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**ABSTRACT**

This study was aimed at determining the students analytical thinking skills and teachers' instructional practices in algebra in selected state universities and colleges in region VIII. Specifically it sought to determine the socio-demographic profile of the students, their performance in Algebra, teachers' instructional practices in Algebra, socio demographic profile of the teachers teaching Algebra; and to determine the relationship between these variables. Data gathering was done through a survey questionnaire designed for the purpose, and statistical treatment of data utilized the frequency, percentage, and mean; and the Pearson Product-Moment Coefficient of Correlation and the Chi-square Test for the test of hypotheses. The socio-demographic profile of the students respondents highlighted that majority of the respondents were males; 16 years old; parents have a low average income and average rating of good both in Mathematics and Algebra. Characteristics of the student-respondents highlighted that majority of the undergraduate students were females and single; the greatest majority had not taken any Mathematics subject; and all had not taken any Statistics or Research subject. On the other hand, majority of the graduate students were females and married; all had taken Mathematics subjects; only a few had taken Statistics subject; and the greatest majority had taken Research subjects. Both the undergraduate and graduate students generally had positive attitudes towards Statistics and had sufficient knowledge in both descriptive and inferential statistics.

**KEYWORDS:** Algebra; Analytical Thinking Skills; Instructional Practices.

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**INTRODUCTION**

Analytical thinking skills had been categorized into seven major areas, which are modeling, reasoning, symbolization, representation, proving, abstraction, and mathematization. However, these major cognitive activities are hard to be categorized due to their similarity and interrelation, Karadag (2009).

In the previous study of analytical thinking, there were some incomplete parts when defining it. In the study of Karadag (2009), he stated that mathematical thinking is a thinking style supported by thinking skills. The definition of this mathematical thinking is not emphasized on the attitudes of the students. However, if the students do not show good attitude in mathematics, they will not confident in solving problems. This situation is the same as in the work of Mubark (2005), when he defined that mathematical thinking consists of six aspects, which is generalization, induction, deduction, use of symbols, logical thinking, and mathematical proof.

Mathematics is a way to understand the world and writing is a way to understand mathematics. Mathematics reveals hidden patterns that help us understand the world around us. Mathematics today is a diverse discipline that deals with data, measurements, and observations from science, with inference, deduction, and proof and with mathematical models of natural phenomena, of human behavior, and social systems. Mathematics, as major intellectual tradition,

is a subject appreciated as much for its beauty as well as for its power. Like language, religion, and music, mathematics is a universal part of human culture, Pecajias,( 2009).

Pecajias (2013) stressed that Algebra is a subject that students fear most, if not hate. This hatred and lack of interest for the subject may be due to early frustrations or lack of proper psychological approaches or perhaps the reflection of the behavior and attitudes of the teachers handling the subject. More often than that not, these teachers dislike and fear as well.

Mathematical thinking tools are analytical habits of mind. They include problem solving skills, representation skills, and reasoning skills. Fundamental algebraic ideas represent the content domain in which mathematical thinking tools develop. Within this framework, it is understandable why conversations and debates occur within the mathematics community regarding what mathematics should be taught and how mathematics should be taught. In reality, both components are important. One can hardly imagine thinking logically (mathematical thinking tools) with nothing to think about (algebraic ideas). On the other hand, algebra skills that are not understood or connected in logical ways by the learner remain "factoids" of information that are unlikely to increase true mathematical understanding and competence (Kieran 1992).

There are several variables that might make algebra difficult to comprehend: the content of algebra, the way algebra is taught, or students; inappropriate approaches (Kieran 1992). Within either of these, the teacher might have a central role to prevent, lessen, or deal with the difficulties student encountered. The quality of what our students learn depends on how teachers and students operationalize the curriculum. The teachers and school managers know what learners need and how these can be met. The students' analytical thinking skills and teachers' instructional practices can be taken as the initial indicator of success in the teaching-learning process within the classroom environment.

### Objectives Of The Study

This study aims to find out the relationship between students' analytical thinking skills and teachers' instructional practices in selected state universities and colleges in Region VIII. Specifically, it seeks to answer the following:

- [1] find out the profile of the teachers teaching Algebra in terms of: age ; sex; civil status; highest educational attainment ; number of seminars/ training attended in Mathematics or Algebra and number of years in teaching Algebra;
- [2] find out the profile of the students in terms of: age ; sex; parents monthly income; grade in Mathematics and Grade in Algebra;
- [3] determine the teachers' instructional practices in teaching Algebra in terms of: teaching strategies employed; instructional materials used and types of assessment;
- [4] Measure the analytical thinking skills of the freshmen college students based on their performance in Algebra;
- [5] Ascertain the significant relationship between the profile of the teachers and students' performance in Algebra;
- [6] Ascertain the significant relationship between the profile of the students and their performance in Algebra;
- [7] Ascertain the significant relationship between the students' performance in Algebra and the teachers' instructional practices and

