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OPTIMIZING MATHEMATICS INSTRUCTION: A STUDY ON CLASSROOM ASSESSMENT PRACTICES AND STUDENT OUTCOMES AT BALAYAN EAST CENTRAL SCHOOL SY 2023-2024

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ABSTRACT

This action research entitled "Optimizing Mathematics Instruction: A Study on Classroom Assessment Practices and Student Outcomes at Balayan East Central School " is an attempt to determine and identify the classroom assessment practices of Mathematics teachers and pupils performance in grade IV, V and VI at Balayan East Central School.

The researchers also focus on the level of classroom assessment practices by the Mathematics Teachers, the level of achievement of Grade IV, V and VI pupils and the significant relationship between the classroom assessment practices of Mathematics teachers and academic achievement of the pupils,

The respondents of this study were the Mathematics teachers of Grade IV, V, and Grade VI and the selected pupils of Balayan East Central School

The questionnaires comprised three groupings: **teachers' concept on assessment**, **classroom practices** and **strategies** (assessment). **Weighted mean** was utilized to determine the level of **classroom assessment** practices by the mathematics teachers, the average was taken to determine the **level of achievement** of the pupils with reference to the level of proficiency, and the **Chi-square test** of independence for the **significant relationship** between the classroom assessment practices of the teachers and the

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This situations prompted the researchers to evaluate classroom practices of mathematics teachers and student performance among the grade IV, V, and VI pupils in their school.

INTRODUCTION / CONTEXT AND RATIONALE

The world today recognizes the importance of achieving high levels of literacy and numeracy. Studies have shown that societies with high levels of literacy and numeracy have lower levels of poverty (Policy Investment Framework (PIF, 2000). It has been accepted that good education leads to economic growth hence reduced poverty and improved health (Ministry of education [MOE], 2003).

An assessment helps teachers to establish what students already know and what they need to learn. **Ampiah and Hart (2003)** contend that a teacher needs to know what children are able to do or not if he/she is to plan effectively. Research has revealed that most students perceive Mathematics as a difficult subject, which has no meaning in real life **(Van de Walle, 2001).** This perception begins to develop at the elementary school where students find the subject very abstract and heavily relying on algorithm, which the students fail to understand. This trend continues up to middle, high school and college. By the time students get to high school they have lost interest in Mathematics and they cannot explain some of the operations.

Today, learning mathematics seems to suggest repeating operations that were already done by the other people and examinations that seek to fulfill the sample pattern (**Brooks & Brooks, 2000**). Under this theory children are given lengthy and often complex problems, particularly computations with the belief that the exercises will strengthen the mind. Schools and teachers need to realize that great philosophers, psychologists, scientists, mathematicians and many others created knowledge through and

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experimentation. **(Philip, 2000).** They understood cause and effect through curiosity and investigation. They were free to study nature and phenomenon, as they existed.

The way teachers perceive assessment may influence the way they teach and assess their students (**Romberge, 2002).** This study considers investigation of teachers' perceptions of classroom assessment in mathematics and their current classroom assessment practices. Specifically, the study seeks to understand the methods and tools teachers use to assess their students. The researchers observe closely how classroom assessment is being carried out in the classroom by focusing on the strategies and tools the teachers used to assess the learners. In addition, the researcher investigated teacher perceptions of the role of assessment in teaching and learning mathematics.

The situations prompted the researchers to evaluate classroom practices of mathematics teachers and students performance among the grade IV, V and VI pupils in their school.

Classroom assessment is one of the tools teachers can use to improve their teaching and the learning of their pupils and their current practices. The study will be significant to the following stakeholders:

For **BECS Administrators**, the result of this study can serve as a wake-up call to the administration to take seriously that classroom assessment by teachers play a very important role to the learning pupils.

For **Other Schools** who will be interested in this study may use the information to develop assessment guidelines for them to be utilized in everyday teaching of Mathematics.

For **the Practice Teachers**, the training of classroom teachers will be very easy and effective for as long as the trainers know what teachers are already doing and what they are not doing well.

For **the Researchers**, this study will help them to evaluate the extent of classroom assessment practice in mathematics in their school in relation to their achievement.

For the **Future Researcher,** this will help them evaluate the result of this

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study and to find ways to come up with a more effective classroom assessment style for the new generations.

