

Strengthening teachers' support in the use of formative assessment to improve student learning outcomes

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Abstract

Lazaan-Malinao Elementary School in Nagcarlan Sub-Office has long recognized the importance of formative assessment in enhancing learning outcomes. However, many teachers struggled to implement effective assessment strategies as learners found it difficult to comprehend and respond to higher-order thinking questions, limiting their engagement and critical reasoning. This challenge highlighted the need to strengthen teacher competence and support systems to make classroom assessments more meaningful and responsive to learner needs. To address this, the study implemented Project QUEST – Questioning for Enhanced Student Thinking, which aimed to improve teachers' formative assessment practices through technical assistance, professional development, and access to instructional resources. Employing a descriptive-experimental design, the research involved twelve (12) teachers and pupils from Grades I to VI. Data were collected through validated questionnaires, focus group discussions, and comparative analysis of students' pre-test and post-test Mean Percentage Scores (MPS). Findings revealed that the teachers' level of formative assessment practice improved from a "Satisfactory" mean of 2.99 before the intervention to a "Very Satisfactory" mean of 4.22 after its implementation. Correspondingly, the overall student MPS increased from 61.87% to 77.18%, showing a gain of 15.31%. The computed t-value of 8.52, exceeding the critical value at 0.05 significance level, confirmed a statistically significant improvement in student performance. The study concludes that sustained teacher support—through mentoring, professional learning communities, and adequate instructional resources—enhances formative assessment literacy and student achievement. It recommends the institutionalization of continuous capacity-building programs, data-driven instruction, and formative assessment integration in the School Improvement Plan (SIP) to sustain instructional quality and promote deeper, more reflective learning among pupils.

Keywords: Formative assessment, teacher competence, student achievement, professional development, Project QUEST

1. Context and Rationale

Lazaan-Malinao Elementary School, a medium-sized school in Nagcarlan Sub-Office, is the home of dedicated teachers who recognize the importance of assessment in improving learning outcomes; however, they continue to face challenges in effectively applying **formative assessment** strategies in the classroom. While teachers strive to use questioning, feedback, and other formative techniques, many pupils struggle to comprehend questions, respond confidently, and engage meaningfully in class discussions, making it difficult for teachers to accurately gauge understanding and adjust instruction. This limitation often results in assessments focused mainly on recalling facts rather than developing higher-order thinking, reasoning, and problem-solving skills. As a consequence, learners shown weak comprehension and limited confidence, which affect overall performance. The situation of 12 teachers handling classes at Lazaan-Malinao Elementary School experienced challenges in providing effective assessments due to learners' evident difficulty in responding to teacher-posed questions and with struggling ability to comprehend the intent of the questions, leading to hesitation, incomplete answers, or silence during class interactions. This urgent need to strengthen teachers' skills in designing and implementing formative assessment, supported by professional

development and adaptive strategies, so that learning becomes more responsive, inclusive, and effective in addressing diverse student needs.

Many learners experienced difficulty in answering Higher Order Thinking Skills (HOTS) questions because these types of questions require deeper comprehension, logical reasoning, and the ability to apply knowledge in unfamiliar situations. Unlike recall-based questions, HOTS questions demand that learners analyze information, evaluate ideas, and create solutions rather than merely remembering facts. This poses a challenge for many children who are more accustomed to rote learning and traditional assessment methods. Factors such as limited exposure to critical thinking activities, lack of confidence, and insufficient guidance in constructing well-thought-out responses further contribute to their struggle in developing higher-level cognitive skills.

There is therefore a pressing need to address the gap in learners' ability to answer HOTS questions to ensure that they are not only absorbing information but also learning how to think critically and independently. Strengthening this skill is essential in preparing learners for real-world problem-solving and lifelong learning. By enhancing learners' capacity to engage in analytical and creative thinking, educators can help them build stronger foundations for academic success and personal growth. Addressing this gap also supports the overall goal of quality education as outlined in the curriculum standards, which emphasize the development of 21st-century skills such as reasoning, communication, and decision-making.

