

Difficulties in Mathematics of the Education Students in the Polytechnic State College of Antique: Bases for Modules Development

Yuri G. Gonzaga, PhD
Associate Professor V

Abstract:- This study was undertaken to determine the difficulties in Basic Mathematics I of the First Year Education Students in the Polytechnic State College of Antique during second semester, academic year 2004-2005.

The subjects of the study were 203 first year Bachelor of Secondary Education and Bachelor students of the Polytechnic State College of Antique main campus and Tario-Lim Ruiz campus who were officially enrolled during the second semester of the school year 2004-2005. This descriptive research utilized the researcher made achievement test in Basic Mathematics I as basis of the study. The statistical tools used were the frequency count, percentage, Pearson r, Wilcoxon Signed Rank Test, and Spearman brown. The alpha level was set at 0.05 in a two-tailed test.

The findings of the investigation revealed that the first year teacher education students had difficulties along following areas of Mathematics I: a) Exponents and Radicals, b) Area and Volume, c) Fractions, d) Percentage, e) Ratio and Proportions, f) Integers, and g) Measurement and Scientific Notation.

The modules that were developed are effective in terms of improving students' performance.

In the light of these findings, mathematics instruction especially in Basic Mathematics I in the college must be strengthened on the areas of: Exponents and Radicals, Measurement and Scientific Notation, Area and Volume, Percentage, Ratio and Proportions, Fractions, and Integers that would help in meeting students' difficulty. Likewise, remedial teaching should be adopted as integral part of the program in Basic Mathematics I. Moreover, a committee composed of experts and authorities in teaching mathematics should be formed to help construct the modules on the different areas which will be used in remedial teaching program.

Keyword:- Basic Mathematics, Teacher Education Students, Development of Modules

I. INTRODUCTION

In the tertiary, Taylor has pointed out a considerable decline in the mathematical ability of entering college freshmen which can be traced back to all levels of schooling starting from the first grade (Taylor, 1982). In addition many young people were able to perform mathematical exercises on textbook problems; however, they were incapable of using their mathematical ability in real life situation.

Basic mathematics is a part of general education component of the Teacher Education Curriculum and a prerequisite subject for Teacher Education students who are majoring in mathematics. It can be used as a gauge to predict a student's success in higher mathematics. A Student's difficulty in learning Basic Mathematics I may therefore affect his performance in higher mathematics. This present investigation is directed towards module development to assists students to have difficulties in mathematics.

As part of the effort to provide quality education, students are given a qualifying examination after their first year in college to determine their area of specialization. However those who passed the mathematics qualifying examination were still found to be hardly competent to their basic mathematics skills.

The researcher, as a mathematics teacher, would like to help students who major in mathematics by improving their mathematics skills through modularization of the difficulties in Basic Mathematics I. With these modules, these students will be encouraged to study independently

➤ Objectives

The study aimed to determine the difficulties of the first-year Teacher Education students of PSCA in Basic Mathematics I, and what modules can be developed to remedy these difficulties. It aims to answer the following specific questions:

- In what areas in Basic Mathematics I did the first year Teacher Education students find difficult?
- What modules can be developed to remedy these difficulties?
- What are the pretest and posttest scores of the first year Teacher Education students in each module?

- Is there a significant difference in the pretest and posttest scores of the first year teacher education students in each module?

➤ *Hypothesis*

- There is no significant difference in the pretest and posttest scores of the first year teacher education students in each module?

