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"Peer Teaching Strategy to Increase Mathematics Proficiency Level" (An Action Research) (Eastern Samar State University)

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Abstract

Peer Teaching/tutoring is used as school-based intervention that has been shown to improve academic skills, generate development of appropriate social skills, and enhance peer relations for both tutees and tutors.

The purpose of this study was to determine the effectiveness of the implementation of a peer teaching/tutoring program in mathematics on the academic achievement level of Grade 3 pupils in Lupok Central School.

This study aimed to analyse peer teaching as an intervention strategy that will increase the performance among Grade 3 Mathematics pupils at Lupok Central School, Guiuan North District, Guiuan Eastern Samar through the 1st and 4th Grading periods of School Year 2017 - 2018. Specifically, it sought to answer the following questions:

1. What is the Mean Percentage Score (MPS) in Mathematics of Grade 3 Pupils in Lupok Central School at the beginning of 1st Grading of School Year 2017 – 2018 before peer teaching intervention?
2. What is the Mean Percentage Score in Mathematics of Grade 3 Pupils in Lupok Central School at the end of 4th Grading of School Year 2017 – 2018 after peer teaching intervention?
3. Is there a Significant difference before and after the intervention program?
4. What intervention program may be proposed based on the findings of the study?

Based on the data gathered/collected from the class adviser of Grade 3 Section Bougainvillea in Lupok Central School, the result of base line MPS from 1st Grading period specifically in mathematics subject is 74.22 which is considered below the 75% proficiency level.

The result showed a radical increase in Mean Percentage Score in mathematics subject after the intervention was given to the Grade 3 pupils with the previous result of 74.22% from the 1st Grading into 82.11% MPS result in the 4th Grading period.

The results of the study further revealed that the implementation of Peer teaching strategy has a positive effect in increasing the academic performance in mathematics of Grade 3 pupils. There was 7.89% increase in MPS for mathematics subject from the first grading to the fourth grading period.

Key words: Peer teaching strategy, mathematics proficiency level.

Background of the Study

One of the most important skills that human needs to know or acquire is the reckoning skills. In fact, it is part of our daily living as human being. However, mathematics is one of the hardest subjects that a student or pupil undertake and this can lead in affecting his/her proficiency level. However, poor performance is caused by a variety of factors, very few of which have to do with moral or intellectual weakening in part of the learners.

This educational classroom problem can be addressed properly with the aid of numerous teaching-learning strategies, and one of these techniques that can be used as a strategy is peer teaching where learning is believed to effectively happen.

There is no question that much is expected from our education system in terms of preparing future citizens, workers, and leaders. To that end, schools are expected to influence student's learning, socialization, and even vocational preparedness. Despite the attention paid to a broad definition of outcomes, however, academic proficiency level remains inner. Academic instruction is arguably the primary business of education, and it was poor performance that spawned the recent era of reform after the publication of A Nation at Risk three decades ago(U.S. Department of Education, 1983). Furthermore, it is academic proficiency that is central to the efforts of the No Child Left Behind Act of 2001 to make schools and school districts accountable for assessing and improving student performance annually (Linn, Baker, & Betebenner, 2002).

In order to generate the effective solution to the problem in a classroom environment, the students of BEED Program, from Eastern Samar State University-Guiuan Campus conducted an action research to address or give a concrete solution to this kind of problem. From the observation of clases at Lupok Central Elementary School the researchers were able to identify and analyze the situation in some certain areas. Based on the gathered data from the grade 3 section Bougainvillea their first grading MPS result, was contradictory to the other subjects. It revealed that the mathematics subject was below the passing standard of 75% of MPS which means that it should be given more attention by the teachers.

In terms of poor academic proficiency level especially in Mathematics 3 subject that is manifested in grade 3, the researchers are facing this as a challenge on how to increase their academic proficiency level.