To bridge this gap, the researcher planned a solution and intervention centered on improving teachers' competence in integrating HOTS into their formative assessments. Through a series of School Learning Action Cell (SLAC) sessions, technical assistance, and focused workshops, teachers were trained to design and deliver HOTS-based formative questions that stimulate learners' critical and creative thinking. This intervention aimed to equip teachers with practical strategies in questioning techniques and assessment design, ensuring that classroom activities and evaluations consistently encourage higher-level thinking. As teachers became more adept at using HOTS questions, learners were gradually guided toward deeper understanding, improved reasoning skills, and enhanced academic performance.

The implemented interventions focused on strengthening teachers' assessment literacy and promoting collaborative professional growth to enhance the quality of formative assessment practices. The In-Service Training on Assessment Literacy aims to equip teachers with the necessary knowledge and skills to design effective formative assessments that integrate Higher Order Thinking Skills (HOTS). Through hands-on workshops and professional development sessions, teachers will learn how to craft quality test items, develop rubrics, and provide constructive feedback that supports learners' critical and creative thinking. Master Teachers will serve as facilitators to guide and uplift the capability of teachers in producing valid, reliable, and goal-aligned assessment tools.

Complementing these efforts, Peer Coaching, Mentoring, and Collaborative Learning Action Cell (LAC) Sessions will be implemented to foster a supportive learning community among teachers. These activities will allow teachers to observe one another's classroom practices, share successful assessment strategies, and collaboratively reflect on areas for improvement. Through mentoring and peer coaching, experienced teachers will provide guidance and encouragement to colleagues, enhancing their confidence and competence in integrating formative assessment techniques into daily instruction. Together, these interventions aim to build a strong culture of collaboration, continuous improvement, and shared accountability for improving both teaching practices and learner outcomes.

Teachers' insights gathered during the Learning Action Cell (LAC) sessions and workshops on formative assessment revealed that these professional learning activities are vital in enhancing their craft and effectiveness in classroom assessment. Through active participation, teachers gained deeper understanding of the principles and techniques in designing formative assessments that truly measure learners' understanding and promote critical thinking. The collaborative discussions, sharing of best practices, and hands-on activities during the sessions allowed teachers to refine their questioning techniques, develop more purposeful assessment tools, and align their strategies with learning objectives. As a result, teachers became more

confident and reflective practitioners, capable of using assessment not merely to evaluate but to support learning. This continuous professional development led to more meaningful learning experiences in the classroom, contributing significantly to the improvement of learners' performance and engagement.

2. Innovation, Intervention, or Strategy

To address the challenge of limited use of higher-order questioning in classroom instruction, **Project QUEST – Questioning for Enhanced Student Thinking** was implemented as an innovative professional development initiative designed to enhance teachers' art of questioning. The intervention focused on equipping educators with strategies to craft and deliver purposeful, thought-provoking questions that stimulate critical thinking and active student engagement. Through collaborative workshops, peer coaching, and reflective practice sessions, teachers explored various questioning frameworks such as Bloom's Taxonomy and Socratic questioning techniques. The project also integrated classroom observations and feedback loops to refine questioning practices in real-time. This strategic approach aimed to transform classroom discourse from teacher-centered to student-centered, fostering a culture of inquiry and deeper understanding across all learning areas.

Project QUEST: Questioning for Enhanced Student Thinking implemented a series of structured activities designed to strengthen teachers' questioning techniques and promote critical thinking in the classroom. The project began with an **orientation and baseline assessment** to determine teachers' current questioning practices. This was followed by a **capacity-building workshop** that introduced effective questioning frameworks, such as Bloom's Taxonomy and Socratic methods, emphasizing the development of higher-order questions. Next, teachers engaged in **lesson planning sessions**, where they collaboratively designed questions aligned with their learning objectives. During the **classroom implementation phase**, teachers applied the new strategies while being observed by peers or mentors who provided constructive feedback. Afterwards, **reflection and coaching sessions** were conducted to analyze classroom experiences, identify challenges, and refine questioning techniques. Finally, a **culminating sharing session** allowed teachers to showcase best practices and successful classroom applications, reinforcing continuous professional growth and fostering a culture of inquiry-based teaching.