### Framework of the Study

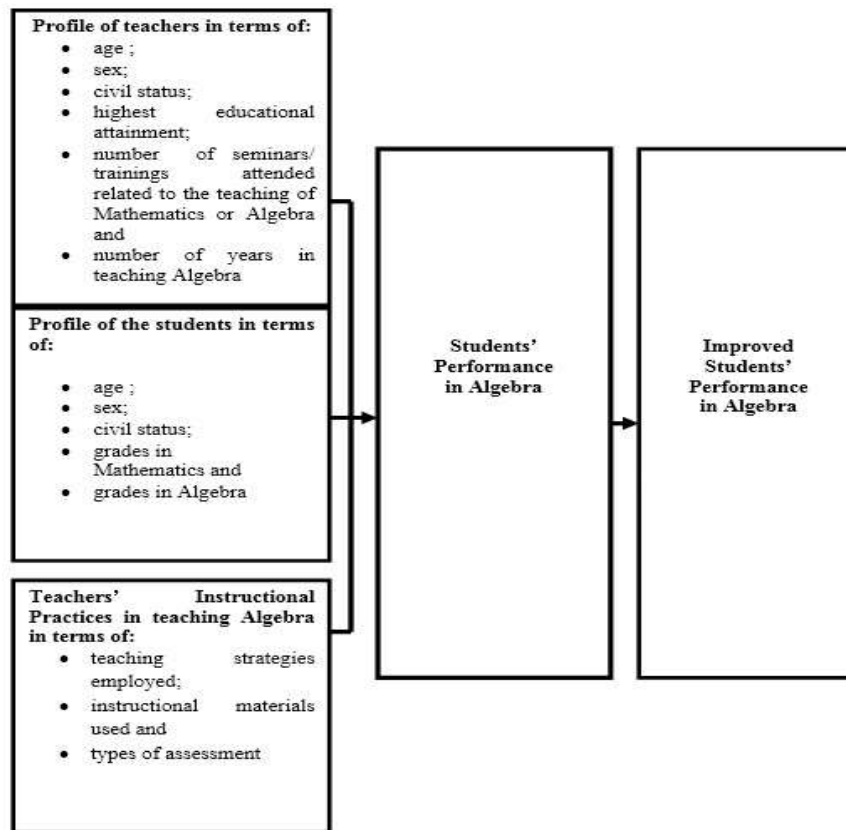
This study anchored on theoretical and conceptual frameworks that have bearings on the intent of the study.

*Theoretical framework.* This study based its concepts and operation on the analytical thinking skills. The following theories serves as the strong foundations in this study.

Incidental Learning Theory, Jerome Bruner (1915) refers to the concepts and skills in mathematics through engaging in life-like concepts in which the learners essentially experience, react and do. Learning therefore is a natural experience and still functional. In here, teaching of mathematics should emphasize the everyday lives of the learners and develop in themselves the techniques of reading and writing mathematical statements by integrating it with other subjects.

In consonance with the aforementioned theory is the Meaning Theory Lewis (1970) which refers to the belief that the integrated system of ideas, principles and processes should be recognized as a whole rather than as isolated elements. In this theory, the ability of the learners to do quantitative thinking is developed and to analyze carefully problem is very important because knowledge of ideas and principles of mathematics is needed by the pupils before he can solve a given problem. The Multiple Intelligences Theory. Howard Earl Gardner (1983) states that students are all able to know the world through language and logical mathematical analysis was also used as a basis of this study. This involves the capacity to analyze problems logically, carry out mathematical operation and investigate issues scientifically. However, the two most important criteria for helping students gain conceptual understanding are making connections and intentionally struggling with important ideas. Research in the 70s and 80s concluded that skill efficiency is best attained by rapid facing, direct traditional teaching and a smooth transition from teacher modeling to error-free practice. More recent research shows that students who learn skills in conceptually-oriented instruction are better able to adapt their skills to new situations.

*Conceptual Framework.* The notion behind the conceptualization of the study is geared towards the student analytical thinking skills and teachers instructional practices in Algebra in selected State Universities and Colleges in Region VIII.



**Figure1. The Conceptual Framework of the Study**

## METHODOLOGY

This study appropriately used the descriptive method of research mainly because it attempted to explicate possible problems under study which determine the relationship between students' analytical thinking skills and teachers' instructional practices in Algebra in selected state universities and colleges in Region VIII. This study was conducted in Region VIII covering the selected state universities and colleges to wit; Naval State University (NSU), Eastern Visayas State University (EVSU), Leyte Normal University (LNU), Samar State College (SSU), Visayas State University (VSU) and Palompon Institute of Technology (PIT).

Research subjects were the students taking the Algebra and at the same time teachers teaching Algebra in the selected state universities and colleges in Region VIII. This is presented in table 1.

