SIMPLIFIED INSTRUCTIONAL MATERIALS IN BASIC MATH: TOWARDS PROFICIENCY IN MATHEMATICS

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ABSTARCT

In teaching Mathematics, instructional materials are viral to the teaching learning process. It has a direct impact on the students learning competencies, such as ability to learn, positive attitudes towards learning and quality strategies to learn and perform well in school.

A quantitative pre-experimental design was utilized, where only single group was classified and no control group in the study. The single group was used to determine the effect of the use of SIM as a tool in enhancing basic math skills.

The findings of the study showed that in terms of pre-test the level of proficiency of the students was verbally interpreted in Developing Level. And after the used of the SIM, the post-test attained Approaching Proficiency level. This implied that the used of such simplified instructional materials acquired a positive impact to the learners that leads to increased academic performance among students.

The result revealed that Simplified Instructional Materials in Basic Math is a powerful tool that will bridge the gap in solving basic math deficiencies including rational numbers, integers, number theory etc. It also gives emphasis how important basic math in preparing the students to the next higher level of their schooling.

Keywords: sim, basic math

INTRODUCTION

In today's world, education in its general sense is a form of learning which the knowledge and skills and habits of a specific group of people are transferred from one generation to another through teaching, training or research.

Proficiency in mathematics is a key literacy component that influences children's success in education and in future. It influences their ability to participate in post-secondary education and their expected future learning (Langit, 2016).

Last 2016, after the implementation of K-12, the researcher observed that there are insufficient instructional materials that the students used during the lesson and there is also a gap in the knowledge and skills of the students that could account for the lack of materials in public schools. Also, students do not program well in math due to the difficult content of the provided materials by the Department of Education which gives the researcher the idea to develop simplified instructional materials.

Under Section 10.3 of Republic Act 10533, "The Production and Development Materials" as confirmed by Br. Armin Luistro FSC, Dr. P.B. Licuanan and Sec. E. J. Villanueva, it aims to encourage the production and development of locally produced materials. For the benefit of the learners the government (DepEd and other agencies) are encouraging teachers to develop self-instructional materials suited to the level of understanding of the students. As supported by the Article 3 of the Processional Code of Ethics for Teachers, the teacher has a great part in mentoring and developing the youth. One of these is by providing proper, suitable and simplified materials to master the learning competencies.

In Biñan Integrated National High School (BINHS), one of the major problems encountered by the researcher was the weaker ability of the students in basic math which is necessary to advance their lesson in higher math topics. They need to go back to the basic knowledge such as fraction, integers, etc. which is sometimes a waste of time instead of going farther with the lesson. An emphasis on the basic skills should never be used to weaker their advancement in math.

The area of focus of the study tested the effectiveness of the SIM in basic math in the new normal education. It also improved the basic mathematical abilities of the students in grade 9 level which belongs to modular learning modality because they are the most vulnerable at this time of pandemic.

In this study, simplified instructional materials (SIM) helped the students to cope up certain topic/lesson in higher math in grade 9 because the students used the printed materials. It also served as their reviewer in certain knowledge in basic math which is considered pre-requisite knowledge in all areas of mathematics, since online teaching is very limited and there is no face-to-face interaction between teacher and students. On the other hand, A Simplified Instructional Materials in Basic Math gives equal opportunity for all types of students to learn on their own now that we are facing the new normal, especially those students without any access in the internet and which belongs to the modular learning modality.

The result showed in this study is expecting to be a great help to the different sectors that involved involves students, teacher and others researchers in the new normal education.

METHODOLOGY

This study used the pre–experimental design where only a single group was classified and no control group was included in the study. The single group was used to determine the effect of the use of SIM as a tool in basic math.

The researcher used one- group pretest-posttest design. It is a type of pre-test and post-test design without controlled group.

According to Encyclopedia of Research Design (2016) the design involves acquiring a pre-test measure of outcome of interest leading to conducting some treatment, and using the same measure, post-test followed after treatment transpired. The pre-test and post-test of the students was compared to determine the effectiveness of the materials and how it will help the students to perform well.

The respondents of the study were 40 Grade 9 students of Biñan Integrated National High School (BINHS) which belongs to modular group.

The researcher used the pre-test and post-test as the instrument in this study. The pre-test and post-test were consisting of forty (40) items multiple choice test. Multiple choice items can be used to test a person's ability to incorporate information, to recognize a challenging idea, and provide test takers the opportunity to determine the correct answer from the wrong answer. It also requires less time to answer and easily scored and evaluated (Wells, et. al, 2013). This test showed the proficiency in basic math that used to compare student's pre-test and post-test scores. The test scores were also used to determine the level of proficiency of the students and test the significance difference between the pre-test and post-test scores of the respondents.