The implemented solution was designed based on a clear understanding of the problem's root causes and aimed to provide a practical, sustainable response. Its rationale lies in addressing the identified gaps through targeted actions that maximize efficiency and impact while minimizing cost and complexity. The extent of the solution covers key areas directly influencing the issue, ensuring measurable improvements within the defined scope and available resources. However, limitations exist in terms of scalability, external dependencies, and potential resource constraints and teachers' effectiveness in formulating HOTS questions, which may affect long-term implementation. Despite these challenges, the solution remains plausible as it is grounded in evidence-based strategies and realistic objectives that directly respond to the problem's core needs.

The intervention was implemented at Lazaan-Malinao Elementary School from September to November 2025. It was a collaborative effort involving the School Head, 12 teachers, and 341 learners across various grade levels. The School Head supervised the overall planning and execution of activities, ensuring alignment with school goals and educational standards. The teachers facilitated the implementation of the intervention within their respective classes, integrating the planned strategies into daily lessons and monitoring learners' progress. Meanwhile, the learners actively participated in the activities, serving as the primary beneficiaries and key contributors to evaluating the program's effectiveness.

Resources Used in the Conduct of Project QUEST:

- a. Human Resources- Schoolhead, 12 teachers, and 341 learners who participated and contributed to the implementation.
- b. Instructional Materials – Activity sheets, learning modules, visual aids, and

reference books aligned with project objectives.

c. Technological Resources – Laptop, projector, printer, and internet access for presentations, data recording, and communication.

d. Financial Resources – School funds and donations used for materials, printing, and logistical needs.

e. Physical Resources – Classrooms and learning corners used as venues for project activities.

f. Monitoring and Evaluation Tools – Surveys, assessment forms, attendance sheets, and progress checklists.

g. Community and Stakeholder Support – Assistance from parents, local officials, and the school governing council in providing resources and encouragement.

2.1. Action Research Questions

Identification of the Research Problem(s):

The research is primarily focused on addressing issues related to teachers' practices in utilizing formative assessment strategies and their impact on students' academic performance. Specifically, it seeks to understand how interventions such as technical assistance, professional development, and instructional resources can enhance these practices.

a. Testing an Idea

The study aims to test the idea that strengthening teachers' support systems (e.g., training, assistance, and resources) can improve their implementation of formative assessment strategies and, consequently, enhance student learning outcomes.

- Problem tested: Are current formative assessment practices among teachers effective enough to support student learning?
- Research question link: "What is the current level of teachers' practices in utilizing formative assessment strategies in the classroom?"

b. Trying Out Solutions to a Problem

The research tries out interventions such as technical assistance, professional development, and instructional resources to address the identified gaps or weaknesses in teachers' formative assessment practices.

- Problem addressed: Teachers may lack adequate training, support, or resources to effectively implement formative assessments.
- Research question link: "What is the level of the teachers' practices in their use of formative assessment after they received the following interventions?"

c. Creating or Strengthening a System or Procedure

The study also seeks to determine whether these strengthened support mechanisms (interventions) have a significant effect on school performance and how the results could guide systemic improvements in teaching and learning practices.

- Problem addressed: There may be an absence of a structured support system to sustain effective formative assessment practices.

Research question link:

- "Is there a significant effect on the school performance after the utilization of the strengthened support in giving formative assessment?"
- "What are the implications of the results in the overall academic performance of Lazaan-Malinao Elementary School?"

2.2. Statement of the Problem

The main problem of this study is to determine the effectiveness of strengthened support systems—such as technical assistance, professional development, and instructional resources—on improving teachers' practices in utilizing formative assessment strategies and enhancing the overall academic performance of Lazaan-Malinao Elementary School. The study aims to examine how these interventions influence teachers' use of formative assessments and their subsequent impact on school performance.

Specifically, the study seeks to answer the following questions:

1. **What is the current level of teachers' practices in utilizing formative assessment strategies in the classroom?**
2. **After receiving interventions, what is the level of teachers' practices in their use of formative assessment strategies in terms of:**
 - 2.1. technical assistance;
 - 2.2. professional development; and
 - 2.3. instructional resources?
3. **Is there a significant effect on the school's performance after the utilization of the strengthened support in giving formative assessment?**
4. **What are the implications of the results in the overall academic performance of Lazaan-Malinao Elementary School?**

The research questions are carefully aligned with the purpose of the study, which is to determine how strengthened support systems—such as technical assistance, professional development, and instructional resources—can enhance teachers' practices in utilizing formative assessment strategies and consequently improve student academic performance. Each question is designed to measure the effect of the interventions by comparing the teachers' level of practice before and after the implementation of the support mechanisms. The questions also aim to capture the desired change, which is an observable improvement in teachers' use of formative assessment techniques and a corresponding positive impact on school performance. Through this alignment, the study ensures that the interventions' effectiveness can be systematically evaluated and that the results will provide evidence-based recommendations for continuous improvement in instructional practices.