**Table 1** Distribution of Respondents

Respondents	Universities/Colleges						Total
	EVSU	LNU	NSU	PIT	SSU	VSU	
Teachers	5	7	10	4	5	8	39
Students	74	81	105	104	66	72	502

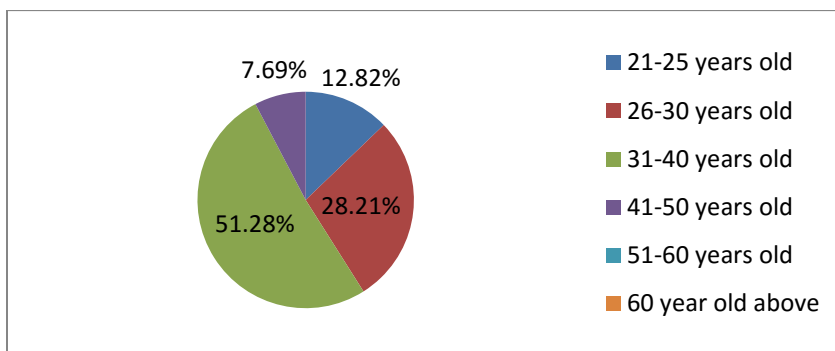
The instrument used was a questionnaire designed by the researcher for the purpose of the study. The data gathered after securing approval from the dean of the Graduate School and the College President to conduct the study, the questionnaires were distributed to the student and teacher respondents. Retrieval of the filled-up questionnaires was done immediately after a couple of hours. However, for the questionnaire distributed to other universities, the researcher sought an approval from their presidents. They were informed about the purpose and their participation in the study. Questionnaires were retrieved personally or via mail. In obtaining the teachers instructional practices in teaching algebra, the data were collated and tabulated as multiple response. The statistical treatment and techniques to be employed in this study based on the objectives and hypotheses are the following: Frequency and Percentage, Chi – Square Test, Pearson Product-Moment Coefficient of Correlation.

## RESULTS AND DISCUSSION

### Profile of the Teachers

This section presents the analysis and interpretation of the teachers’ profile in terms of age, sex, civil status, highest educational attainment, number of seminars/training attended in mathematics or algebra and number of years in teaching algebra. This is presented in Table 2.

*Age.* Five (5) or 12.82 percent between age of 21-25 years old, 11 or 28.21 percent between 26-30 years old, 20 or 51.28 percent between age of 31-40 years old, three (3) or 7.69 percent between age of 41-50 years old. This implies that majority of the teachers teaching algebra is between an age of 31 to 40 years old.



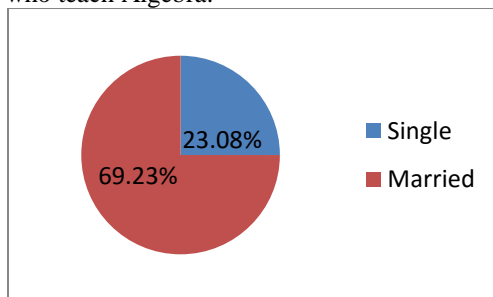
**Percentage Distribution of Age**

**Table 2** Profile of the Teachers

Teachers Profile	Frequency	Percentage
Age		
21-25	5	12.82
26-30	11	28.21

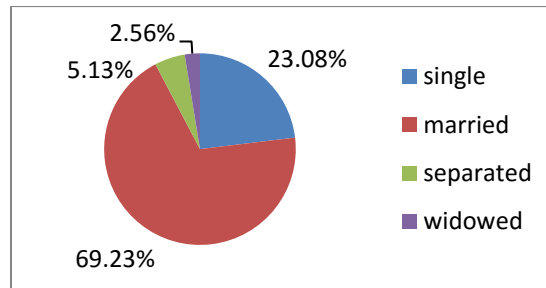
31-40	20	51.28
41-50	3	7.69
51-60	0	0
60 above	0	0
Total	39	100
Sex		
Male	22	56.41
Female	17	43.59
Total	39	100
Civil Status		
Single	9	23.08
Married	27	69.23
Separated	2	5.13
Widowed	1	2.56
Total	39	100
Highest Educational Qualification		
Doctorate degree holder		
Masters with doctoral units	1	2.56
Masters degree holder	6	15.38
Baccalaureate with masteral units	15	38.46
Baccalaureate degree holder	14	35.90
	3	7.70
Number of seminars/training attended in Mathematics and Algebra		
5 and more	1	2.56
3-4	16	41.03
1-2	16	41.03
None	6	14.38
Number of years in teaching Algebra		
5 and more years	17	43.59
3 – 4 years	18	46.15
1 - 2 years	4	10.26
less than 1 year	0	0

Sex. There were 22 or 56.41 percent were males and 17 or 43.59 percent were females. These findings implies that majority of the teachers are males who teach Algebra.



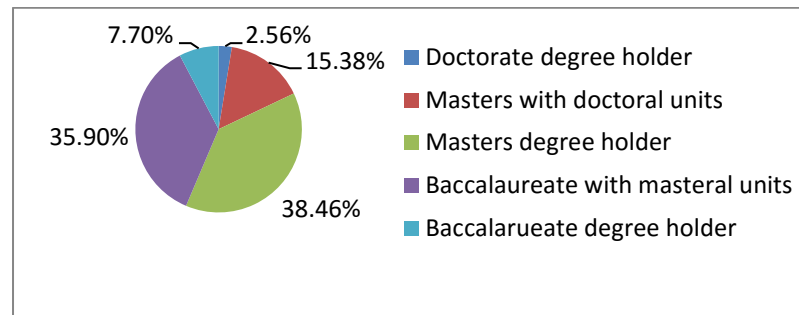
*Percentage Distribution of Sex*

*Civil Status.* Of the 39 respondents, nine (9) or 23.08 percent were single, 27 or 69.23 percent were married, two (2) or 5.13 percent were separated and one (1) or 2.56 percent were widowed. It is clear in this findings that majority of the teachers teaching algebra were married.