➤ *Conceptual Framework of the study*

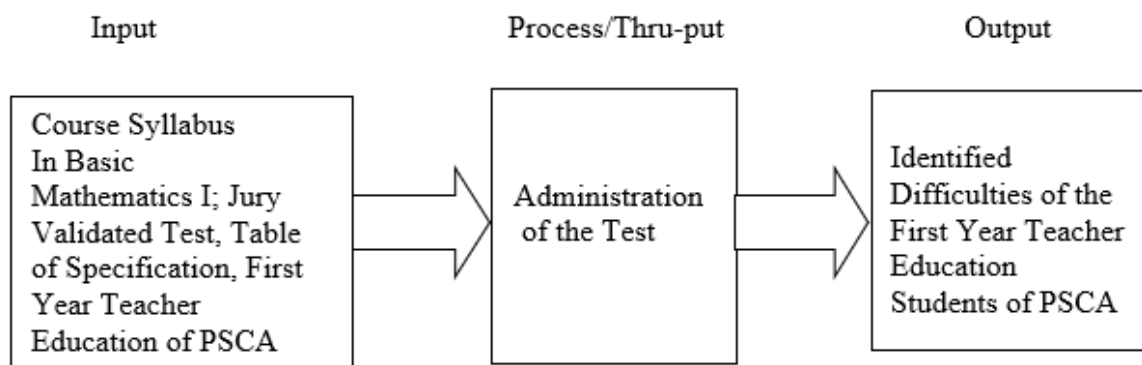


Fig 1:- Identified Difficulties in Basic Mathematics I of the First Year Teacher Education

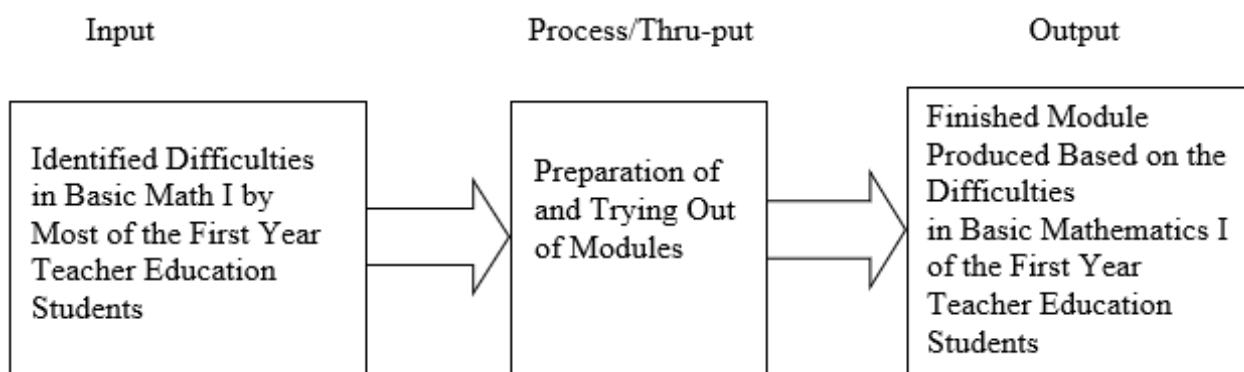


Fig 2:- Modularization Based on Identified Difficulties in Basic Mathematics I

II. MATERIALS AND METHODOLOGY

This study was essentially descriptive in nature, utilizing the achievement test in Basic Mathematics I as the data-gathering instrument.

The subjects of the study were 203 students of the Bachelor of Secondary Education and Bachelor of Elementary Education of the Polytechnic State College of Antique main campus and Tario-Lim-Ruiz campus who were officially enrolled during the school year 2004-2005 for the second semester. The Data is presented in Table 1. Thirty randomly selected first-year Teacher Education students from PSCA-TLRC who were not included in the study were used as a respondent for the pilot testing of the achievement test.

The materials used in this investigation were the table of specifications and an achievement test in Basic mathematics I consisting of nine areas.

- Construction of the Table of Specification and the Achievement Test.

The table of specification for a 127 item test was constructed covering the topics that are included in the course syllabus in Basic Mathematics I.

Items are distributed as follows:

- Decimal Fractions
- Measurement and Scientific Notation
- Common Fractions
- Percentage
- Integers
- Signed Numbers
- Ration and Proportions
- Exponents and Radicals
- Area and Volume

However, even if an item has low discrimination level, it can be improved if it will test an important skill.

To ensure the effectiveness of the distracters in a multiple-choice test, the investigator compared the number of the examinees who chose the distracter by the total number of examinees. In general, a good distracter is one that should be chosen by at least 3% of the “good” and the “poor” examinees combined. Any option that failed to be

chosen by 3% of the students should either be revised or eliminated.

➤ Validation of the Table of Specification and the Achievement Test.