Review of Related Literature

Classroom assessment may involve a range of activities; from a teacher's informal observations to a final examination that he or she hands out, and from students' self reflection to group works with a task on peer-assessment . For the purpose of this paper, classroom assessments are limited to the formal assessments that go through a cyclical process of **planning, designing, implementing, marking** and **reporting.**

In addition, pupils and their classroom teachers are simultaneously considered as the participants of assessment process. Although typically classroom teachers are perceived to have control over this assessment process, recent literatures have advocated that pupils also have an important role at different stages of the assessment process. **(Black& Wiliam, 2005).**

This paper presents a reflection at the different stages of an assessment process that is directly related to classroom management culture. The different stages, beginning with **planning stage** in the assessment process are as shown in figure 1. As noted earlier, the **traditional assessment** culture suggests that classroom teachers are perceived to have absolute control over this assessment process. Nevertheless, recent literature strongly advocated pupils' active role, especially in the last three stages of the assessment process. This advocacy demands some shift in teachers' pre-eminence position, while simultaneously empowers pupils with further responsibilities over their learning progress.

Most research studies in both education and cognitive psychology have reported weaknesses in the way mathematics is taught. The most serious weakness is the psychological assumption about how mathematics is learned, which is based on the "stimulus-

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response**" theory(VAnce & Bezuk, 2001).**The "stimulus-response" theory states that learning occurs when a "bond" is established between some stimulus and a person's response to it went further to say that, in the above scenario, drill becomes a major component in the instructional process because the more often a correct response is made to stimulus, the more established the bond becomes **(Phillips, 2000).** They understood cause and effect through curiosity and investigation. They were free to study nature and phenomenon, as they existed.

Today, learning Mathematics seems to suggest repeating operations that were already done by other people and examinations that seek to fulfill the same pattern**(Brooks & Brooks, 2000).** The constructivist view is different from the positivist view and therefore, call for different teaching approaches (**Cathcart, et al. 2001).** Understanding of mathematical ideas by means of mental activities or through interaction with the physical world. (**Cathcart, et., 2001).**

This assertion that children should construct their own mathematical knowledge is to suggest that mathematics teachers should sit back and wait for this to happen. Rather, teachers must create the learning environment for student and then actively monitor the students through various classroom assessment method as they engage in an investigation.

The other role of the teacher should be to provide the students with experiences that will enable them to establish links and relationships. Teachers can only do this if they are able to monitor the learning process and are able to know what sort of support the learners need at a particular point. The main hypothesis of constructivism is that knowledge is not passively received from an outside source but is actively constructed by the individual. Within this hypothesis, lies the crucial role of the teacher. Today many psychologist and educators believe that children construct their knowledge as they interact with their environment. (**Books and Brooks, 1999; Cathcart, et al., 2001; Hatfield,**

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Edwards, Bitter & Morrow, 2000; Von Glasersfeld, 1995). Unfortunately, classrooms do not seem to reflect this thinking.

Some teachers still continue to teach in the way perhaps they themselves were taught because human beings naturally look back and claim that the past offered the best.. If children construct knowledge rather than passively receive it, they must be offered the 4 opportunities to act on their environment, physically and mentally, to use methods of learning that are meaningful to them, and to become aware of and solve their own problems. **Althouse** is in agreement with **Baroody and Coslick (2001)** who suggest that teaching mathematics is essentially a process of translating into a form children can comprehend.

Assessment Practices

Assessment has the potential to enhance Mathematics learning and to promote pupils' interest in Mathematics. This is too general a statement considering the fact that in most schools assessment means testing and grading (Van de Wallen, 2001). Beckman, 2003) studied the assessment and grading practices of 19 high school Mathematics teachers. Their study revealed that the most frequently used assessment tools were tests and quizzes and this determined about 77% of student's grades. Beckmann, Senk and Thompson found that test items were of low level, involved very little reasoning and were almost never open-ended. They also found that teacher's knowledge and beliefs as well as the content and textbooks of the course, influenced the characteristics of the test items and other assessment instruments.

School leaders have reached a point of believing that one cannot assess without assigning grades (Lissitz and Schafer, 2002). Although tests seem to be popular in schools, teachers seem to have different skills and views about tests. A study by Morgan and Watson (2002) revealed that different teachers interpreted similar student's work differently. McMillan (2001) studied the actual classroom assessment and grading practices of secondary school teachers in relation to specific class and determined whether meaningful relationships existed

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between teacher's assessment practices, grade level, subject matter, and ability levels of students.