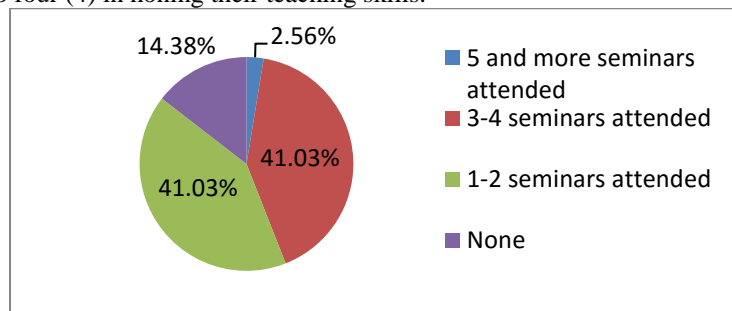
*Percentage Distribution of Civil Status*

*Highest Educational Qualifications.* There are five (5) indicators made in this variable. Out of 39, one (1) or 2.56 percent were doctorate degree holder, six (6) or 15.38 percent have a masters' degree with doctoral units, 15 or 38.46 percent were masters' degree holder, 14 or 35.90 percent baccalaureate with master units and three (3) or 7.70 percent baccalaureate degree holder. This implies that majority of the teachers teaching algebra were masters' degree holder.



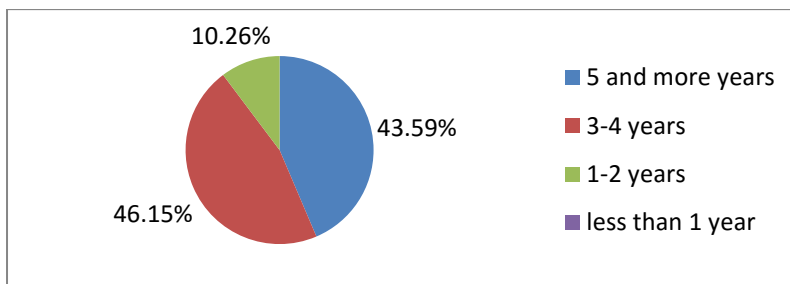
*Percentage Distribution of Highest Educational Qualification*

*Number of seminars/training attended in Mathematics or Algebra.* One (1) or 2.56 percent of the teachers had attended seminars and trainings, 16 or 41.03 percent have attended more than one or less than and six (6) or 14.38 percent did not undergo seminars and trainings. This implies that majority of the teachers attended seminars more than one (1) but less than or equal to four (4) in honing their teaching skills.



*Percentage Distribution of the Number of seminars/training attended in Mathematics or Algebra*

*Number of years in teaching Algebra.* Nobody among the respondents who teach Algebra in less than one (1) year. Four (4) or 10.26 percent teaching one (1) to two (2) years, 18 or 46.15 percent teaching three (3) to four (4) years and 17 or 43.59 percent teaching more than five (5) years. This implies that majority of the teachers teaching algebra is more than one to four (4) years.

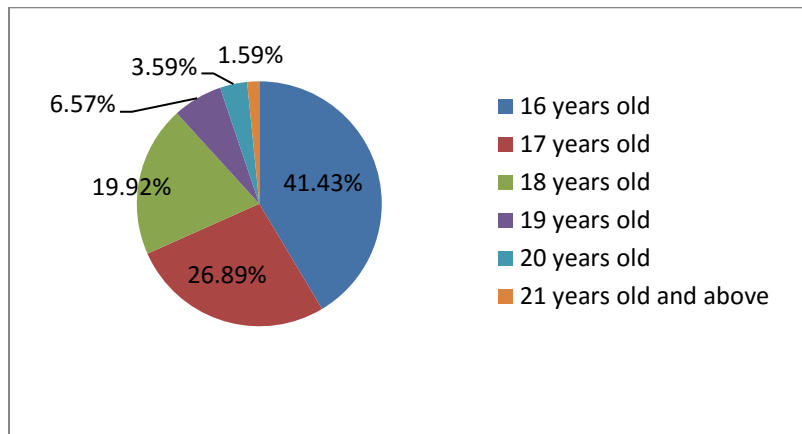


*Percentage Distribution of the number of years in teaching algebra*

### Profile of the Students

This section presents the analysis and interpretation of the students' profile in terms of age, gender, parents monthly income grades in mathematics and grades in algebra. This is presented in Table 3.

**Age.** This is categorized into 16, 17, 18, 19, 20, & 21 years old. The students respondent totaled 502 in which; 208 or 41.43 percent were 16 years old, 135 or 26.89 percent were 17 years old, 100 or 19.92 percent were 18 years old, 33 or 6.57 percent were 19 years old and eight (8) or 1.59 percent were 8 years old. These findings indicates that majority of the students were 16 years of age.