It is hypothesized that teachers who receive technical assistance, professional development, and access to instructional resources will demonstrate significantly higher levels of formative assessment practices, which in turn will lead to improved academic performance among students at Lazaan-Malinao Elementary School.

3. Action Research Methods

3.1. Participants and/or other Sources of Data and Information

The study involved twelve (12) teachers of Lazaan-Malinao Elementary School. These teachers are directly engaged in classroom instruction and assessment practices, making them valuable sources of data in examining the effectiveness of formative assessment strategies. Their insights and experiences provided a reliable basis for understanding how teacher preparation and innovations influence the teaching and learning process.

Characteristics of the Participants/Sample

Teachers that produced assessment of Lower Level Thinking Skills.

Learners with Lower Level Thinking Skills and with poor understanding/performance on formative assessment.

Sampling Procedure Used

The subjects of this research are twelve (12) teachers from Lazaan-Malinao Elementary School who are actively involved in classroom instruction across various grade levels. Selected through **purposive sampling**, these teachers were chosen because of their direct engagement in implementing formative assessment in the classroom. As key implementers, they are tasked with planning, facilitating, and evaluating assessment practices that support and enhance student learning. Their participation is considered essential, as their experiences, competencies, and perspectives will provide valuable data in assessing the effectiveness of the proposed innovations and strategies to strengthen formative assessment.

Rationale For The Participants' Inclusion In The Study, Including Selection Criteria

The participants in this study are **elementary school teachers**, as they are the primary implementers of formative assessment in classroom instruction and play a crucial role in influencing student learning outcomes. Their inclusion is rationalized by the fact that teachers have first-hand experience in designing, administering, and evaluating assessment tools, as well as in providing feedback that directly affects learners' academic performance. The selection criteria include teachers who are actively handling classes during the school year, regardless of grade level or subject taught, to ensure a wide representation of perspectives and practices. By focusing on these participants, the study ensures that the data gathered are grounded on authentic classroom experiences, thereby providing meaningful insights on how formative assessment can be strengthened to address learners' needs and improve overall learning outcomes.

3.2. Data Gathering Methods

Procedures for Data Collection

The data collection at the school level focused on teachers as the primary implementers of formative assessment. Structured questionnaires was administered to gather information on their strategies, challenges, and needs in applying formative assessment in the classroom. In addition, teachers participated in interviews or focus group discussions to provide deeper insights into their practices and experiences. Data gathering was conducted within school hours to minimize disruption to regular instruction, with the researcher coordinating closely with the teachers for proper scheduling. The responses from teachers provided the professional perspective necessary for analyzing current practices and evaluating the effectiveness of the implemented innovations and strategies to strengthen formative assessment.

The chosen data gathering method, which involves the used of teacher questionnaires, interviews, and focus group discussions, is highly suited to the nature and purpose of this research because it directly addresses the instructional practices and professional needs of teachers. The data gathered from this study served as a vital foundation for action planning and the improvement of school policies, systems, and classroom practices, with the ultimate goal of enhancing learners' performance. By carefully analyzing the findings, school leaders and teachers identified specific gaps in assessment strategies, areas where learners struggle, and opportunities for professional growth among educators.

3.3. Type of Gathered Data

The study gathered both quantitative and qualitative data from teachers to ensure a comprehensive understanding of formative assessment practices. Data include their knowledge, perceptions, and classroom practices related to formative assessment, which will be collected through structured questionnaires and validated with follow-up interviews or focus group discussions. These were administered during scheduled school hours after securing consent, ensuring that teachers have ample time to respond thoughtfully without disrupting their teaching responsibilities. Teacher responses provided professional insights into the strategies they employed, the challenges they encountered, and their overall perspectives on the implementation of formative assessment in the classroom.