McMillan found that there was no meaningful relationship between teacher's assessment practices, grade level, subject matter and ability level Fennell et al. (1992) suggest that specific training is necessary for teachers to learn to assess children's thinking by analyzing students' discourse. Dean (1999) contends that most teacher education programs skim classroom assessment, leaving teachers to assess in the way they were assessed when they were in school. Campbell and Evans (2000) evaluated pre-service teachers who had completed coursework in educational measurement and found that student teachers did not follow many assessment practices recommended during their coursework. Effects of External Testing A number of studies have reported the effects of external mandated testing on both teaching and learning.

RESEARCH QUESTIONS

Statement of the Problem

This study investigated the teachers' current classroom assessment practices and the achievement and student outcomes of Grade IV, V and VI pupils of Balayan East Central School. Specifically it sought answers to the following questions:

1. What is the impact of assessment practices of Mathematics teachers to the learners?

2. What is the level of achievement of Grade IV, V and VI in Mathematics?

3. How significant is the relationship between the teachers' classroom assessment practices and the achievement of their pupils in Mathematics?

4. What Mathematical worksheets can be developed to enhance Mathematics teaching?

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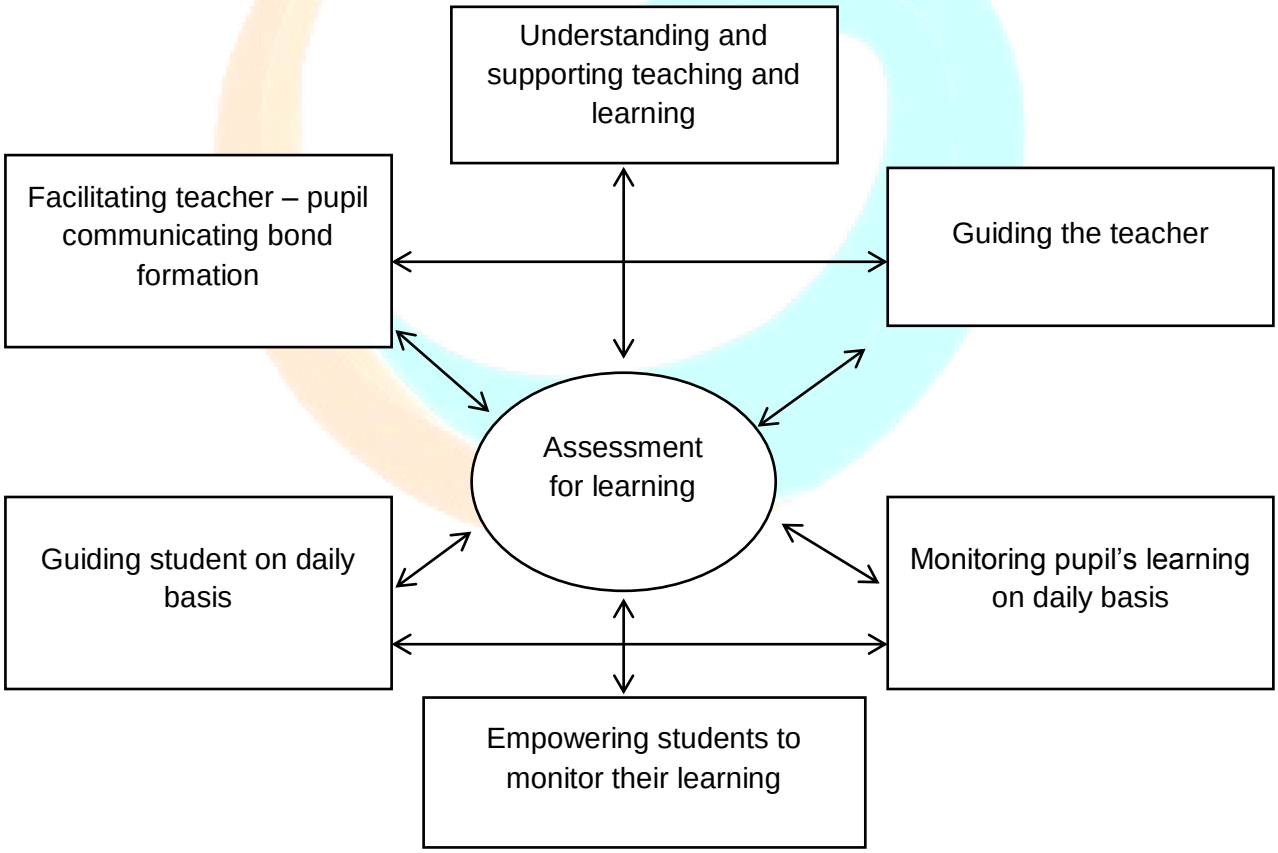
Scope and Limitation