The table of specifications was submitted to a jury of five for content validity. To ensure the face and content validity of the achievement test, the draft of the test, together with the table of specifications, was submitted to the same jury. The members were requested to indicate whether an item was accepted, rejected, or revised. An item with an agreement ratio of 80% or higher was considered valid while an item with an agreement ratio of less than 80% was rejected. Of the 127 items, 64 were accepted and 63 items were rejected. After the jury validation, the achievement test was administered to the 30 Teacher Education students of PSCA-TLR campus for the purpose of item analysis.

- Item analysis. A simplified item analysis procedure using the upper-lower (UL) method. The middle or average group is held in abeyance. The procedure utilize 1/3 of the test results from the highest score(upper group) and 1/3 from the lowest scores (lower group)
- Reliability . The reliability of the test was ascertained through the split-half method. The test was given once to 30 teacher education students who were not included in the study. Equivalent halves of the tests were scored and the two sets of scores were correlated using Pearson r. The reliability coefficient of the whole test was determined by Spearman-Brown formula.
- Modular Development . After the difficulties have been identified, modules were constructed. Modules contained the following parts; 1) cover page; 2) title page; 3) table of contents; and 4) contents.

To ensure the validity of the modules, they were subjected to jury validation. A checklist for validation of the modules as good, fair, and poor as to objectives, subject matter, design characteristics, learning activities, adaptability, validity, evaluation, and nature materials were provided for the jury members. For the module to be considered valid the corresponding items in the evaluation checklist must have an average percentage agreement of 80% and above. If an aspect of the module has an average percentage agreement ratio of below 80%, that part has to be improved.

After the module evaluation the modules were tried out using 12 first year teacher education students, enrolled during the school year 2005-2006 in order to approximate the effectiveness.

The students were made to take the pretest before they were given the modules to study for 3 days each, at the end of the third day, they were given post test, parallel form of pretest to be answered with in the time limit equal to the time limit during the pretest. The results were taken and the students' scores were subjected to the Wilcoxon Sign Rank Test of Significance to determine if significant differences exist between their pretest and posttest scores.

❖ *Statistical Data Analysis*

The test paper were checked, scored, and recorded, The level of deficiencies of the students in each item of each test area was determined on the basis of the percentage of the students' wrong answers.

PE = E/N, where: PE percentage of the students' wrong answers

E= number of wrong answers

N= number of respondents

An item will be considered as difficult if the percentage of error is equal to or

Greater than 50 percent,

To approximate the effectiveness of the modules the Wilcoxon Sign Rank Test for Significance was used.

III. RESULTS

➤ Students difficulties in Basic Mathematics I

The difficulties encountered by the first year Teacher Education students of PSCA in basic mathematics were identified through an achievement tests administered at PSCA TLR campus and PSCA main campus.

- Exponents and Radicals. The test consist of 6 items the data on wrong answers are reflected in Table 4, percentage of error ranges from 66.99 percent to 89.66 percent, with items 43, 38, and 39 registering the highest percentage of errors. Items no. with only 10.34 percent of the subjects (203 students) getting the correct answer it the most difficult item. As a whole, the freshman students found the test item difficult because the percentage of wrong answers is greater than 50 percent.
- Measurement and Scientific Notation. These consist of 8 items in the achievement test. As shown in Table 5, the percentage of wrong answers by items ranges from 20.19 to 89.66 percent. Item number 14, 15, 16, and 17 registered the percentage of wrong answers
- above 50% with 89.66 percent as the highest (item number 14). This means that item number 14 is the difficult items for teacher education students who were the subject of the study. The same students, however did not find item number 11, 12, and 13, as shown by the percentage of errors that are less than 50% (33.99; 20.19; 22.16 respectively).
- Area and Volume. The percentage of wrong answers for all the six items on the area and volume were missed by more than 50% of the test takers, it implies that as a whole the students found this area of basic mathematics 1 difficult. The data are shown in Table 6.
- Percentage. The test which deals with percentage is composed of 7 items. As shown in Table 7, the students did not have difficulty with item number 25 only (percentage of error = 38.92). They had difficulty with all other items (items numbered 26, 27, 28, 29, 30, and 31) as indicated by the percentage of errors ranging from 66.50 to 83.74. They performed the least in item number 30 as represented by 83.74 percent of errors which means that out of 203 students only 33 or 16.26% got the item right. As a whole, the students considered the topic