The researcher prepared some activities wherein Simplified Instructional Materials were aligned with the current lesson in Mathematics that used knowledge and mastery in Basic Math Skills. The materials were distributed before the lesson and it served as the students guide in solving problems and equations involving basic math.

The SIM were used anytime the students needed during the first quarter of School Year 2020-2021.

The materials were already validated before administered to the students by the teachers of Mathematics and Science in Biñan Integrated National High School.

RESULTS

The presentation of data was based in the sequence of statement of the problem. such as to find the level of proficiency in basic math in terms of pre-test and post-test and tested the significant difference between the pre- and post- test of Grade 9 students' performance in Basic Math after the SIM implemented.

Mean, standard deviation and t-test wee used in the interpretation of data.

Table 1.1: Level of Proficiency in Basic Math of Grade 9 Students in terms of Pre-Test

Scores	(f)	(%)	***Verbal Interpretation***
36 – 40	*0*	*0.00*	*Advance*
28 – 35	*0*	*0.00*	*Proficiency*
20 – 27	*4*	*10.00*	*Approaching Proficiency*
12 -19	*32*	*80.00*	*Developing*
0 -11	*4*	*10.00*	*Beginning*
Total	***40***	***100.00***	
Mean SD	***15.95 3.12***		***Developing***

Legend:

Legend:		
Scores	***Scale***	**Verbal Interpretation**
36 – 40	*90 % - 100 %*	*Advance*
28 – 35	*85% - 89%*	*Proficiency*
20 – 27	*80% - 84 %*	*Approaching Proficiency*
12 -19	*75% - 79 %*	*Developing*
0 -11	*71 % - 74%*	*Beginning*

Based from the table, the scores from 12 to 19 got the highest frequency of 32 or 80.00% of the total respondents belongs to developing level, while the scores of 20 to 27 and 0 to 19 got the lowest frequency of 4 or 10.00% of the total respondents which were belong to approaching proficiency level.

With a mean of 15.95, it is verbally interpreted that the level of proficiency of Grade 9 students in terms of pre-test falls on developing stage.

Table 1.2: Level of Proficiency in Basic Math of Grade 9 Students in terms of Post-test

Scores	(f)	(%)	**Verbal Interpretation**
36 – 40	0	0.00	Advance
28 – 35	10	25.00	Proficiency
20 – 27	30	75.00	Approaching Proficiency
12 -19	0	0.00	Developing
0 -11	0	0.00	Beginning
Total	40	100.00	
Mean **SD**	**25.20** **3.40**		**Approaching Proficiency**

Based from the table, the scores from 20 to 27 got the highest frequency of 30 or 75.00% of the total respondents' falls on *Approaching Proficiency level*, while the scores of 28 to 35 got the frequency of 10 or 25.00% of the total respondents leading to *Proficiency level*.

With a mean of 25.20, it is verbally interpreted that the level of proficiency of Grade 9 students in terms of post-test falls on approaching proficiency level.

Variables	Mean	SD	MD	t-value	p-value	Analysis
Pre-test	15.95	5.58				Significant
Post-test	25.20	3.20	-9.25	-11.56	< 0.01	

At 0.05 level of significance Note: p-value >0.05 not significant, p<0.05 significant

The test indicates that the scores were significantly higher for the post- test (M = 25.20, SD = 3.20) than the pre-test (M = 15.95, SD = 5.58) with a mean difference of -9.25.

The table represents the analysis of the significant difference between the pre-test and post-test scores of the respondents, with the computed p-value of less than 0.01, it stated that there is a significant difference in the scores of the pre-test and post-test since the p-value obtained was less than 0.05 level of significance.

In support to the present study about Simplified Instructional Materials (SIM) in Basic Math, Almario (2010) concluded in her study that the students who used instructional materials obtained higher scores in the post-test than in the pre-test. The manual she developed in Elementary Mathematics V proved to be an effective tool in teaching Mathematics in public schools.

Thus, the researcher proved that the teachers-made Simplified Instructional Materials (SIM) in Basic Math is a useful tool that will bridge the gap in solving basic math deficiencies including rational numbers difficulty, integers, number theory, ratio, proportion and percentage and algebraic expression of Grade 9 students of Biñan Integrated National High School (BINHS).

DISCUSSION

The use of instructional materials helps the students to familiarized when they process to higher levels of learning. It is also an effective tool for the teacher to deliver the lesson and goals to the students and community. The utilization of instructional materials bridged the teaching and learning process.

At this time of new normal education, educators must give importance the use of instructional materials as an aid in the students' familiarity to a given situation and acquitted them to different method and solutions that can be applied to higher math skills and real-life circumstances.

Similar studies about the use of simplified instructional materials in basic math in reinforcing the learners' performance not just in Mathematics but in other areas too may be conducted and should use other variables aside from those considered in this study.

. The future researchers may validate the effectiveness of the developed simplified instructional material or modify or reconstruct it for further enhancement.

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