The study focused on the practices of Mathematics teachers in relation to student performance in enhancing teaching at Balayan East Central School this calendar year 2023-2024.The study involved eight Mathematics teachers teaching Mathematics in grade IV, V and VI as well as the concerned pupils of the same grade level for their achievement in Mathematics for the first grading period. .(2002) revealed that different teachers interpreted similar student's work differently. McMillan (2001) studied the actual classroom assessment and grading practices of secondary school teachers in relation to specific class and determined whether meaningful relationships existed between teacher's assessment practices, grade level, subject matter, and ability levels of students.

Role of Assessment for Learning



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Synthesis

Teaching Mathematics is providing experiences that will enable children to discover relationships and construct meaning. Students should be assisted to see the importance of mathematics not by rote learning but by investigating and relating to real-life situations. Giving students dozens and dozens of problems to solve does not help them to understand Mathematics, if anything it frustrates them even more. The more they do things they cannot understand or explain, the more they got frustrated.

Various factors have influenced the way mathematics is being taught in schools and how learners perceive mathematics. The review of related literature has reviewed beliefs about how children learn Mathematics, how teachers' assessment practices affect learning and pupils' achievement.

Conceptual Framework

The conceptual framework of the study can be viewed as a system that consist of the input, process and output. The input components include the classroom assessment practices and the student achievement in Mathematics.

The process component include the statistical test of relationships on classroom assessment practices and student performance in Mathematics, the statistical test to determine the extent of classroom assessment practices of Mathematics teachers and questionnaire for classroom assessment.

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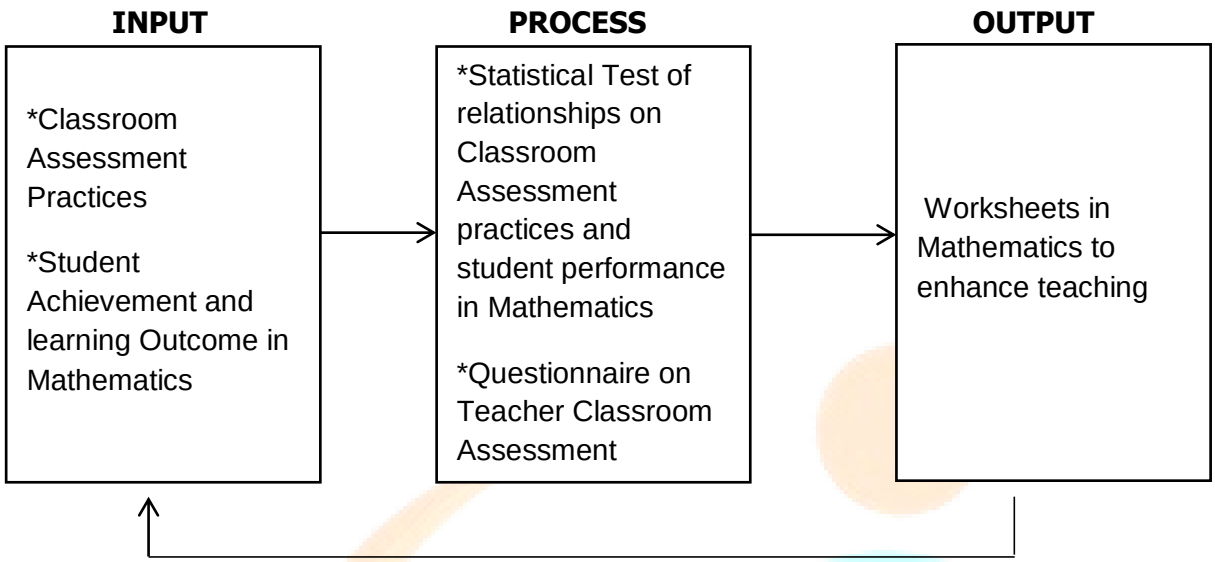

Figure: 1. Research Paradigm

Hypothesis

The hypothesis below was tested at the 0.05 level of significance. Ho: There is no significant relationship between the teachers' classroom assessment practices and the achievement of their pupils in Mathematics.