To prove the effectiveness of the professional development activities such as SLAC and collaborative expertise among teachers on using HOTS assessment, pre-test and post test had been administered to all grade levels

3.4. Method Used

The data collection methods for teachers are carefully aligned with the research questions to ensure that the findings directly address the purpose of the study. The used of structured questionnaires, supported by interviews or focus group discussions, responds to questions on teachers' knowledge, perceptions, and practices in formative assessment, thereby capturing both measurable trends and deeper insights. This alignment ensures that the methods generated relevant evidence and provided clear basis for analyzing how formative assessment practices were implemented by teachers, which is central to the goals of this action research.

3.5. Research Instrument

The primary research instruments employed in this study consist of structured questionnaires for teachers, complemented by interviews or focus group discussions as validation tools. The teacher questionnaires are designed using a Likert-scale format to systematically capture their knowledge, perceptions, and practices in formative assessment, while the follow-up interviews and discussions allow for richer and more detailed explanations of their responses. The appropriateness of these instruments lies in their ability to gather both quantitative data, which provide measurable patterns, and qualitative data, which offer contextual insights, thereby ensuring a comprehensive understanding of teachers' formative assessment practices and their role in enhancing classroom instruction.

3.6. Validation and Pilot-Testing of the Research Instrument

Before the actual administration, the research instruments underwent a process of validation and pilot-testing to ensure their clarity, reliability, and suitability for the study. The content validity of the teacher questionnaires established through expert review by some colleagues who are knowledgeable on Action Research that evaluated the items in terms of relevance, alignment with the research objectives, and appropriateness of language. Revisions was made based on their comments and recommendations. After validation, the instruments was pilot-tested with a small group of teachers closed to the researcher that is not included in the actual study. The pilot test checked the comprehensibility of items, the time required for completion, and the consistency of responses. Feedback from the pilot participants were analyzed to refine ambiguous or unclear questions. Only after ensuring the validity and reliability of the instruments questionnaire was administered to the actual participants of the study.

To prove the effectiveness of the professional development activities such as SLAC and collaborative expertise among teachers on using HOTS assessment, pre-test and post test had been administered to all grade levels.

3.7. Data Analysis

This study will employ a mixed-method approach in analyzing the data collected from teachers to ensure a comprehensive interpretation of formative assessment practices. Quantitative data from structured questionnaires will be organized, tabulated, and coded systematically, with descriptive statistics such as frequency counts, percentages, means, and standard deviations used to summarize teacher responses. Reliability of the questionnaire will be tested using Cronbach's Alpha to determine internal consistency.

Meanwhile, qualitative data from interviews and focus group discussions will be transcribed, categorized into themes, and analyzed through thematic analysis to capture deeper insights into teachers' perceptions and experiences. Statistical analyses will be carried out using software such as Microsoft Excel and/or SPSS to provide accurate computation and clear presentation of findings in alignment with the research objectives.

3.8. Data Collection Procedure

The data collection process was carried out systematically to ensure the accuracy, reliability, and validity of the information gathered for the study. Prior to data collection, permission was secured from the school head and relevant authorities of Lazaan-Malinao Elementary School. The participants of the study—composed of teachers from different grade levels—were informed of the study's purpose and were assured of confidentiality and voluntary participation.

The study utilized a pre-test and post-test design to determine the changes in teachers' practices before and after the implementation of the interventions. Initially, teachers' current practices in utilizing formative assessment strategies were assessed through a structured questionnaire. After this baseline data were gathered, the researcher implemented the interventions, which included technical assistance, professional development sessions, and provision of instructional resources. Following the intervention period, the same instrument was administered to collect post-intervention data.

In addition, school performance records and relevant academic data were obtained to evaluate the impact of improved formative assessment practices on students' overall academic performance. All data gathered were reviewed, checked for completeness, and organized prior to analysis to ensure consistency and accuracy in reporting.

4. Discussion of Results and Reflection

This section presents, analyzes, and interprets the data gathered in the study entitled *"Strengthening Teachers' Support in the Use of Formative Assessment to Improve Student Learning Outcomes."* The main objective of this action research was to determine the effectiveness of the interventions—technical assistance, professional development, and instructional resources—in enhancing teachers' formative assessment practice and improving student learning outcomes in Lazaan-Malinao Elementary School.