In fact, there are many factors that pupils are struggling like Pupil-Related Factors, Teacher-Related Factors, School-Environment Factors and Family-Related Factors. These factors are sometimes expected and come out most often in situations where performers are unconscious of their responses. Most important to the prevalent problems due to these factors are the interventions that a teacher could give to offer minimal occurrence of untoward outcomes in the performance of the pupils.

Therefore, the researchers focused on peer teaching as a strategy to increase pupils' proficiency level in Mathematics 3 in Lupok Central School through the 1st and 4th Grading periods of S ear 2017-2018.

Tools for Gap Analysis

-Problem solving process

A. Identification of Problem

The researchers used the 1st grading MPS result of Grade 3 pupils to identify the problem for the process of making intervention that is suitable to the proficiency level of grade 3 pupils.

Tools 1

Gap Analysis

A.1 Area focus is Mathematics and target groups are Grade 3 pupils.

A.2 Baseline data.

The first Grading MPS result of Grade 3 pupils in Lupok Central School served as the baseline data of this study.

Table 1. First Grading MPS result of Grade 3 pupils in Different subjects

Subject	MTB	Filipino	English	Science	Math	A.P	ESP	MAPEH
MPS	82.88	77.88	75.08	80.11	74.22	77.88	85.00	80.22

Table 2. Gap analysis on Mathematics Porficiency Level

What should be?	What is Actual?	What is the Gap?
All 30 pupils in Grade 3 must have 75% proficiency level in mathematics.	Only 18 pupils have 75% proficiency level in mathematics.	There are 12 pupils with below 75% proficiency level in mathematics.

The researchers encountered a number of recurring problems that need utmost attention. Based on the gathered data of MPS results, Mathematics was below the passing proficiency level of 75%.

There were 12 pupils with proficiency level below 75% which is the standard for Mathematics during their First Grading period. Out of 30 pupils of grade 3 Section Bougainvillea only 18 pupils got the passing proficiency level in Mathematics. These identified pupils who did not pass the standard proficiency level need to be given attention for the improvement of their proficiency level.

The goal of the researchers was to improve mathematics proficiency level through the peer teaching as an intervention strategy.

Hence, using peer teaching, the Grade 3 pupils are expected to increase their proficiency level in Mathematics.

Tools 2

Critical thinking

A. What is important?
B. What is urgent?
C. What is relevant?

Rating scale

5 – Relevant
4 – Appropriate
3 – Authentic
2 – Interesting
1 – Cost-effective

Table 3 Critical Thinking Tool

Gaps	Which is the most Important? (1-5)	Which is the Most Urgent? (1-5)	Which is the Most Relevant? (1-5)	Total	Rank
1.10 Pupils are irregular in attendance.	**5**	**3**	**3**	**11**	**3**
2. 12 pupils are poor in numeracy Scale.	**5**	**4**	**5**	**14**	**1**
3. 8 pupils are poor in literacy.	**5**	**3**	**4**	5	**2**

Among the problems specified via the gap analysis the researchers considered the 12 pupils from Grade 3 who were poor in numeracy scale as the gap that was the most important, the most urgent, and the most relevant.

Numeracy scale involves critical thinking. it is a very essential tool and skill that is crucial to a learners' academic performance. For a learner to understand the key concept of reckoning as a part of his/her academic subjects, he/she must be good in numeracy scale. It will be very easy for him/her to follow directions, listen attentively, take notes, and review, therefore, if 12 pupils from Grade III are poor in numeracy scale, they will not be able to follow the aforementioned skills for improvement, and this will automatically result to poor academic performance. Immediate actions must be taken to help these pupils before the end of the school year.