RESEARCH METHODOLOGY

This study used naturalistic inquiry and descriptive method of research and field survey. Naturalistic inquiry that focused research endeavors on how the respondents behave in natural settings while engaging in life experiences. It is descriptive in nature since the data are presented in descriptive form and described using basic statistics. It is a field survey since the survey instrument is a questionnaire, which will be administered to the respondents.

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Samples and Sampling Techniques Used:

This study involved 8 Mathematics teachers and Grade IV, V and VI pupils of Balayan East Central School for the academic year 2023-2024.

The researchers used the sampling techniques or specifically stratified random sampling to determine the pupils respondents of the study from the population of three sections per grade level. After determining the exact number of samples for each section, these were added to prepare for the sample size of each grade level. The sample size for each of the grade level were as follows: Grade IV 189;Grade V 203; and Grade VI 202, a total of 594 pupils.

Sloven Formula:

$$n = \frac{N}{1 + Ne^2}$$

Where : N = the population

N = the sample size

e = the margin of error (5% or 95% coefficient or 2% or 98% confidence coefficient)

Instrumentation

The researchers utilized the questionnaire on Teacher's Classroom assessment Practices in Mathematics prepared and validated by William John Susuwele-banda and under when retest of content validity and reliability to fit it to the local study. The researcher determined the achievement in mathematics of each pupil at the end of the first grading period.

Procedure

a. Permission was formally secured by the researcher from her principal for her to use

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their school as her research local. After the permission was granted by the principal, questionnaires were administered to the teacher respondents. After 2 days, the accomplished questionnaires were retrieved, coded and tabulated to be ready for statistical treatment.

b. The achievement in Mathematics of the pupils were taken from the average of the first grading period per grade level as reflected from their permanent record (Form 137)

Range of Grade	Descriptive Level
90 and Above	Advanced
85-89	Proficient
80-84	Approaching Proficiency
75-80	Developing
74 and below	Beginning

Description of levels of proficiency as described in the report card.

- **Advanced.** The student at this level exceeds the core requirements in terms of knowledge, skills and understanding, and can transfer them automatically and flexibly through authentic performance tasks.
- **Proficient**. The student at this level has developed the fundamental knowledge, skills, and core understanding, and can transfer them independently through authentic performance tasks.

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- **Approaching Performance.** The student at this level has developed the fundamental knowledge and skills and core understanding and with little guidance from the teacher/ or with some assistance from the peers and can transfer these understanding through authentic performance tasks.

- **Developing.** The student at this level possesses the minimum knowledge and skills and core understanding , but needs help throughout the performance of authentic tasks.

- **Beginning**. The student at this level struggles with his/her understanding; pre requisite and fundamental knowledge and or skills have not been acquired developed adequately to aid understanding.

Statistical Analysis of the Data

1. To determine the extent of classroom assessment practices of mathematics

teachers, weighted mean was utilized.

$$WM = \frac{wf}{N}$$

where: WM = weighted mean

w = the assigned weight

f = the frequency

n = total number of cases or respondents

1.To determine the level of achievement of the respondents in Mathematics an classroom assessment practices of mathematics teachers.The average of the first grading in Mathematics for each section in grade IV were taken.

$$Ave = \frac{\sum f}{N}$$

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Where:

n = the number of cases per grade level

∑ f = frequency (sum of grades)

1. To determine the significant relationship between the teacher's classroom assessment practices and the achievement of their pupils in mathematics. Pearson's r was applied.

$$r = \frac{N\ (\sum xy) - (x)\ (y)}{\sqrt{(n\ (\sum x^2) - (\sum x)^2)\ (n(\sum y^2) - (y)^2)}}$$

Where: x = observed data for the independent variable

Y = observed data for the dependent variable

n = sample size

r = is the degree of relationship between the two variables.