- on percentage as difficult since 87.71% of the test items on this area were missed by more than 50% of the students who took the test.
- **Ration and Proportions.** As shown in Table 8, the test consist of 6 items. The percentage of errors on the items ranges from 37.93 to 78.82 percent, with items 32, 35 and 37 registering the highest percentage of errors. It can be inferred from the percentage of error of item 37 that only 43 or 21.18 percent of the subject (203 students) got the correct answer . As whole the first year teacher education students consider ratio and proportion difficult since 83.33% of the test items were missed by more than 50% of the test takers.
 - **Fractions.** The result of the test on fractions is shown in Table 9. It is in item 20 where 158 out of 203 students or 77.83 percent of the total number of students got wrong answers. One fifty four students or 75.86 percent failed to get the correct answer I item 24, while one hundred fifty or 73.89 percent of the subject failed so get the correct answer in item 19. Based on these percentages, it was found that the first year Teacher education students had difficulty in all the test items dealing with fractions thus, for them this is a difficult area in basic mathematics 1.
 - **Integers.** The test has 5 items on integers. Item 1, 157 out of 203 students or 77.34 percent failed to get the correct answers. Likewise in items 3, 4, and 5 more than 50 percent failed to get the correct answers. Based on the percentage of errors, it can be said that, as whole, the students still found the test items on integers to be difficult except in item number 2, where the correct answers' was obtained by less than 50 percent of the students. Eighty percent of test items were missed by more than 50% of the test takers. The data are shown in Table 10.
- The modules that were developed contained the following areas in Basic Mathematics I;
- **Module 1, Exponents and Radicals,** The module is composed of three lessons: Lesson I, Integer Exponents; Lesson II, Rational Exponents; Lesson III, Radicals.

- **Module 2, Perimeter, Area and Volume.** Composed of three lessons: Lesson I, Perimeter, Lesson II, Area; and Lesson III, Volume.
 - **Module 3, Fractions.** Composed of two lessons: Lesson I, Conversion of Fractions, and Lesson II, Problems on Fractions.
 - **Module 4, Percentage.** Composed of two lessons: Lesson I, Conversion techniques in Percent, and Lesson II, Percentage Problems.
 - **Module 5, Ratio and Proportions.** Composed of two lessons: Lesson I, Ways in expressing Ratio, and Lesson II, Problem solving in Ratio and Proportion.
 - **Module 6, Integers.** Composed of two lessons: Lesson I, Fundamental Operation on Integers, and Lesson II, Removing grouping symbols.
 - **Module 7, Measurement and Scientific notation.** Composed of two lessons: Lesson I, Conversion of Unit of Measure and Solving Problems on Measurement , and Lesson II, Dividing Scientific Notation.
- The respondents' pretest and posttest scores in each module were:
- **Module 1, Exponents and Radicals and Module 2, Perimeter, Area and Volume.** The results revealed that pretest and posttest scores were below average.
 - **Module 3, Fractions, Module 4, Percentage, Module 5, Ratio and Proportions and Module 7, Measurement and Scientific notation.** The results revealed that pretest was below average while the posttest scores was above average.
 - **Module 6, Integers.** The results revealed that pretest and posttest scores were above average.

The data is presented in Table 11.

- There was a significant difference between the pretest and posttest scores of the first year Teacher Education students in each module. The data are presented from Table 12 to Table 18.

Table 1:- The Subjects of the Study

Categories	N	Percent %
PSCA Main Campus		
BSED I	25	12%
BEED I	98	48%
PSCA TLR Campus		
BSED 1	12	6%
BEED 1	68	34%
Total	203	100%

Table 2:- Item Difficulty Interpretation

Index of Difficulty	Interpretation
0.00 – 0.20	Very Difficult
0.21 – 0.40	Very Difficult
0.41 – 0.60	Very Difficult
0.61 – 0.80	Very Difficult
0.81 – 0.20	Very Difficult

