



Teachers’ Assessment Practices and Learners’ Problem-Solving Skills on Their Academic Performance

Michael L. Montalla

Bulacan Agricultural State College

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***Corresponding Author:** Michael L. Montalla

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Abstract

Original Research Article

This study examined the relationship between teachers' assessment practices and learners' problem-solving skills on their academic performance in the public secondary schools of San Miguel, Bulacan, during the School Year 2025-2026. The sampling technique employed for teacher and school leader respondents was total population sampling, while stratified sampling was used for learners. An explanatory sequential mixed methods design was applied, utilizing survey questionnaires and written explanatory essays. The participants included 59 mathematics teachers, 5 school leaders, and 383 Grade 7 to 10 learners from public secondary schools. Statistical tests such as t-tests, Analysis of Variance (ANOVA), and Pearson’s correlation coefficient analyses were conducted to interpret the data. The findings of the study revealed a significant difference in teachers' assessment practices when grouped according to the demographic variable of age. However, no significant difference was observed between sex, plantilla position, highest educational attainment, years in service, and number of trainings/seminars and teachers' assessment practices. Additionally, the study found no significant difference in the evaluations of assessment practices between the teachers and their school leaders. Furthermore, the study identified a significant relationship between teachers' assessment practices, along with learners' problem-solving skills, and learners' academic performance. Based on these findings, different programs of activities were developed to address the identified needs and enhance classroom assessment practices and learners' problem-solving skills.

Keywords: teachers’ assessment practices, assessment for learning, assessment as learning, assessment of learning, learners’ problem-solving skills, academic performance.

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I. Introduction

Mathematics education today faces a persistent global and local challenge. Although curriculum frameworks such as the Philippine K-12 and MATATAG programs are designed to develop higher-order thinking, many classroom tests still focus primarily on memorizing facts and performing

basic calculations. This disconnect creates an “achievement gap” that suggests a direct link between how teachers evaluate learning and how students learn to solve complex problems. The present study was anchored on three theoretical foundations: Visible Learning and Feedback Theory, which highlights the power of clear goals and actionable feedback; the OECD Mathematical



Reasoning and Problem-Solving Framework, which describes problem-solving as a cycle of formulating, employing, and interpreting mathematics; and Evaluative Judgement Theory, which emphasizes building learners' ability to assess their own work. Guided by these perspectives, the primary objective of the research was to investigate the direct relationships among teachers' assessment practices (formative, self and peer assessment, and summative), learners' perceived problem-solving skills (creative thinking, analysis, decision-making, emotional intelligence, researching, and team-working), and their academic performance in Junior High School mathematics.

II. Methodology

The study employed an explanatory sequential mixed methods design. Quantitative data were collected and analyzed first, after which qualitative insights were gathered to help explain the numerical results. The participants included 59 mathematics teachers and 5 school leaders selected through total population sampling, as well as 383 Grades 7 to 10 learners chosen via stratified sampling from five public secondary schools in San Miguel, Bulacan. For data collection, the researcher used the Classroom Assessment Practices Survey Questionnaire (CAPSQ) for the educators, the Learners' Problem-Solving Skills Questionnaire (LPSSQ) for the students, and official school records to obtain academic grades. An essay questionnaire was also administered during the qualitative phase. The quantitative data were analyzed using frequencies, weighted means, t-tests, Analysis of Variance (ANOVA), and Pearson's correlation coefficient (r). The qualitative responses were examined through content analysis to identify recurring themes.

III. Results

The demographic profile revealed that the teaching force was predominantly female (78.43%) and relatively young, with 52.94% aged 35 or below. An important finding was that 66.67% of the teachers had not received any specialized training in

assessment within the last three years. In terms of assessment practices, formative assessment received the highest ratings from both teachers (mean = 4.36) and school leaders (mean = 4.68), both interpreted as "Always." Assessment as learning, which covers self and peer assessment, was rated the lowest (mean = 3.85, "Often"), with teachers pointing to student bias and a lack of objective distance as major obstacles. Summative assessment was also consistently applied (mean = 4.15, "Always"), largely because of mandatory grading requirements. Among the learners, team-working emerged as their strongest problem-solving skill (mean = 4.21, "Always"), while creative thinking—specifically the ability to create original formulas—was the weakest (mean = 3.49, "Often"). The average academic performance was 89.93, classified as "Average"; no students obtained a failing grade, but none reached the "Excellent" range of 98 to 100. Age was the only demographic factor that significantly influenced assessment practices ($p = 0.010$). All types of assessment showed significant positive correlations with grades, and formative assessment demonstrated the strongest link ($r = 0.585$). Among the problem-solving skills, analysis was the strongest predictor of academic success ($r = 0.268$, $p < 0.001$).

IV. Discussion

The integration of quantitative and qualitative results confirmed that effective assessment practices and well-developed problem-solving skills are direct drivers of mathematical achievement. Three major themes emerged from the qualitative analysis. First, feedback was viewed as the critical link; teachers emphasized that timely and actionable feedback is the primary mechanism through which assessment translates into improved performance. Second, valuing the "Process over Product" proved essential: grading step-by-step logical reasoning rather than only the final answer reduces mathematics anxiety and encourages deeper engagement with problems. Third, collaborative scaffolding allows students to bridge individual skill gaps through peer modeling, provided that individual accountability is maintained. Based on these findings, the study concluded that a critical lack of

assessment training significantly limits the implementation of self and peer assessment, and that while students are strong collaborators, they struggle considerably with independent creative thinking. To address these issues, it is recommended that school administrators implement a program of activities centered on Learning Action Cells (LACs) to train teachers in rubric design for self-assessment. Mathematics departments should formalize grading guidelines that explicitly reward problem-solving steps, and teachers should regularly utilize “Error Analysis” sessions, where students are asked to identify and correct deliberate mathematical flaws, thereby building independent analytical skills.

V. Conclusion

Teachers’ age significantly shapes assessment practices, with younger teachers more formative-oriented. The scarcity of assessment-focused training limits the implementation of self/peer assessment despite overall strong formative and summative practices. Learners’ teamwork and analysis are well-developed, but creative thinking and independent research remain weak. Teachers and school leaders hold synchronized, accurate views of classroom assessment. Both assessment practices and problem-solving skills positively and significantly relate to academic performance, with formative assessment and analytical skills as the strongest predictors. The essential classroom mechanisms driving these relationships are actionable feedback, grading that values the problem-solving process, and thoughtfully structured collaborative learning.

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