Research Questions

This study aimed to analyze peer teaching as an intervention strategy to increase the Mathematics performance among Grade 3 Mathematics pupils at Lupok Central School, Guiuan North District, Guiuan Eastern Samar through 1st and 4th Grading of School Year 2017 - 2018. Specifically, it sought to answer the following questions:

1 What is the Mean Percentage Score(MPS) in Mathematics of Grade 3 Pupils in Lupok Central School at the beginning of 1st Grading of School Year 2017 – 2018 before peer teaching intervention?
2. What is the Mean Percentage Score in Mathematics performance of Grade 3 Pupils in Lupok Central School at the end of 4th Grading of School Year 2017 – 2018 after peer teaching intervention?
3. Is there a significant difference before and after the intervention program?
4. What intervention program may be proposed based on the findings of the study?

Significance of the Study

This study will contribute to raising the current and future educators, pupils, and people in authorities: both school and community.

The results of this study would provide some insight and understanding to:

To the pupils. This study provides information with on classroom conditions and help the pupils to increase their performance and academic achievement.

To the teachers. They can determine the level of physical and psychological condition related to pupils achievements, the teacher can make his/her class setting conducive classroom by using the intervention of peer teaching.

To the Administration. The result of this study may give useful insight in promoting the intervention of peer teaching to pupils as well as students to come up a positive result.

To the Future Researchers – This will provide knowledge, give data and usable information to the coming researcher specifically to those who want to study the problems related to this study.

Definition of Terms

In order to give clear understanding of the terms used in this study, operational and conceptual definitions are presented.

Critical thinking. This refers to intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evedince, good reasons, depth, breadth, and fairness. (Scriven & Paul, 1987). In this study, this refers to self- guided, self-disciplined thinking which a ɔ reason at the highest level of quality in a fair-minded way.

Gap analysis. This is a technique that business use to determine what steps need to be taken in order to move from its current state to its desired future state. It consists of defining the present state, desired or 'target' state and hence the gap between them. In this study, this refers to gap analysis emphasizing on identifying the problem.

Mathematics proficiency level. This measures the mathematical literacy to formulate, employ and interpret mathematics in a variety of context to describe, predict and explain phenomena, recognizing the role that mathematics plays in the world. In this study, mathematics performance is a measuring the numeracy scale of the pupils.

Peer Teaching. This refers to the instructional strategy where students are trained on how to work in pairs with their partner to improve their overall knowledge (Scruggs, Mastropieri, and Marshak (2012).

Results And Discussion

This chapter presents the answers to the research questions posed in this study based on the data gathered.

1. What is the Mean Percentage Score in Mathematics of Grade 3 Pupils in Lupok Central School at the beginning of 1st Grading of School Year 2017 – 2018 before peer teaching intervention?

First Grading MPS result of Grade 3 pupils in Different subjects

Subject	MTB	Filipino	English	Science	Math	A.P	ESP	MAPEH
MPS	82.88	77.88	75.08	80.11	74.22	77.88	85.00	80.22

