

**IMPROVING PERFORMANCE OF GRADE VIII STUDENTS IN MATHEMATICS  
IN TAMBIS NATIONAL HIGH SCHOOL THROUGH SCAFFOLDING  
ACTIVITIES**

---

A Thesis Presented to  
The Faculty of the Graduate Studies  
Philippine Normal University  
Agusan Campus

---

In Partial Fulfillment  
of the Requirements for the  
Degree Master of Arts in Education  
With Specialization in Mathematics Education

by

**Harry P. Jabahab**

February 2014

**APPROVAL SHEET**

In partial fulfillment of the course requirements for the degree MASTER OF ARTS IN EDUCATION with Specialization in MATHEMATICS EDUCATION, this thesis titled "**IMPROVING PERFORMANCE OF GRADE VIII STUDENTS IN MATHEMATICS IN TAMBIS NATIONAL HIGH SCHOOL THROUGH SCAFFOLDING ACTIVITIES**", submitted by **HARRY P. JABAHAB**, has been examined and is hereby recommended for oral defense.

**FABIAN C. PONTIVEROS JR., MASE, MAEd Math**  
Adviser

---

**APPROVED** in partial fulfillment of the course requirements for the degree Master of Arts in Education with specialization in Mathematics Education by the Oral Examination Panel

**ROLLY R. PEREZ, Ph.D.**  
Member

**ELVIRA V. CHUA, Ph.D.**  
Member

**ADELYNE C. ABREA, Ph.D.**  
Chair

---

**ACCEPTED** in partial fulfillment of the requirements for the degree Master of Arts in Education with specialization in Mathematics Education.

Date: \_\_\_\_\_

**AIDA V. PEGUIT, MAEd**  
Head, Department of Sciences

## ACKNOWLEDGEMENT

The researcher wishes to express his sincerest gratitude and heartfelt thanks to some people for the success of this study.

Grateful acknowledgements are due to the following:

Prof. Fabian C. Pontiveros Jr., adviser, for his valuable support in extending his precious time, wisdom, expertise and efforts for the whole duration of the conduct and making of this study;

the Oral Examination Panelists, Dr. Adelyne Costelo-Abrea, Dr. Elvira V. Chua and Dr. Rolly R. Perez for their valuable comments and suggestions for the refinement of this study;

the critics of the research instrument, Dr. Elvira V. Chua, Dr. Rolly R. Perez and Prof. Cesario C. Galanida for their valuable time and efforts in giving comments and suggestions for the refinement of the research instrument;

the principal of Tambis National High School, Maam Irenia R. Delos Santos, for her unending support in the making and conduct of this study;

to his fellow teachers at Tambis National High School for the encouragement and moral support;

to Jeciel Cris R. Pacaldo for her constant support and inspiration;

to his parents, Diomedes I. Jabahab and Angela A. Padillo, brothers and sisters for their unending support, encouragement and assistance;

and above all, to the most precious Almighty Father in heaven who always showers His guidance, wisdom and grace.

**HPJ**

**ABSTRACT**

**Researcher:** HARRY P. JABAHAB

**Title of Thesis:** Improving Performance of Grade VIII Students in Mathematics in Tambis National High School Through Scaffolding Activities

**Degree:** Master of Arts in Education

**Specialization:** Mathematics Education

**Institution:** Philippine Normal University-  
Agusan Campus

**Adviser:** Fabian C. Pontiveros Jr., MASE, MAED  
Math

**Key Concepts:** Performance  
Scaffolding Activities

**Statement of Purpose**

This Action Research was conducted to improve the performance of Grade VIII Students in Mathematics in Tambis National High School through Scaffolding Activities.

Specifically, it sought to answer the following:

1. What is the profile of the Grade VIII participants in terms of the following:

- 1.1 Sex;

- 1.2 Ethnicity; and
- 1.3 Teacher handling Math VII?
2. What is the level of achievement of the participants in Grade VII Mathematics?
3. Is there a significant difference in the achievement of the participants in Grade VII mathematics in terms of their profile?
4. What are the Least Learned Competencies of the participants in Grade VII Mathematics?
5. What scaffolding activities can be designed to improve performance of the participants in Mathematics?
6. Did the performance of the participants improve after the scaffolding activities?

## **Findings**

1 As to their sex, 35 or 48% of the total participants were male and 38 or 52% were female. As to their ethnicity, 15 or 21% of the total participants were Kamayo, 6 or 8% were Boholano, 4 or 5% were Manobo, 10 or 14% were Surigaonon, 2 or 3% were Waray and 36 or 49% were mixed-blooded from the different ethnic groups. As to the teacher who handled Mathematics VII, 36 or 49% of the total participants were students of Teacher 1, 32 or 44% of the total

participants were students of Teacher 2 and 5 or 7% of the total participants were coming from the other schools.

- 2 Through diagnostic examination, it was found out that all participants were below mastery level in all competencies in Grade VII Mathematics. Diagnostic results also revealed a no significant difference between the performances of the participants when grouped according to sex, ethnicity and teacher handling Mathematics VII.
- 3 Out of 12 competencies, competency 1 (Evaluate Algebraic Expression given the value of the variable), competency 3 (Illustrate Laws of exponents), competency 4 (Add/Subtract Polynomial) and competency 5 (Multiply/divide polynomials) were the four least learned competency that were included in the research.
- 4 There were three scaffolding activities that were designed to improve performance of the participants in the least learned competencies. These scaffolding activities were the following: (1) *Direct Instruction*, (2) *Peer Tutoring* and (3) *Individualized Instruction*. These three scaffolding activities raised the performance level of the

participants. It was evident after having passed the post tests administered after the conduct of the scaffolding activities and was successfully applied the skills during the Third Midterm Examination in Mathematics VIII.

