based activities in Mathematics with respect to the

least mastered lessons?

2. Is there a significant difference in the performance of grade 10 learners before and after being exposed to the quipper-based activities in Mathematics?

Literature Review

According to Luistro, DepEd Secretary (DepEd Order 31, s. 2012) the learning/teaching resources that are modules shall be provided as the basic learning resources of the K to 12 Curriculum. These are self-instructional materials that lead themselves to independent and cooperative learning. For schools with connectivity, web-based resources and video materials are encouraged to be used where appropriate. Resources for teachers include teaching guides, prototype lesson plans and lesson exemplars, matrix of existing books, workbooks and modules.

One of the perused references was the book of Salandanan (2013) entitled "Teaching and Teacher" which explained that learning environment sets the mood for smooth, fruitful and enjoyable teaching-learning activity. The prevailing atmosphere provides the initial invitation for the class to actively get involved in upcoming events. To be able to set one that could pave the way towards a productive implementation of a well-planned lesson, appropriate learning resources, and computer aided materials will be needed. She further explained that instructional materials produced using ICT can expect the students to accomplish the learning activities interactively.

Information technology has become common place in the classroom, helping to elevate and replace outdated pedagogical techniques and offering teachers the ability to design curriculum in advance with regards to differentiation. Even with regards to the amount and use of specific technology in the classroom, and even though some technology may not have originally been designed to align with educational goals, many teachers still find ways to integrate technology into the classroom (Zimlich, 2015).

There are many reasons why students may feel more motivated when technology is in the classroom. Li (2016) performed a study amongst elementary school classrooms. In this study, 31 teachers were followed over the course of eight weeks. At the end of the study, the teachers were asked the question "why did you choose to use technology in your lesson?" "There were several different responses ranging from 14.8% stating that it met the individual needs of the learners (differentiation and inclusion), to 17% stating it helped



with behavior management and routines. The largest set of respondents (31.1%) stated that it helped with student engagement and motivation, and helped the teachers to make more literature-based connections that were more entertaining and interesting to students.

Computer assisted module used as instructional materials are very effective in teaching and learning process since the language and style are suited to the ability of students; language and structure avoids misinterpretations and free of grammatical error; and there is enough vocabulary to ensure ease of learning. Likewise, Rio (2014) who found out that the developed training module is very much accepted primarily because the material is comprehensible, then the material is intelligible and lastly it has coherent and simple directions. The different indicators gained weighted means within the bracket of 4.69 – 4.79 which have a literal equivalence of very much accepted.

Methodology

The study utilized the experimental research designs utilizing pre-test and post-test. Keegan (2013) explained that experimental method of research is a controlled procedure that sees the manipulation of an independent variable to observe and measure any effect this has on a dependent variable. The essential features of the experimental method are then the control, observation and measurement of variables. The experimental method also makes us more confident about the generalization of its results to a wider population. The experimental method's emphasis on strict procedures helps others replicate the experiment to confirm, or otherwise, the original research findings. The experimental method sets out to test a null hypothesis, which if rejected allows the researcher to accept the experimental, or research, hypothesis. Experimental method was used to identify the significant difference between the level of performance of the students-respondents as revealed in their pre-test and post-test results.

Participants

Twelve (12) Grade 10 students were the participants of the study. They were chosen based on the result of their examinations. The student-participants were given of pre-test to measure their level of performance before exposing to the quipper-based intervention. Post-test was given after a week of remediation period.

Instruments of the Study

The researcher-made tests (pretest and posttest) were utilized to determine the level of performance of the students in Mathematics 10 with respect to the different topics. To determine the scope of the test to be constructed, the researcher created a table of specifications (TOS) based on the learning competencies stated in the curriculum guide for K to 12 Basic Education Curriculum in Mathematics for Grade 10.

Procedure

The researcher opted to determine the effects of quipper-based interventions in dealing with the least mastered skills in Mathematics 10. Parallel tests in the form of pre-test and post-test were developed as the main research instrument. Participants as well as their parents were informed that they would be subjected to remediation for a week. Letter of consent was secured. To measure the level of performance of the students, pre-test was administered. Data were tabulated and analyzed. After which, students were engaged in remediation activities utilizing the quipper application for a week. Their performance was monitored and recorded. Post-test was given to measure their level of performance after being exposed to the said intervention activities. Data were tabulated, interpreted and analyzed.