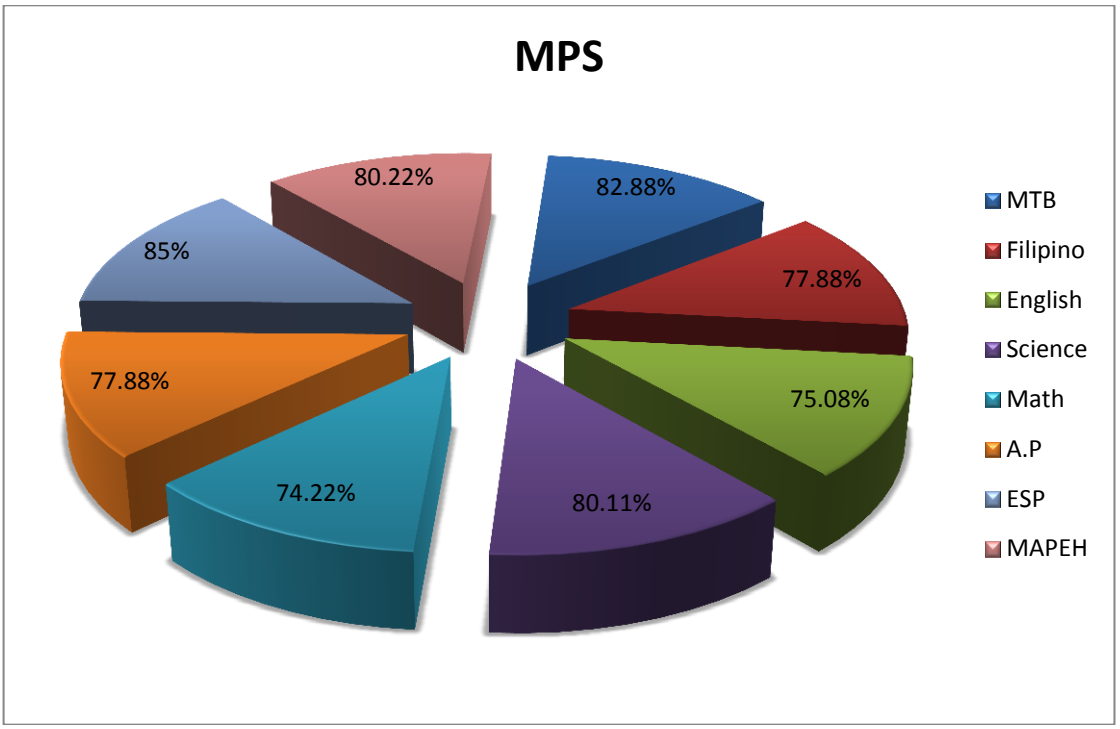

Figure 1 First Grading MPS result of Grade 3 pupils in Different subjects

Based from the data gathered/collected from the class adviser of Grade 3 Pupils in Lupok Central School, section bougainvillea has a result of base line Mean Percentage Score from 1st Grading period specifically in mathematics subject of 74.22% which was considered below 75% proficiency level.

2. What is the Mean Percentage Score in Mathematics of Grade 3 Pupils in Lupok Central School at the end of 4th Grading of School Year 2017 – 2018 after peer teaching intervention?

Fourth Grading MPS result of Grade 3 pupils in Different subjects

Subject	MTB	Filipino	English	Science	Math	A.P	ESP	MAPEH
MPS	84.86	83.12	81.22	84	82.11	82.88	88.12	84.11