The data were collected from twelve (12) teacher-respondents and from the formative test results of students from Grades I to VI. The presentation is organized according to the sequence of the research questions stated in Chapter I. Tables are provided for clarity and supported by interpretations and discussions of the results.

4.1. Research Question 1

What is the current level of teachers' practices in utilizing formative assessment strategies in the classroom?

Before the implementation of the interventions, teachers were assessed based on their existing practices in utilizing formative assessment strategies. The assessment focused on major components such as questioning and feedback, peer/self-assessment, monitoring of progress, instructional adjustment, and recordkeeping.

Table 1 Pre-Intervention Level of Teachers' Practices in Utilizing Formative Assessment Strategies

Indicators	Mean	Verbal Interpretation
Use of questioning and feedback	3.10	Satisfactory
Use of peer/self-assessment	2.85	Fair
Monitoring of student progress	3.00	Satisfactory
Adjustment of instruction based on assessment results	2.95	Satisfactory
Recording and reporting of formative assessment results	3.05	Satisfactory
Overall Mean	2.99	Satisfactory

The overall mean of 2.99, interpreted as *Satisfactory*, implies that the teachers were only moderately practicing formative assessment strategies before the intervention. This suggests that while teachers understood the importance of formative assessment, the application was not yet systematic or fully integrated into their classroom practices. Challenges identified included time constraints, lack of clear guidelines, and limited resources to implement varied assessment strategies effectively.

4.2. Research Question 2

What is the level of teachers' practices in their use of formative assessment after they received the following interventions: (2.1) technical assistance, (2.2) professional development, and (2.3) instructional resources?

After the implementation of the interventions, teachers were again evaluated using the same indicators. The interventions aimed to provide direct mentoring, hands-on training, and ready-to-use formative assessment materials.

Table 2 Post-Intervention Level of Teachers' Practices in Utilizing Formative Assessment Strategies

Indicators	Pre- Intervention Mean	Post- Intervention Mean	Verbal Interpretation (Post)	Interpretation
Use of questioning and feedback	3.10	4.25	Very Satisfactory	Improved quality and consistency of feedback
Use of peer/self-assessment	2.85	4.00	Very Satisfactory	Increased student engagement and ownership of learning
Monitoring of student progress	3.00	4.30	Very Satisfactory	Teachers regularly tracked progress using rubrics and checklists
Adjustment of instruction based on assessment results	2.95	4.20	Very Satisfactory	Teaching became more responsive to learners' needs
Recording and reporting of formative assessment results	3.05	4.35	Very Satisfactory	Record-keeping became more systematic and timely
Overall Mean	2.99	4.22	Very Satisfactory	Significant improvement in assessment practices

The post-intervention mean of 4.22 (Very Satisfactory) indicates a remarkable improvement in teachers' ability to use formative assessments effectively. The increase in scores across all indicators demonstrates that the interventions—particularly technical assistance and professional development—successfully enhanced teachers' competence and confidence in applying formative strategies.

Teachers became more reflective, data-driven, and consistent in utilizing assessment results to guide instruction.

4.3. Research Question 3

Is there a significant effect on the school performance after the utilization of the strengthened support in giving formative assessment?

To determine the effect of the interventions on student learning outcomes, pre-test and post-test Mean Percentage Scores (MPS) were collected across all grade levels. The table below shows the comparative results.

Table 3

Grade/Section	Subject	Number of Cases	Pre-Test MPS	Post-Test MPS	Gain (%)
I – Jose Rizal	Language	22	70.00	84.60	+14.60
I – A. Bonifacio	Reading	25	62.60	75.20	+12.60
II – Jose Rizal	Makabansa	26	74.20	84.20	+10.00
II – A. Bonifacio	Makabansa	24	50.77	72.31	+21.54
III – Jose Rizal	English	25	62.40	85.60	+23.20
III – A. Bonifacio	Filipino	25	66.67	80.95	+14.28
IV – Jose Rizal	Math	24	69.58	87.08	+17.50
IV – A. Bonifacio	Math	25	53.60	59.60	+6.00
V – Jose Rizal	Science	24	63.75	77.08	+13.33
V – A. Bonifacio	Science	24	42.50	54.17	+11.67
VI – Jose Rizal	Math	26	63.08	86.92	+23.84
VI – A. Bonifacio	Science	26	49.23	63.46	+14.23
Overall Average	—	296	61.87	77.18	+15.31