Table 3:- Action for Discriminating Level

Level of Difficulty	Discriminating Level	Action
Difficult	Not Discriminating	Improbable, reject
	Moderately Discriminating	May need revision
Moderately Difficult	Not Discriminating	Needs revision
	Moderately Discriminating	May need revision
	Discriminating	Accept
Easy	Not Discriminating	Reject
	Moderately Discriminating	Needs revision
	Discriminating	Needs revision

Table 4:- Errors in “Exponents and Radicals”

Frequency of Wrong Answers

Test Item	PSCA BSED	main campus BEED	PSCA TLR BSED	Campus BEED	Total	Percent
38	18	86	8	58	170	83.74
39	22	77	12	48	159	78.33
40	17	71	7	45	140	68.97
41	16	69	8	43	136	66.99
42	20	66	5	49	140	68.97
43	24	87	11	60	182	89.66

N=203

Since the percentage of error of all items is greater than 50 percent, the percentage of difficult items is 100%.

Table 5:- Errors in “Measurement and Scientific Notation”

Test Item	PSCA BSED	main campus BEED	PSCA TLR BSED	Campus BEED	Total	Percent
11	2	29	4	34	69	33.99
12	6	18	2	15	41	20.19
13	9	16	1	19	45	22.16
14	25	93	8	56	182	89.66
15	16	43	8	38	105	51.72
16	21	62	7	43	133	62.52
17	14	48	8	53	123	60.59
18	18	59	4	36	117	57.64

N=203

Since the percentage of error of all items 14 to 18 is greater than 50 percent, the percentage of difficult items is 62.5%.

Test Item	Frequency of Wrong Answers				Total	Percent
	PSCA BSED	main campus BEED	PSCA TLR BSED	Campus BEED		
44	21	85	8	52	166	81.73
45	22	56	6	43	127	62.56
46	21	63	7	38	129	63.55
47	17	72	8	49	146	71.92
48	16	74	8	56	154	75.86
49	22	84	11	58	175	86.21

Table 6:- Errors in “Area and Volume” N=203

Since the percentage of error of all items is greater than 50 percent, the percentage of difficult items is 100%.

Table 7:- Errors in “Percentage” N=203

Test Item	Frequency of Wrong Answers				Total	Percent
	PSCA BSED	main campus BEED	PSCA TLR BSED	Campus BEED		
25	5	31	7	36	79	38.92
26	12	61	8	54	135	66.50
27	18	71	10	50	149	73.39
28	18	60	11	61	150	73.89
29	19	80	10	54	165	81.88
30	20	80	10	60	170	83.74
31	14	68	9	50	141	69.46

Since the percentage of error of items 26 to 31 greater than 50 percent, the percentage of difficult items is 87.71%

Table 8:- Errors in “Ratio and Proportions” N=203

Test Item	Frequency of Wrong Answers				Total	Percent
	PSCA BSED	main campus BEED	PSCA TLR BSED	Campus BEED		
32	15	72	8	58	153	73.37
33	15	52	7	43	117	57.64
34	18	59	6	42	125	61.58
35	17	67	9	42	135	66.50
36	6	30	6	35	77	37.93
37	15	77	9	59	160	78.82

Since the percentage of error of all items, except item no. 36 is greater than 50 percent, the percentage of difficult items is 83.33%.

Table 9:- Errors in “Fractions”

Frequency of Wrong Answers						
Test Item	PSCA BSED	main campus BEED	PSCA TLR BSED	Campus BEED	Total	Percent
19	19	75	6	50	150	73.89
20	15	81	8	54	158	77.83
21	11	57	8	45	121	59.11
22	13	73	7	45	138	67.98
23	16	69	6	40	131	64.53
24	18	79	7	50	154	78.86

N=203

Since the percentage of error of all items is greater than 50 percent, the percentage of difficult items is 100%.

Table 10:- Errors in “Integers”

Frequency of Wrong Answers						
Test Item	PSCA BSED	main campus BEED	PSCA TLR BSED	Campus BEED	Total	Percent
1	21	80	8	48	157	77.34
2	6	35	3	34	78	38.42
3	10	39	9	44	102	50.25
4	12	40	8	45	105	51.72
5	14	59	6	51	130	64.04

N=203

Since the percentage of error of items 1,4 and 5, is greater than 50 percent, the percentage of difficult items is 80%.