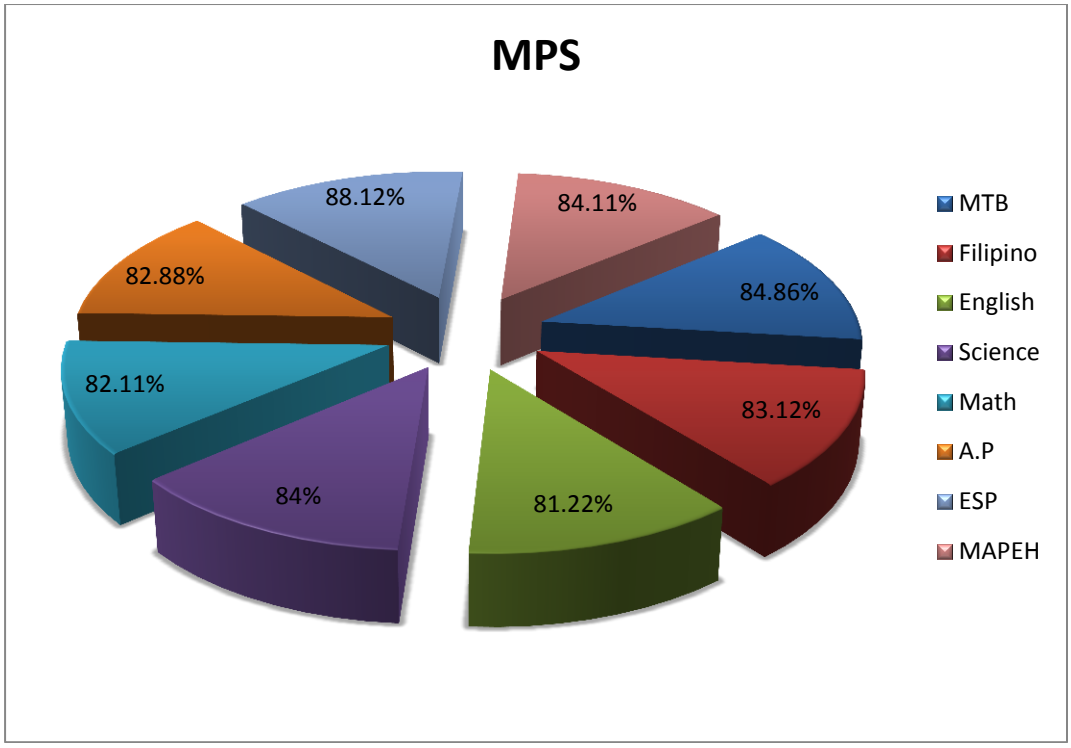

Figure 2 Fourth Grading MPS result of Grade 3 pupils in Different subjects

The result showed a radical increase in the Mean Percentage Score of Grade 3 pupils of Lupok Central School from 74.22% to 82.11% or a percentage increase of 7.89% after the peer tutoring intervention strategy. It can be gleaned from the result that peer teaching has a great impact on the improvement of the proficiency level of the pupils.

3. Is there a significant difference before and after the intervention program?

Table 1. Significant difference of MPS before and after

Variables Compared	Mean Value	Mean Difference	t-value	p-value	Interpretation
MPS before	74.22	7.89	3.302	0.003	Significant
MPS after	82.11				

The difference of MPS before and after are shown in table 1.
The variables compared was MPS before and MPS after with mean value of 74.22 and 82.11. This showed a mean difference of 7.89 therefore, the p-value of 0.003 shows that there is a significant difference before and after the intervention program in the study.

4. What intervention program may be proposed based on the findings of the study?

The intervention proposed by the researchers based from the findings or problem in mathematics subject in the 1st Grading that serves as also the baseline data of this study was the peer teaching/tutoring program. It was proven that peer teaching/tutoring it helped in increasing the mean percentage score in mathematics subject as well as the other competences subject.

Summary, Conclusions And Recommendations
This chapter presents the summary of findings, the conclusions and the recommendations of the study.
Summary

From the Grade 3 pupils section Bougainvillea in Lupok Central School, where we have conducted the study, it can be gleaned from figure 2 that there is positive increase of mathematics in the Mean Percentage Score (MPS).

Conclusions

According to Scruggs, Mastropieri, and Marshak (2012), peer tutoring is the instructional strategy were students are trained on how to work in pairs with their partner to improve their overall knowledge. Peer tutoring allows students to proceed with the content material at their own pace. It also provides separate time for the individual mastery of each student in the tutoring pair.

The findings of the study revealed that Peer teaching was an effective intervention that had a positive effect in increasing the proficiency level in mathematics. It showed enormous positive impact for both the teacher and the pupils towards learning development.

As to the level of effectiveness of the intervention, a radical increase on the mean percentage score or MPS grade in mathematics subject of Grade 3 pupils was shown. This result coincided with the findings of the study of Mastropieri, et.al (2003), findings showed that students who participated in peer teaching significantly outperformed those students who participated in teacher-led guided noted.

Recommendations

Based on the findings of the study the following recommendations were drawn.

For the pupils – as the center of the educative process, this study would help them to increase their mathematics proficiency to come up positive mps results in the class.

For the faculty – as a facilitator and coach of learners, this study would serve as a guide on how you were going to improve your learner's increase in Mathematics. This will give them an outlook to highlight and give importance on learner's participation in the teaching-learning process.

For the school head – as the main provider of the school, this study would help them to determine as to whether peer teaching can be used as an intervention in increasing in Mathematics proficiency level.

For the future researcher – they may us findings of this research for another related study on peer teaching that may improve the class proficiency level in all other subject's areas.

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