Comparison of Pre-Test and Post-Test Mean Percentage Scores (MPS) of Pupils

The data show a consistent increase in MPS across all grade levels, with an overall gain of 15.31% from pre-test to post-test. This improvement signifies that students performed better after their teachers received enhanced support in formative assessment. The results confirm that when formative assessment is effectively implemented, it promotes student engagement, reinforces mastery of concepts, and leads to measurable gains in achievement.

Table 4
Paired Sample T-Test on the Significant Difference Between Pre-Test and Post-Test MPS

Variable	Mean	SD	t-Computed	t-Critical (0.05)	Decision	Interpretation
Pre-Test	61.87	9.88	8.52	2.20	Reject Ho	Significant
Post-Test	77.18	10.42				

As shown in Table 4, the computed t-value of 8.52 exceeds the critical t-value of 2.20 at a 0.05 level of significance, leading to the rejection of the null hypothesis. This indicates a significant difference between the pre-test and post-test MPS.

Therefore, the strengthened teacher support in formative assessment had a statistically significant positive effect on student learning outcomes. The result validates that formative assessment practices—when properly implemented—lead to better academic performance.

4.4. Research Question 4

What are the implications of the results in the overall academic performance of Lazaan-Malinao Elementary School?

Interpretation and Implications:

The findings of this study have several implications for the school's academic performance and professional development practices:

1. Formative assessment as a learning driver: The improvement in student achievement validates that formative assessment is crucial in promoting continuous learning and achievement.
2. Capacity building as a key factor: Sustained teacher development through mentoring and training results in better instructional decisions and more effective assessment implementation.
3. Data-driven instruction: Teachers' improved ability to interpret formative data leads to more responsive and adaptive teaching methods.
4. Sustained institutional support: Continuous technical assistance and provision of instructional materials are essential for maintaining high standards of formative assessment practices.
5. Whole-school improvement: The overall rise in Mean Percentage Scores (MPS) contributes to improving the school's overall performance indicators, supporting its mission to provide quality education.

5. Summary of Findings

- Teachers' formative assessment practices improved from *Satisfactory* (2.99) to *Very Satisfactory* (4.22) after receiving interventions.
- Students' average Mean Percentage Score (MPS) increased by 15.31%, demonstrating a substantial improvement in learning outcomes.

- The strengthened support system—through technical assistance, professional development, and instructional resources—had a significant positive impact on teaching effectiveness and student achievement.
- The findings highlight the importance of continuous teacher capacity building and institutional support to sustain and further improve academic performance.

5.1. Explanation of Research Findings with Support from Previous Studies

The findings of this study reveal that the interventions—technical assistance, professional development, and provision of instructional resources—resulted in a remarkable improvement in teachers' formative assessment practices and student learning outcomes. The overall mean of teachers' practices increased from **2.99 (Satisfactory)** before the intervention to **4.22 (Very Satisfactory)** after, indicating that teachers became more consistent, reflective, and data-driven in using formative assessment to guide instruction. Likewise, the **students' Mean Percentage Score (MPS)** improved significantly from **61.87% to 77.18%**, showing an overall gain of **15.31%**, which confirms that enhanced formative assessment practices directly contributed to improved academic performance.

These results support the findings of **Mok et al. (2021)**, who stated that continuous professional learning and coaching empower teachers to use formative assessments more effectively, leading to increased learner engagement and achievement. Similarly, **Adie and Willis (2020)** found that professional development that emphasizes assessment literacy enhances teachers' capacity to design and interpret formative assessment tasks, making learning more responsive and inclusive.

The present study also affirms **Alonzo (2021)**, who highlighted that teacher feedback and formative questioning help students identify learning gaps and regulate their own learning, resulting in higher academic gains. The improvement in record-keeping and instructional adjustment observed in Lazaan-Malinao Elementary School echoes the study of **Núñez and Tuckey (2022)**, which concluded that when teachers use formative data systematically, instruction becomes more targeted and effective.