Five - Point Likert Scale was used to indicate the preference according to the following

5	Very High Extent	4.50 - 5.00
4	High Extent	3.50 - 4.49
3	Moderately Extent	2.50 - 3.49
2	Low Extent	1.50 - 2.49
1	Very Low Extent	1.00 - 1.49

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RESULTS AND DISCUSSION

This section discussed the various findings based on the data gathered using the questionnaires as responded to by the faculty from three grade levels of Balayan East Central School.

Table 6.1

Mean Distribution on the Concept of Assessment as to the extent of Classroom Assessment Practices of Mathematics Teachers

Practices	Mean	VI	Rank
1.1.Assessment is useful to me.	4.87	VHE	2
1.2. Assessment is useful to my pupils.	4.91	VHE	1
1.3. My lesson plan provides a variety of ways to assess my pupils.	4.70	VHE	4
1.4. I design my lessons to allow me to monitor pupils progress.	4.74	VHE	3
1.5. My instructional methods and activities reflect attention to issues of access, equity and diversity of pupils.	4.65	VHE	5.5
1.6. The design of my lessons incorporate tasks, roles, and interactions consistent with investigative mathematics.	4.52	VHE	9.5
1.7.I probe pupil's reasoning.	4.48	HE	11.5
1.8. The instructional methods and activities I use reflect attention to pupils experiences and readiness.	4.43	HE	14
1.9. I provide adequate time and structure for reflection.	4.48	HE	11.5
1.10. I Interact with my pupils.	4.52	VHE	9.5
1.11. I encourage my pupils to talk and share idea.	4.57	VHE	7.5
1.12. I give pupils immediate feedback when they need directions to proceed.	4.43	HE	14

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1.13. I take into account prior knowledge of my students.	4.43	HE	14
1.14.I make sure the pace of the lesson is appropriate for the developmental level/needs of the students and the purpose of the lesson.	4.65	VHE	5.5
1.15. My questioning methods are likely to enhance the development of pupils conceptual understanding/problem solving.	4.57	VHE	7,5
1..16. My lessons progress based on pupils' responses.	4.39	HE	16

As gleaned from the table, item 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.10, 1.11.1.14 and 1.14, and 1.15 got the high mean equivalent value of 4.87, 4.92, 4.7, 4.74, 4.65, 4.52, 4.57,4.65 and 4.57 respectively. These mean values speak of the extent of classroom assessment practices by mathematics teachers. That to a very high extent, items 1.1, 1.2, 1.3, 1.4, 1,5, 1.6, 1.10, 1.11, 1.14, and 1.15 are likely to enhance the development of pupils conceptual understanding/problem solving to a very high extent.

Accordingly, the rest of the items were described to a high extent such as item 1.7, 1.9, 1.10, 1.12, 1.13, 1nd 1.16 with the corresponding mean values of 4.48, 4.43, 4.48, 4.43, and 4.49 respectively.

Generally, these findings would describe the teachers teaching of mathematics in Balayan east Central School grade IV as performing their tasks dominantly to a very high extent.

Table 6.2

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Mean Distribution on the Classroom Practices as to the Extent of Classroom Assessment Practices of Mathematics Teachers.

Classroom Practices	Mean	VI	Rank
2.1 The in class activities consolidated the main ideas of the lesson	4.39	HE	6.5
2.2. The teacher consolidates in class activities the main ideas of the lesson.	4.30	HE	8
2.3. The classroom is equipped with teaching resources in Math	4.43	HE	4.5
2.4. The size of classroom follows acceptable standard.	4.52	VHE	1
2.5. Entire class is engaged in the same activities at the same time.	4.43	HE	4.5
2.6. Groups of pupils are engaged in different activities at the same time.	4.48	HE	2.5
2.7. Mathematics activities include presentation by pupil of their work.	4.39	HE	6.5
2.8. Guest facilitator is sometimes invited to facilitate mathematics activities in the class.	3.96	HE	12
2.9. Teacher must initiate lectures, demonstration, procedural instruction in the class.	4.26	HE	9.5
2.10. Teacher must be engaged in problem solving/investigation	4.26	HE	9.5
2.11. Engaged in reading/reflection/ written communication about mathematics	4.17	HE	11
2.12. Teacher must use audio-visual resources to develop understanding of the lesson in math.	4.48	HE	2.5

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Table 6.2 shows the mean distribution on the classroom assessment practices by the teachers. Item number 2.4 with a mean of 4.52 is interpreted as to a very high extent. Other

items were rank in terms of their mean valus, item numbers 2.6 and 2.12 got it to the second

spot with the equivalent values of 4.8, "groups pf pupils are engaged in different activities at the same time", and teacher must use audio-visual resources to develop understanding of the lesson in Mathematics" were Interpreted as being practice to a high extent.