*Percentage Distribution of Age*

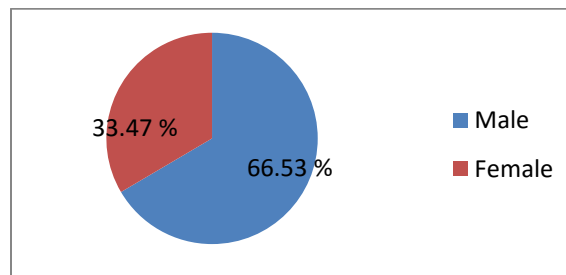
*Table 3 Profile of the Students*

Profile of the Students	Frequency	Percentage
Age		
16	208	41.43
17	135	26.89
18	100	19.92
19	33	6.57
20	18	3.59
21	8	1.59
Total	502	100
Sex		
Male	334	66.53
Female	168	33.47



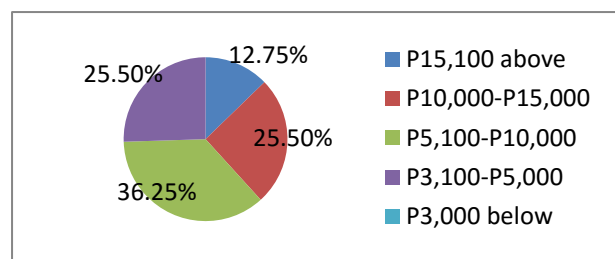
Total	502	100
Parents Monthly Income		
P15,100 above		
P10,000 - P15,000	64	12.75
P 5,100 - P10,000	128	25.50
P3,100 - P5,000	182	36.25
P3,000 below	128	25.50
	0	0
Grades in Mathematics		
90% - above	63	12.55
85% - 89%	164	32.67
80% - 84%	198	39.44
75% - 79%	77	15.33
70% - 74%	0	0
below 70%	0	0
Grades in Algebra		
1.0	1	.19
1.1 – 1.5	74	14.74
1.6 – 1.9	112	22.31
2.0 – 2.5	207	41.23
2.6 – 2.9	95	19.92
3.1 – 4.0	7	1.39

Sex. For male; there were 334 or 66.53 percent and 168 or 33.47 percent were females. These findings implies that majority of the students are males.



**Percentage Distribution of Sex**

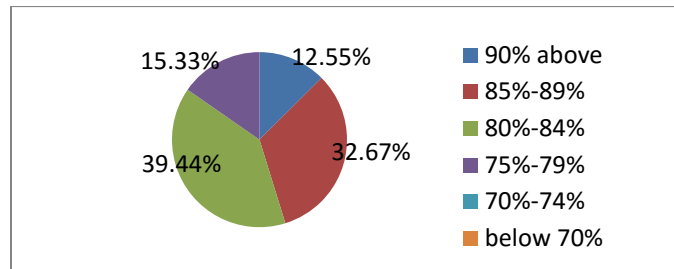
*Parents monthly income.* As shown in the table most of the parents were receiving between P5,100-P10,000 monthly income. This means that majority of the parents have a low average income salary classification of the National Economic Development Authority (NEDA).



**Percentage Distribution of Parents Monthly Income**

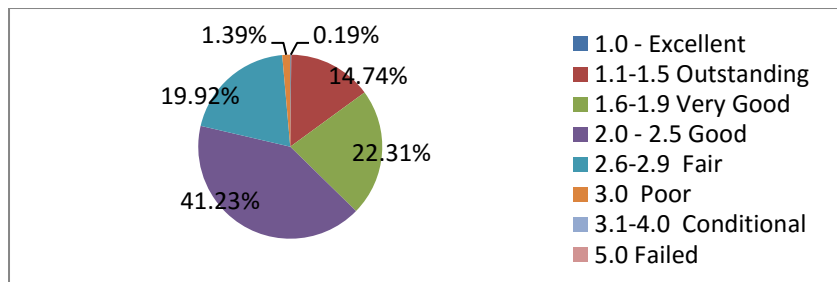


*Grades in Mathematics.* Of the 502 students, 64 or 12.55 percent have grades of 90% above as an excellent student, 164 or 32.67 percent very good, 198 or 39.44 percent good, 77 or 15.33 percent as fair, and nobody got below 70%. This implies that majority of the respondents have an average rating of good remarks.



*Percentage Distribution of Grades in Mathematics*

*Grades in Algebra.* Of the 502 students, 1 or .19 percent had an excellent rating, 74 or 14.74 percent outstanding, 112 or 22.31 percent were very good, 207 or 41.23 percent as good, 95 or 19.92 percent were Poor, 7 or 1.39 percent conditional. This implies that majority of the students having a good or an average grade.