Table 11:- Result on the Pretest-Posttest Mean Scores N=12

Module Number	No. of Items	Pretest Mean Scores	Description	Posttest Mean Scores	Description
1. Exponents and Radicals	32	10.67	below average	15.16	below average
2. Area and Volume	21	6.16	below average	9.42	below average
3. Fraction	16	7.16	below average	8.83	above average
4. Percentage	16	6.92	below average	9.25	above average
5. Ratio and Proportion	16	7.08	below average	10.50	above average
6. Integers	18	9.08	above average	12.75	above average
7. Measurement and Scientific Notation	16	6.5	below average	8.08	above average

Table 12:- First Year Teacher Education Students’ Pretest-Posttest Mean Scores

Respondents Code No.	Pretest Score	Posttest Score	Computed Wilcoxon W	Tabular Value W_0	Decision
1	10	17			
2	9	16			
3	15	24			
4	11	18			
5	11	14	W*=5.5	$W_0=11$ $\alpha=.05$	$W \leq W_0$ Reject H_0
6	4	21			
7	8	12			
8	11	9			
9	13	14			
10	12	16			
11	12	9			
12	12	12			

* Significant ns= Not Significant
Significant Differences in Module 1, N=12

Table 13:- First Year Teacher Education Students’ Pretest-Posttest Mean Scores

Respondents Code No.	Pretest Score	Posttest Score	Computed Wilcoxon W	Tabular Value W_0	Decision
1	4	6			
2	3	14			
3	8	16			
4	4	9			
5	4	9	W*=5.0	$W_0= 8$ $\alpha=.05$	$W \leq W_0$ Reject H_0
6	4	6			
7	3	6			
8	9	12			
9	10	10			
10	6	8			
11	11	9			
12	8	8			

* Significant
ns= Not Significant
Significant Differences in Module 2, N=12

Table 14:- First Year Teacher Education Students' Pretest-Posttest Mean Scores

Respondents Code No.	Pretest Score	Posttest Score	Computed Wilcoxon W	Tabular Value W_0	Decision
1	6	8			
2	9	10			
3	10	13			
4	6	6			
5	5	10	W*=1.5	$W_0=8$	$W \leq W_0$
6	7	10		$\alpha=.05$	Reject H_0
7	8	8			
8	9	11			
9	8	7			
10	8	10			
11	4	7			
12	4	6			

* Significant
 ns= Not Significant
 Significant Differences in Module 3, N=12

Table 15:- First Year Teacher Education Students' Pretest-Posttest Mean Scores

Respondents Code No.	Pretest Score	Posttest Score	Computed Wilcoxon W	Tabular Value W_0	Decision
1	3	12			
2	6	9			
3	10	16			
4	9	10			
5	4	8	W*=2.5	$W_0=8$	$W \leq W_0$
6	6	7		$\alpha=.05$	Reject H_0
7	9	9			
8	10	12			
9	7	9			
10	9	10			
11	4	3			
12	6	6			

* Significant
 ns= Not Significant
 Significant Differences in Module 4, N=12

Table 16:- First Year Teacher Education Students' Pretest-Posttest Mean Scores

Respondents Code No.	Pretest Score	Posttest Score	Computed Wilcoxon W	Tabular Value W_0	Decision
1	7	10			
2	7	14			
3	5	12			
4	9	9			
5	4	10	W*=5.0	$W_0=11$	$W \leq W_0$
6	2	10		$\alpha=.05$	Reject H_0
7	10	8			
8	10	12			
9	7	5			
10	11	13			
11	5	9			
12	8	13			

* Significant
 ns= Not Significant
 Significant Differences in Module 5, N=12

Table 17:- First Year Teacher Education Students' Pretest-Posttest Mean Scores

Respondents Code No.	Pretest Score	Posttest Score	Computed Wilcoxon W	Tabular Value W_0	Decision
1	5	15			
2	11	16			
3	12	16			
4	10	10			
5	10	12	W*=4.0	$W_0=11$	$W \leq W_0$
6	5	16		$\alpha=.05$	Reject H_0
7	8	11			
8	7	14			
9	7	10			
10	13	12			
11	11	12			
12	10	9			