Results

This section presents the findings according to the study's research questions. To determine the effects of quipper-based intervention activities, the researcher used mean and standard deviation to analyze the level of performance of the students as revealed in their pre-test and post-test results, and t-test to determine the significant difference on their level of performance.

Table 1. *Level of Performance of Grade 10 Students as Revealed in their Pre-test and Post-test Results*

Topics	Pretest			Posttest		
	Mean	SD.	VI	Mean	SD.	VI
Problem Solving involving Polynomials and Polynomial Equations	2.97	1.19	S	4.57	0.75	O
Factoring Polynomials	2.23	1.21	S	4.53	0.65	O
Polynomial Equations	1.87	1.73	FS	3.13	1.23	VS
Average	2.36	1.37	FS	4.07	0.88	O

It can be seen on the table that the gathered data revealed a good result. There was a significant increase in the scores of the students. With an average of 2.36 in the pretest, there was a difference of 1.71



resulting to an increase to 4.07. At the same time, it can be noted that the standard deviation dictates a good contrast between the pre-test, with 1.37, and post-test, with 0.88. This only means the material played a significant effect on the level of performance of students.

Table 2. Significant Difference on the Level of Performance of Grade 10 Students

	Mean	sd	Mean Difference	df	t-value	t-critical value	p-value	Ho	VI
Pre-test	2.36	1.37							
Post-test	4.07	0.88	1.66	11	1.97	2.20	0.07	FR	NS

As shown in the table, on the significant difference on the performance in the select topics in Mathematics, the differences of the mean scores obtained significant values of .007. Since the computed p-value exceeds the 0.05 level of significance, the null hypotheses states that there is no significant difference on the performance of the learners before and after exposure to the quipper-based intervention. In short, the results of significant value favors on the null hypotheses or it is accepted.

Discussion

The results before exposure to the quipper-based intervention activities are mostly in the same interpretation which is Satisfactory with one lesson resulted in Fairly Satisfactory. It means that the prior knowledge of the learners or participants are not that enough to get higher scores in answering test without further learning from the said lessons. But after the exposure to the quipper-based-intervention, the results show the increase on their mean scores and higher interpretation. The results may imply that the intervention activities can enhance and improve the level of performance of the learners.

Also, it implies that the intervention helps learners further understand the lessons that are included in the activity in the form of motivational activities, groupactivities and individualized activities since the mean

score of the respondents increase significantly over their mean score. This further proves that the quipper-based intervention activities became successful in improving the knowledge of learners in Mathematics 10.

Conclusion

The least mastered skills in Mathematics 10 included Problem-Solving involving Polynomials and Polynomial Equations, Factoring Polynomials, and Polynomial Equations. It can also be concluded that the student-participants’ performance significantly increase after being exposed to the intervention activities. Thus, it has effects in the level of performance of the students in enhancing the expected learning competencies.

References

Barasi, Gina, M., “Effectiveness of Video Clips Presentation on the Performance inScience and Health of Grade Four Pupils”. Unpublished Master’s Thesis, Tomas Claudio Colleges, Morong, Rizal. 2015.

Importance of Learning Materials. (2016, June 15). Ministry of Education, Guyana.

Li, Y. W. (2016). Transforming Conventional Teaching Classroom to Learner-Centred Teaching Classroom Using Multimedia-Mediated Learning Module. *International Journal of Information and Education Technology*, 6(2), 105–112.

Salandanan, G. G. (2013). *Teaching and Teacher*. Quezon City: Lorimar Publishing Inc.

Valisno, Mona D., *Guideines on the Implementation of the DepEd Computerization Program (DCP)*, DepEd OrderNo. 78, s. 2010

Zimlich, S. L. (2015). Using technology in gifted and talented education classrooms: The teachers’ perspective. *Journal of Information Technology Education: Innovations in Practice*, 14, 101–124.

Affiliations and Corresponding Information

Ma. Maureen A. Calindog
 Lagundi-CCL National High School Morong Sub-Office
 Department of Education – Philippines