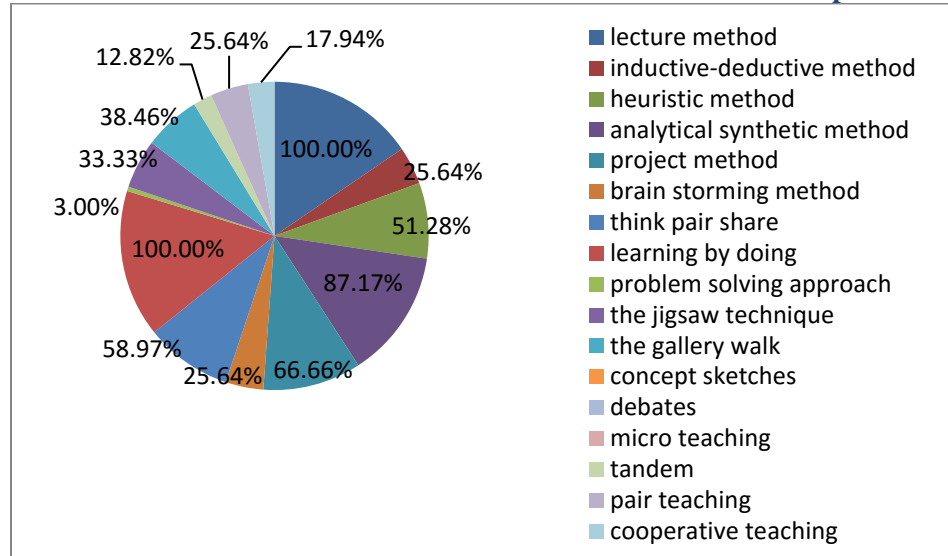


*Percentage Distribution of Grades in Algebra*

### Teachers Instructional Practices in Teaching Algebra

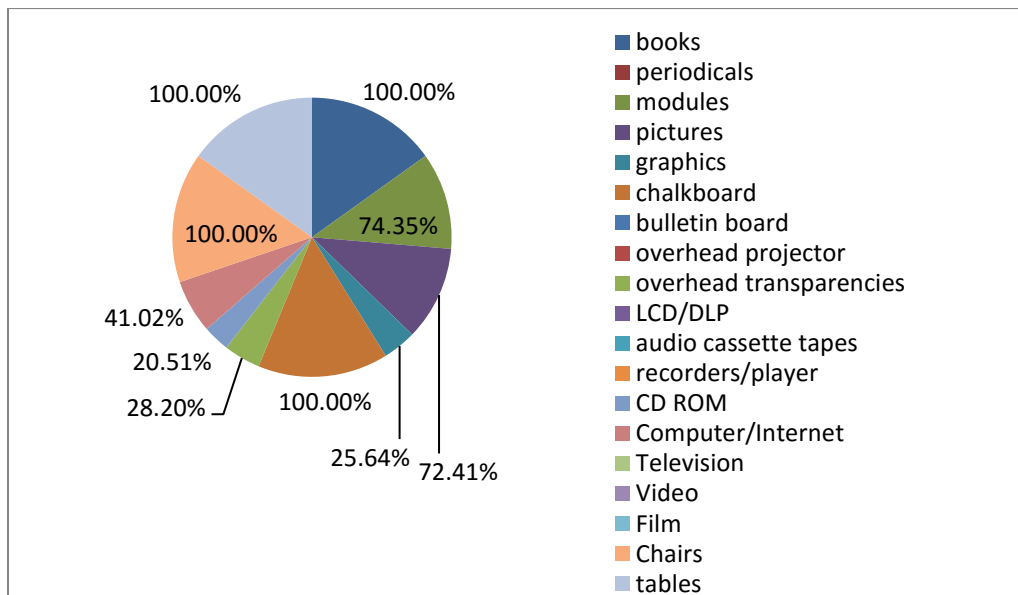
This section presents the analysis and interpretation of the teachers' instructional practices in teaching algebra in terms of teaching strategies, instructional material used and types of assessment. This is shown in Table 4.

*Teaching Strategies.* In dealing with the teachers instructional practices in teaching algebra, respondents perceive that lecture method and problem solving approach is the most used teaching strategy inside the classroom. Both method has a 100 percent, in which, can be stated as one of the instructional practices that teacher is being used too. The learning by doing approach is the least used method which gain 3 percent only.



*Percentage Distribution of Teaching Strategies*

Instructional Materials Used. Teachers or instructors as perceived by respondents, concluded that books and chalkboard were the most used instructional materials with 100 percent. CD Rom for multimedia is lesser used by teachers with 20.51 percent. While, bulletin board, overhead projector, overhead transparencies, audio cassette tapes, records/players television, video, and film are not used at all in instructional practices in teaching algebra.



*Percentage Distribution of Instructional Materials Used*

In other words, the lecture method and problem solving approach are the most common instructional practices that teachers employ in teaching Algebra.

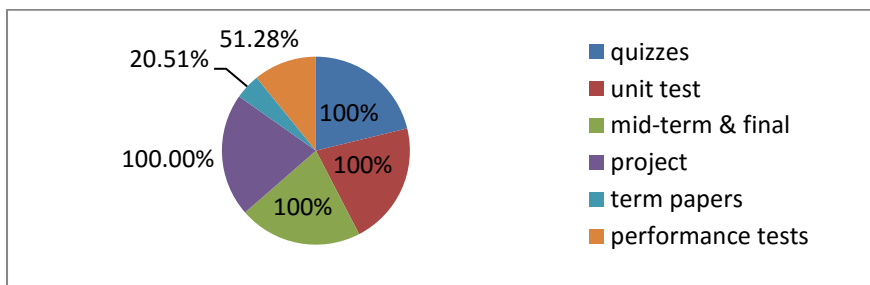
*Table 4 Teachers Instructional Practices in Teaching Algebra*