Similarly, the rest of the items got an average mean of 4.29.

Table 4.3 tabulates the mean results of the items on strategies (assessment)

Table 6.3

Mean Distribution on the Strategies (Assessment) as to the Extent of Classroom Assessment Practices of Mathematics Teachers

Strategies (Assessment)	Mean	VI	Rank
3.1.The design of the lesson allowed the teacher to monitor pupil progress	4.30	HE	7.5
3.2. The instructional strategies and activities reflected attention to issues of access, equity, and diversity for pupils	4.48	HE	3
3.3. The instructional strategies and activities used in this lesson reflected attention to pupils experiences and readiness.	4.43	HE	5.5
3.4. Adequate time and structure were provided for reflection.	4,48	HE	3
3.5. Pupils were given immediate feedback when they needed directions to proceed.	4.48	HE	3

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3.6. The teacher took into account prior knowledge of the pupils.	4.52	HE	1
3.7. The space of the lesson was appropriate for the developmental level/needs of the pupils and the purpose of the lesson.	4.30	HE	7.5
3.8. The teacher's questioning strategies are likely to enhance the development of the pupil conceptual understanding/problem solving.	4.21	HE	9
3.9. The in-class activity consolidates the main ideas of the lesson of that day.	4.20	HE	10
3.10. Teacher is able to identify pupils who have difficulty in understanding the main ideas of the lesson.	4.43	HE	5.5

As to "the teacher took the account prior knowledge of the pupils", the M3.4, 3.5 with the respective mean values of 4.48 each, the strategies being practiced are as follows; "the strategies and activities reflected attention to issues of access, equity, and diversity for pupils", "adequate time and structure were provided for reflection', and "pupils were given immediate feedback when they needed directions to proceed", were being practiced to a high extent. The rest of the items as to "the design of the lesson is allowed the teacher to monitor student progress", "the instructional strategies and activities used in this lesson reflected attention pupil experiences and readiness", the pace of the lesson was appropriate for the developmental level/ needs of the students and the purpose of the lesson", "the teachers questioning strategies are likely to enhance the development of the student conceptual understanding / problem solving', "the in class activities consolidates the main ideas of the lesson of that day", and "the teacher is able to identify the students who have difficulty in understanding the main ideas of the esson" with the corresponding mean values of 4.30, 4.43, 4.30, 4.21, 4.20 and 4.43 were interpreted as tp a high extent.

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Indeed, most of the strategies are being practiced by the mathematics teachers to a high extent.

Table 6.4

Level of Achievement and Student Outcome in Mathematics of Grade IV, Grade V, and VI in Balayan East Central School

Grade Level	Mean Grade	Verbal Interpretation
IV	78.70	Developing
V	80.18	Approaching Proficiency
VI	81.16	Approaching Proficiency

Table 4 shows the level of achievement in mathematics of Grade IV, V, and VI in Balayan East Central School. The mean grade of Grade IV pupils in mathematics was 78.70 that fell under the category of developing in which the pupils at this level possesses the minimum knowledge and skills and core understanding, but needs help throughout the performance of authentic tasks.

On the other hand, the 80.18 mean grade of Grade V pupils that fall under the category approaching proficiency describe their math achievement as they developed the fundamental knowledge and skills and core understanding and with the little guidance from the teacher and/ or rough authentic performance tasks with some assistance from peers, while they can transfer these understanding through authentic performance tasks.

Lastly, Grade VI pupils mean Grade was 81.16, still it fell under the category approaching proficiency again pertains to a situation that although they developed the fundamental knowledge and skill and core understanding, they still sought guidance from the teacher and some assistance from their peers, hence, they can transfer these understandings through authentic performance tasks.