### **Conclusions**

In view of the findings, the following conclusions were drawn:

1. The performance score in diagnostic test reflected the knowledge of the participants in Grade VII Mathematics. As revealed, all students belong to approaching proficiency level, developing level and beginning level showed inadequate knowledge in Mathematics VII since all of them were at below mastery level. They got low scores in the diagnostic test and they needed follow up activities to improve their performance in Mathematics.
2. Comparing means was used to determine significant difference between the performances of the participants. Analysis revealed that the performance of the participants were similar when grouped according to sex, ethnicity and teacher handling Mathematics VII. Findings further implied that

achievement level of the participants was not affected by these three factors.

3. The three designed scaffolding activities were of great help in improving performance of the participants. A notable increase in the performance of the participants from pretest to posttest scores was shown. Acquisition of skills was also evident after having carried and applied during the conduct of the Third Midterm Examination in Grade VIII Mathematics wherein related topics were measured. However, the effectiveness of these scaffolding activities will vary on the coping-up ability of the participants. It will also depend on the number of participants who will attend the scaffolding activities. One scaffolding activity cannot guarantee a maximum improvement of the students.

### **Recommendations**

On the basis of the foregoing findings and conclusions, the researcher offers the following recommendations:

1. The administrators should encourage their teachers to find ways and means to help the at-risk students develop the different Mathematics competencies.

Administrators should also send and support the teachers in the different relevant trainings, seminars and workshops to upgrade themselves in terms of Mathematics content and pedagogy.

2. It is also advised that Mathematics teachers will consider the number of participants and their individuality when planning the conduct of scaffolding activities.

### **Reflections**

This action research made the researcher realized on the teachers' role in the four corners of the classroom. Giving a hand full of information was not enough. A teacher must have enough patience and understanding. As the teacher gets inside the classroom, the accountability for the students' learning starts.

It was really a difficult task making all students be at mastery level, if it happened, it could surely consumed a lot of time. But, a teacher was expected to be flexible at all times, to handle problems at their best and to resolve whatever it may be. Thus, adhering the thoughts, extra effort, intimate planning and enthusiasm in implementing the plans were really needed.

## TABLE OF CONTENTS

Approval Sheet	ii
Acknowledgement	iii
Abstract	v
Table of Contents	xi
List of Tables	xiii
 <b>CHAPTER</b>	
 <b>I. THE PROBLEM AND ITS SETTINGS</b>	
Introduction	1
Statement of the Problem	4
Hypothesis	5
Theoretical and Conceptual Framework	5
Significance of the Study	11
Scope and Delimitation	12
Definition of Terms	12
 <b>II. REVIEW OF RELATED LITERATURE AND STUDIES</b>	
Related Literature	
Foreign	15
Local	20
Related Studies	
Foreign	22
Local	25

<b>III. METHODOLOGY</b>	
Rationalization for Action Research Method	29
Data Collection Tools	30
Site and Participants	31
Plan of Action	32
Data Analysis Procedure	37
<b>IV. PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA</b>	
Profile of the Participants	38
The Level of Achievement of Grade VIII Students in Grade VII Mathematics	40
The Significant Difference in the Achievement of the Students in Grade VII Mathematics according to their Profile	42
The Least Learned Competencies in Grade VII Mathematics	45
Scaffolding Activities Designed to Improve Performance of the participants in Mathematics VII	48
Summary of Findings	72
<b>V. CONCLUSIONS, RECOMMENDATIONS AND REFLECTION</b>	
Conclusions	75
Recommendations	77
Reflection	78
BIBLIOGRAPHY	80
APPENDICES	87
DOCUMENTATION	133
CURRICULUM VITAE	141

## LIST OF TABLES

<b>Table</b>	<b>Description</b>	<b>Page</b>
3.1	Action Plan of the Study	36
4.1	The Profile of the Participants according to Sex	38
4.2	The Profile of the Participants according to Ethnicity	39
4.3	The Profile of the Participants according to Their Mathematics VII Teachers	40
4.4	Level of Achievement of the Participants in Grade VII Mathematics	41
4.5	ANOVA Result in the Performance of the Participants according to Sex	42
4.6	ANOVA Result in the Performance of the Participants according to Ethnicity	43
4.7	ANOVA Result in the Performance of the Participants according to their Grade VII Mathematics Teacher	44
4.8	Least Learned Competencies of the Participants in Grade VII Mathematics	46
4.9	The Scaffolding Activity Results in the topic "Evaluating Algebraic Expression"	49
4.10	The Scaffolding Activity Results in the topic "Laws of Exponent"	53
4.11	The Scaffolding Activity Results in the topic "Addition of Polynomials"	58
4.12	The Scaffolding Activity Results in the topic "Subtraction of Polynomials"	61
4.13	The Scaffolding Activity Results in the topic "Multiplication of Polynomials"	64
4.14	The Scaffolding Activity Results in the topic "Division of Polynomials"	67
4.15	Achievement of the Participants in some Related Items in the Third Midterm Examination in Mathematics VIII	70