Instructional Practices	Frequency	Percentage
<b>Teaching Strategies</b>		
Lecture Method	39	100
Inductive-Deductive Method	10	25.64
Heuristic Method	20	51.28
Analytical Synthetic Method	34	87.17
Project Method	26	66.66
Brain Storming	10	25.64
Think-pair-share	23	58.97
learning by doing	3	3
problem solving approach	39	100
the jigsaw technique	13	33.33
the gallery walk	15	38.46
concept sketches	0	0
debates	0	0
micro teaching	0	0
tandem	5	12.82
pair teaching	10	25.64
cooperative teaching	7	17.94
<b>Instructional Materials Used</b>		
<b>Text Print</b>		
books		
periodicals	39	100
modules	0	0
<b>Still Visuals/Printed Visuals</b>	29	74.35
pictures		
graphics	21	72.41
<b>Displayed Visuals</b>	10	25.64
chalkboard		
bulletin board	39	100
<b>Projected Visuals</b>	0	0
overhead projector		
overhead transparencies	0	0
LCD/DLP	0	0
<b>Audio Technologies</b>	11	28.20
audio cassette tapes		
recorders/player	0	0
	0	0
<b>Instructional Practices</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Multimedia</b>		
CD ROM	8	3.19
Computer/Internet	16	6.37
<b>Audio Visuals/Motion Pictures Media</b>		
Television		
Video	0	0

Film	0	0
<b>Realia</b>	0	0
chairs	39	21.20
tables	39	21.20
<b>Types of assessment</b>		
formative tests		
quizzes	39	100
unit test	39	100
summative tests		
mid-term & final examinations	39	100
project		
term papers	39	100
performance tests	8	20.51
	20	51.28

\* *multiple response* \*

*Type of Assessment.* Respondents perceived that to assess their knowledge about algebra, teachers uses quizzes and unit test for formative tests with 100 percent. For summative tests, midterm and final examinations and projects, are the frequently used evaluation for students inside the classroom, term test is the least assessment used.



*Percentage Distribution of the Types of Assessment*

### Relationship of Variables

This section deals with the relationship of variables, whose hypotheses were tested using the Pearson Product-Moment Coefficient of Correlation and the Chi-square Test. The socio-demographic profile of the students and their performance and the socio-demographic profile of the teachers and students performance is presented in Table 5 & 6.

*Table 5 Profile of the Teachers' and Students Performance*

Profile of the teacher	<i>r</i>	CV	TV	Decision
Age	.98	2.10	2.120	H <sub>0</sub> accepted
Sex	.96	2.01	2.120	H <sub>0</sub> accepted
Civil Status	.91	2.10	2.120	H <sub>0</sub> accepted
Highest Educational Attainment	1.0	2.73	2.120	H <sub>0</sub> rejected
Number of seminars and trainings attended in Mathematics/Algebra	1.0	2.61	2.120	H <sub>0</sub> rejected

Number of years in teaching Algebra	1.0	2.35	2.120	H <sub>0</sub> rejected
Students Performance in Algebra	.74	2.89	2.120	H <sub>0</sub> rejected

*df* = 16 *alpha* = 0.05

Profile of Teachers and Students Performance. As shown in Table 5, the result of the treatment of the data on profile of the teachers and students performance. The age, sex, civil status, number of seminars and trainings attended related in Mathematics and Algebra, the computed value is less than the table value of 2.120 with 16 degrees of freedom, the respective hypotheses were accepted at the 0.05 level of significance. Thus: highest educational attainment, number of years in teaching Algebra and students performance in algebra coefficient of correlation  $r$  1.0 is perfect correlation, and the computed value are 2.73, 2.65 & 2.89 which is greater than the 2.120, the hypotheses were rejected. This means that students performance is significantly related to the teachers highest educational attainment, number of years in teaching, and students performance in algebra.

**Table 6 Profile of the Students and their Performance**

Profile of the students	$r$	CV	TV	Decision
Age	.98	2.11	2.120	H <sub>0</sub> accepted
Sex	.89	2.09	2.120	H <sub>0</sub> accepted
Parents monthly income	.75	3.0	2.120	H <sub>0</sub> rejected
Grade in Mathematics	.88	2.30	2.120	H <sub>0</sub> rejected
Students Performance in Algebra	.74	2.35	2.120	H <sub>0</sub> rejected

*df* = 16 *alpha* = 0.05

Profile of Students and their Performance. The result of the treatment of the data on profile of the students and their performance. The age and sex, the computed value is less than the table value of 2.120 with 16 degrees of freedom, the respective hypotheses were accepted at the 0.05 level of significance. Thus: parents monthly income, grade in mathematics, and grade in Algebra, with a coefficient of correlation  $r$  of .75, .88 and .74 the computed value are 3.0, 2.3 & 2.35 which is greater than the 2.120, the hypotheses were rejected. This means that students performance is significantly related to the parents monthly income, grade in mathematics and algebra.