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Table 6.5

Relationship Between Classroom Assessment Practices of Teachers and Pupils Performance

df	t-value @ 0.05 &	0.01 level	Computed t
22	0.405	0.516	0.57

As seen from table 4.5, the computed t-value between the classroom assessment practices in Math teaching and the pupil performance in Mathematics is 0.57 while the critical t value @ 5% level and df of 22 yield 0.405 which resulted to the rejection of the null.

Therefore, there is significant relationship between the teachers' classroom assessment practices and the achievement of their pupils in mathematics.

CONCLUSION / RECOMMENDATION

Conclusions

Based from the findings the following conclusions can be derived:

1. The teachers of mathematics in Balayan East Central School considered the concept of assessment of practice to a very high extent.
2. Classroom assessment practice in Mathematics teaching by the teachers were applied to a high extent.
3. The strategies are being practiced by the mathematics teachers to a high extent.
4. The level of achievement and student oucome of the selected pupils of Balayan East Central School are presented as follows:

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The mean grade of Grade IV pupils in mathematics as 78.70 fell under the category developing in which the pupil t his level possesses the minimum knowledge and skill and core understanding, but needs help throughout the performance of authentic tasks.

The mean grade of Grade V pupil being 80,18 fell under the category approaching proficiency in which their math achievement was described in a way as they developed the fundamental knowledge and skill and core understandings and with little guidance from the teacher and/ or rough authentic performance tasks with some assistance from peers, while they can transfer these understandings through authentic performance tasks.

The Grade VI pupils mean grade of 81.16, still fell under the category approaching proficiency which again pertains to a situation that although they developed the fundamental knowledge and skills and core understanding, they still sought guidance from the teacher and some assistance from their peers, hence, they can transfer these understandings through authentic performance tasks.

5. Based from findings, there is significant relationship between the teacher's classroom assessment practices and the achievement of their pupils in mathematics. This infers that the classroom assessment practices of Mathematics teachers of Balayan East Central School affect the pupils' academic achievement to a high extent.

Recommendations

Classroom assessment practices as it affect greatly the achievement or performance of every pupil in Mathematics class should be the core of interest in classroom teachings of every Mathematics teachers in any school. The fact that it is really difficult to transfer knowledge in mathematics on the part of the learners, teachers are always expected to extend patience in dealing with slow learners, specially. They have to consider from time to time the factors for classroom assessment practices for them to succeed in teaching math to help improve and develop the mathematical ability of the learners.

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Based on the findings and conclusions, the following are recommended for every Mathematics teachers in terms of Math Exemplars.

1. Teachers should design their lessons incorporating tasks, roles and interaction to allow them to monitor students' progress.
2. Teacehrs' instructional methods and activities reflect attention to of access, equity and diversity of students.
3. Teachers's design of lessons should incorporate tasks, roles, and interactions consistent with investigative mathematics.
4. Teachers' instructional methods and activities must reflect attention to issues of access, equity and diversity of learners.
5. Teachers must see to it that the pace of the lesson is appropriate for the developmental level/ needs of the learners and the purpose of the lesson.
6. Teachers' questioning techniques should enhance the development of students conceptual understanding/problem solving.
7. The mathematical activities should include presentation by student of their work.
8. Teacher must provide the lesson plan variety of ways to assess their pupils.
9. Teachers must interact with students and encourage them to talk and share ideas
10. Teacher must use audio-visual resources to develop understanding of the lesson in mathematics.
11. The class activities must consolidate the main ideas of the lesson.

TIME LINE AND GANTT CHANT

Month	Activity
September 2023	Planning the Research Title
November 2023	Collecting of Literature and Studies

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January 2024	Research Method and Construction/Validation of Instrument
April 2024	Data Gathering
May 2024	Data Analysis
June 2024	Writing of Results
July 2024	Preparation of Output
August 2024	Dissemination of the Research
October 2024	Presentation of Action Research

COST ESTIMATES

Gathering of Data/ Review of Related Literature	Php 1,800.00
Photocopy of Questionnaires/ Floating	1,025.00
Transportation Allowance	900.00
Statistician Fee	3,500.00
Encoding/ Printing	2,100.00
Total	Php 9,325.00

PLANS FOR DISSEMINATION

The researchers would like to proposed the result of this study to the schools division heads and principal of Balayan East Central School. The output-Enhanced Worksheet should be applied to the school preferably for Grades IV, V, and VI for the improvement of pupils' learning achievement and in Mathematics.

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