* Significant
 ns= Not Significant
 Significant Differences in Module 6, N=12

Table 18:- First Year Teacher Education Students' Pretest-Posttest Mean Scores

Respondents Code No.	Pretest Score	Posttest Score	Computed Wilcoxon W	Tabular Value W_0	Decision
1	7	8			
2	7	9			
3	7	12			
4	4	8			
5	4	8	$W^*=4.5$	$W_0=6$	$W \leq W_0$
6	6	6		$\alpha=.05$	Reject H_0
7	8	9			
8	6	6			
9	8	8			
10	7	8			
11	7	5			
12	7	10			

* Significant

ns= Not Significant

Significant Differences in Module 7, N=12

Table 19:- First Year Teacher Education Students' Pretest-Posttest Mean Scores

Module Number	N	Pretest Mean Scores	Posttest Mean Scores	Computed Wilcoxon W	Computed Value W_0 ($\alpha=.05$)	Tabular Value W_0	Decision
1. Exponents and Radicals	12	10.67	15.16	$W^*=5.5$	$W_0=11$	$W \leq W_0$	reject H_0
2. Area and Volume	12	6.16	9.42	$W^*=5.0$	$W_0=8$	$W \leq W_0$	reject H_0
3. Fraction	12	7.16	8.83	$W^*=1.5$	$W_0=8$	$W \leq W_0$	reject H_0
4. Percentage	12	6.92	9.25	$W^*=2.5$	$W_0=8$	$W \leq W_0$	reject H_0
5. Ratio and Proportion	12	7.08	10.50	$W^*=5.0$	$W_0=11$	$W \leq W_0$	reject H_0
6. Integers	12	9.08	12.75	$W^*=4.0$	$W_0=11$	$W \leq W_0$	reject H_0
7. Measurement and Scientific Notation	12	6.5	8.08	$W^*=4.5$	$W_0=6$	$W \leq W_0$	reject H_0

Significant Differences in each module

IV. DISCUSSIONS

Results of this investigation revealed that the Polytechnic State College of Antique First Year Education Students had difficulties in the following areas of basic mathematics 1; 1) exponents and radicals, 2) perimeter, area and volume, 3) fractions, 4) percentage, 5) ratio and proportions, 6) integers, and 7) measurement and scientific notation.

The scores in the test used as an instrument showed an error of more than 50% in each area of basic mathematics 1, it implies that first year teacher education students in PSCA

lack the mastery and computational skills in basic mathematics 1.

Identifying difficulties in basic mathematics I in this investigation form as bases for module development that serve as the learning guide for the improvement for the acquisition of new skills. The success of learning new skills depends on the mastery of the prerequisite skills needed in the learning process (Buscat, 1994).

Modules are organized learning tasks, sequenced and stated clearly, in such a way that it gives enough instruction and guidance to students in the absence of the teacher, Modular concept is a new curriculum design dedicated to

the proposition that individual progress is the most effective approach to the teaching learning process (Hidalgo, 1984).

V. CONCLUSIONS AND RECOMMENDATIONS

Based on the result of the investigation conducted, It was found out that first year teacher education students perform relatively low the following areas in Basic mathematics I; Exponents and Radicals, Measurement and Scientific Notation, Area and Volume, Percentage, Ration and Proportion, Fractions and Integers. The modules that were developed are useful in helping students cope with their difficulties, are effective supplementary instruction materials in improving students' performance, strengthen classroom instruction and a useful review materials in Basic Math I exams.

The poor performance of the students in the achievement test in Basic mathematics I, points to an increased emphasis on the teaching of these topics especially on the areas of: Exponents and Radicals, Measurement and Scientific Notation, Area and Volume, Percentage, Ration and Proportion, Fractions and Integers that would help in meeting students difficulty. Remedial teaching should be adopted as an integral part of the program in Basic Mathematics I. A committee composed of experts and authorities in teaching mathematics should be formed to help construct modules on different areas which will be used in the remedial program. An evaluation scheme must be adopted to assess the modules before they will be made available for use by the students.

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