Teachers Instructional Practices and Students Performance. The results of the treatment of the data on teachers instructional practices and students performance in Algebra using the chi-square ( $\chi^2$ ) test of hypothesis presented in Table 7.

**Table 7 Teachers' Instructional Practices and Students Performance**

Variable	$r$	CV	TV	Decision
Teachers Instructional Practices and Students Performance in Algebra	.74 .72	7.66	2.101	H <sub>0</sub> rejected

*df* = 18 *alpha* = 0.05

As shown in the table, with coefficients of correlation  $r$  of .74 and .72, respectively, and the computed chi-square value of 7.66 which is greater than the table value of 2.101 at the 0.05 level of significance, the hypothesis “there is no significant relationship between instructional practices and students performance” is rejected. Therefore, it is safe to conclude that students performance of students in Algebra is strongly influenced by teachers’ instructional practices. This finding would imply that a strong foundation of teachers instructional practices could greatly help the students and consequently derive higher learning and better performance in the subject.

## CONCLUSION AND RECOMMENDATION

Based on the findings of the study, the following conclusions were drawn: Teachers profile highlighted that majority of the respondents were males; age of 31 to 40 years old; married; masters’ degree holder; attended seminars less than one (1) and teaching Algebra more than one year but less than four. Students profile highlighted that majority of the respondents were males; 16 years old; parents have a low average income and average rating of good both in Mathematics and Algebra. The test of hypotheses revealed that students age and gender is not significantly related to performance but the parents monthly income, grades in mathematics and algebra is significantly related to performance. On the other hand, the teachers age, gender, civil status is not significantly related to performance but the highest educational attainment, number of seminars or trainings attended, number of years in teaching algebra is significantly related and the instructional practices of the teachers such as the teaching strategies, instructional materials used and types of assessment is strongly influenced by their performance towards Algebra.

Based on the findings and conclusions of this study, the following recommendations are forwarded: Subject teachers in Algebra should be made aware that teaching the subject needs and requires special skills, methods and techniques in motivating their students to catch their interest in the subjects. Additionally, the teaching strategies and instructional material used should be observed. School administrators should provide ways and means to upgrade their faculty in the methods and techniques of teaching Algebra. Algebra teachers may be encouraged to design Students Analytical Thinking Skills and Instructional Practices in Algebra (SATSIPA) instrument adapted to Filipinos in the Philippine setting, pilot test it for reliability and validity, and standardize it for later use. A replication of this study, or follow-up studies, should be done focused on designing instructional materials for the improvement of students performance of Algebra students on their analytical thinking skills.

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**PROPOSED INSTRUCTIONAL INTERVENTION PLAN FOR THE IMPROVEMENT OF THE STUDENTS' PERFORMANCE IN ALGEBRA**

<b>Objectives</b>	<b>Strategies</b>	<b>Time Frame</b>	<b>Person Involved</b>	<b>Target Clientele</b>	<b>Success Indicators</b>
Make an analytical thinking skills questionnaire for the freshmen students based on their performance in algebra.	Administering the questionnaire	June 2013	Math Teachers	Algebra Students	Help to improve analytical thinking skills performance in Algebra
Design appropriate and highly relevant teaching aids and materials in algebra	Adopting simple, understandable and highly motivational exercises	July 2013	Math Teachers	Algebra Students	Increased motivation for students
To upgrade teaching strategies suited to the level of students	Choosing simple and easy approached and methodologies	July 2013	Math Teachers	Algebra Students	Increased learning
Update materials to support mathematics learning	The newest and best teaching and learning materials for mathematics will be identified, evaluated and recommended	August 2013	Math Teachers	Algebra Students	Increased learning
<b>Objectives</b>	<b>Strategies</b>	<b>Time Frame</b>	<b>Person Involved</b>	<b>Target Clientele</b>	<b>Success Indicators</b>
Update materials to support mathematics	to the school educators. Lists of recommended textbooks and teacher resources, multimedia, and community	August 2013	Math Teachers	Algebra Students	Increased learning



learning	resources/sources will be posted on the school website.				
Increase the time allotment of mathematics subject	Submit proposal to the Dean	Sept. 2013	Math teachers	School Administrator and mathematics teacher	Enhanced supervision of students
Improve curriculum content coverage	Covering all the intended curriculum content in order to master the desired learning competence Starting in Spring consultants will work directly with classroom teachers.	October 2013	Math Teachers	Algebra Students	Fully covered curriculum
<b>Objectives</b>	<b>Strategies</b>	<b>Time Frame</b>	<b>Person Involved</b>	<b>Target Clientele</b>	<b>Success Indicators</b>
More training for teachers in new mathematics curriculum, instruction and evaluation techniques and strategies	The department will provide a series of in service workshops for mathematics teachers they were to undergo into workshops regarding instructional practices , types of assessment and teaching strategies and evaluation.	Nov. 2013	Math Teachers Deans'	Math Teacher	Acquired better instruction and evaluation techniques and strategies
Work with education partners to support mathematics	A collaborative study will be conducted of the amount of time students spend	Nov. 2013	Math Teachers Deans' Students	Math Teacher Students	Improved classroom instructions and have an

learning	doing mathematics in the classroom.				ample time in analyzing and solving problem.
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