Furthermore, the significant increase in student performance aligns with **Lau et al. (2023)**, who reported that the integration of formative assessment strategies in daily instruction improves students' cognitive engagement and achievement outcomes. The findings also complement **Pang and Carr (2020)**, who found that teacher collaboration and institutional support—through mentoring and shared assessment tools—enhance assessment consistency and accuracy, resulting in better student outcomes.

The use of technical assistance and professional development as part of the intervention in this study supports **Carless and Winstone (2023)**, who emphasized that formative assessment thrives when teachers receive structured mentoring and opportunities to practice and reflect on their assessment methods. These collective studies reinforce that effective formative assessment implementation is strengthened by continuous capacity building, leadership support, and availability of instructional materials—factors that this study successfully integrated.

5.2. Reflection and Implications of the Research Findings in Theory and Practice

The findings of this research underscore the transformative power of sustained teacher support in enhancing formative assessment practices and improving student outcomes. The improvement in both teacher performance and student achievement demonstrates that formative assessment is not merely an evaluative tool but a **pedagogical process** that deepens learning and fosters student engagement.

From a theoretical perspective, the results affirm the **constructivist learning theory**, which posits that learners construct understanding through active participation and feedback. The teachers' improved practices reflect how formative assessment serves as a bridge between teaching and learning, where students are co-participants in the learning process. This also aligns with **assessment for learning theory**, emphasizing that

assessment should inform instruction and promote growth rather than simply measure performance. Practically, the findings suggest several implications for educational improvement:

1. **Institutionalization of Continuous Professional Development (CPD):** Schools should sustain teacher mentoring and professional learning communities (PLCs) focused on formative assessment. These venues allow teachers to share best practices, reflect on evidence of learning, and adapt instruction accordingly.
2. **Leadership and Policy Support:** School leaders must integrate formative assessment as a priority in the school improvement plan (SIP) and ensure regular technical assistance to teachers. This institutional support ensures consistency and sustainability of effective assessment practices.
3. **Data-Driven Decision-Making:** Teachers should continue to use formative data to inform teaching adjustments, identify struggling learners, and personalize learning interventions.
4. **Provision of Instructional Resources:** The results demonstrate that ready-to-use formative tools—such as checklists, rubrics, and digital tracking forms—help teachers efficiently monitor progress and provide timely feedback.
5. **Whole-School Culture of Assessment for Learning:** When all teachers engage in reflective and data-informed assessment practices, it fosters a culture of collaboration and accountability that contributes to overall school improvement.

In conclusion, this study shows that strengthened teacher support systems lead to improved learning outcomes, validating both theory and practice. By aligning professional development, mentoring, and instructional support with the principles of formative assessment, schools like Lazaan-Malinao Elementary can sustain continuous learning improvement. This finding is supported by San Miguel and Pascual (2021), who demonstrated that structured professional engagements such as School Learning Action Cells (SLACs) significantly enhance teachers' work values and foster a more collaborative and growth-oriented school culture. The research reinforces that the heart of educational quality lies in empowered teachers who use assessment as a tool for growth—not just for grading, but for guiding every learner toward success.

5.3. Dissemination and Utilization of Research Findings

The researchers intend to disseminate the findings of this study through multiple channels to ensure that the insights gained from the utilization of formative assessment strategies are effectively shared and applied. Primarily, the results will be presented to the school administration, teaching staff, and relevant education stakeholders through formal presentations, workshops, and printed reports. This approach aims to inform and guide teachers on evidence-based interventions that can enhance classroom practices and student learning outcomes.

Furthermore, the research findings will be used to develop targeted professional development programs, instructional materials, and technical support initiatives tailored to the specific needs of the teachers and learners. By integrating these insights into school policies and classroom practices, the study seeks to improve the overall quality of formative assessment implementation, strengthen instructional strategies, and ultimately boost learner performance.

To ensure long-term impact, the researchers plan to submit a summarized version of the findings to local education authorities and educational journals, and encourage the adoption of recommended strategies across other grade levels and schools. The detailed plan for dissemination—including timelines, responsible persons, and specific methods of communication—is provided in the Appendices.

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