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DOES ASSESSMENT QUALITY AND ASSESSMENT LITERACY INFLUENCE STUDENTS' ACADEMIC PERFORMANCE?

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Abstract:
This study aimed to investigate the influence of assessment quality and assessment literacy on students' academic performance in core mathematics within senior high schools in the Akuapem North Municipality. Utilizing a cross-sectional design, data were collected from core mathematics educators in the municipality using a questionnaire covering demographic characteristics, assessment literacy, and teacher quality. A regression analysis was conducted to examine the relationship between assessment quality and literacy and student academic performance. The findings indicated that neither assessment quality nor assessment literacy significantly predicted student academic performance. Specifically, pedagogical expertise, subject-matter knowledge, classroom management skills, test construction understanding, and assessment feedback practice did not have a statistically significant impact on student academic performance. This study contributes to the understanding of the multifaceted factors influencing student academic performance and underscores the importance of comprehensive approaches in educational research and practice. The results suggest that other factors beyond assessment quality and literacy may play a more significant role in shaping student outcomes in the Akuapem North Municipality. Additionally, the study highlights the importance of considering local contexts and exploring a broader range of variables when examining educational outcomes, providing valuable insights for educators and policymakers aiming to improve student performance in core mathematics.

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Keywords: assessment literacy, assessment quality, pedagogical expertise, subject-matter knowledge, classroom management skills, academic achievement, test construction, assessment feedback practice

1. Introduction

In today's educational landscape, the role of teachers extends far beyond imparting knowledge; they are also crucial in shaping students' academic performance and success. Particularly in education, where subjects like Core Mathematics require specialized skills and understanding, the quality of teachers and their assessment literacy play pivotal roles in students' achievements. As students navigate the complexities of Core Mathematics, they rely heavily on their teachers not only for content delivery but also for guidance in understanding abstract concepts and applying them in practical scenarios. Consequently, the effectiveness of teachers in this context goes beyond mere subject knowledge; it encompasses their pedagogical expertise, ability to assess students' understanding, and provide constructive feedback. These elements collectively contribute to a nurturing learning environment conducive to students' academic growth and achievement. Moreover, assessment literacy among teachers is increasingly recognized as a critical component of effective teaching practices. A teacher's ability to construct valid assessments, accurately evaluate student performance, and use assessment data to inform instruction directly impacts students' learning outcomes.

In examining the predictors of senior high students' performance in core mathematics, this study focuses on the crucial role of teacher quality. Teachers play a pivotal role in shaping students' learning experiences and academic achievements (Dadzie, 2022; Dontoh *et al.*, 2023; Joseph *et al.*, 2024). The quality of teaching has a direct impact on students' understanding and mastery of mathematical concepts (Annan-Brew *et al.*, 2023). One significant aspect of teacher quality is pedagogical expertise. Effective teaching methods and instructional strategies are essential for engaging students and facilitating their learning (Ansah, 2020; Kpodoe *et al.*, 2023). Teachers who possess strong pedagogical skills can effectively convey complex mathematical concepts and facilitate student understanding (Mbonu-Adigwe *et al.*, 2021; Annan-Brew *et al.*, 2023; and Ogbeche *et al.*, 2021). Another crucial dimension of teacher quality is subject-matter knowledge. Teachers' deep understanding of the subject they teach is critical for delivering high-quality instruction (Guinocor *et al.*, 2020). In the context of mathematics education, teachers' content knowledge significantly impacts their ability to explain concepts, solve problems, and provide meaningful feedback to students (Dadzie, & Annan-Brew, 2023). Additionally, classroom management skills are essential for creating a conducive learning environment (Kamoru & Ramon, 2017). Effective classroom management enables teachers to establish clear expectations, maintain discipline, and foster positive relationships with students (Mamah *et al.*, 2022). Furthermore, instructional practices encompass a wide range of teaching strategies and techniques

employed by teachers to deliver instruction (Ansah 2020). Effective instructional practices promote student engagement, motivation, and active participation in learning (Kpodoe *et al.*, 2023).

Assessment literacy refers to teachers' understanding and proficiency in designing, implementing, and interpreting assessments to support student learning (Buckley-Walker, & Lipscombe, 2022). A teacher's assessment literacy directly impacts their ability to accurately evaluate students' understanding of mathematical concepts and provide meaningful feedback (Lui, & Andrade, 2022). One fundamental aspect of assessment literacy is the ability to develop and administer effective assessments. Teachers must possess the skills to create assessments that accurately measure students' knowledge and skills in mathematics (Capuno *et al.*, 2019). Effective assessments provide valuable insights into students' strengths and weaknesses, allowing teachers to tailor instruction to meet their individual needs (Asamoah, Shahrill, & Abdul Latif, 2022). Additionally, interpretation of assessment results is crucial for informing instructional decisions and interventions (Dadzie *et al.*, 2023). Teachers with strong assessment literacy can analyze assessment data effectively to identify areas where students may need additional support or enrichment (Asamoah-Gyimah, 2022). By understanding students' performance patterns and misconceptions, teachers can adjust their teaching strategies to address specific learning needs (Heritage, 2008). Furthermore, feedback provision is a key component of assessment literacy that directly impacts students' learning and academic growth (Asamoah-Gyimah, 2022). Effective feedback helps students understand their strengths and weaknesses, identify areas for improvement, and set meaningful learning goals (Buckley-Walker, & Lipscombe, 2022). Teachers who are proficient in providing timely, specific, and constructive feedback can support students' learning progress in mathematics (Guinocor *et al.*, 2020).

Mathematics performance among secondary school students in Ghana is consistently below average (Tetteh, & Agyei, 2022). Furthermore, according to the Educational Sector Performance Report (2015), cited in Asamoah-Gyimah, (2022), pupils nationwide obtain a much lower pass rate in core mathematics than in other core disciplines including Social Studies, Integrated Science, and English Language. Students' arithmetic skills continued to drop from 2013 to 2015, based on the Chief Examiner's Report in Core Mathematics. Performance in 2015 was worse than in 2014, and in both years, it was lower than in 2013. Also, as stated in Ansah (2020) and the Chief Examiner's Report (2018), candidate performance declined from the previous year.

As shown in Table 1, in the Akuapem North Municipal, there is a steady downward trend in the performance of learners in core mathematics. Furthermore, mathematics has earned a track record for being difficult for pupils, and students' performance in the subject during external certificate examinations is regularly scrutinized due to repeated poor results of learners in the subject (Mensah, 2018).

Table 1: Performance of Students in the Municipal Educational Directorate in Core Mathematics from 2019 to 2022

Core Mathematics	2019	2020	2021	2022
Core mathematics pass percentage	54.1	49.3	45.1	44.7
Core mathematics fail percentage	45.9	50.9	54.9	55.3

Source: Education Management Information System (EMIS) (2023); Senior High School Core Mathematics Performance Data for Akuapem North Municipality, 2023.

Numerous studies have looked into the variables affecting mathematics performance in Ghana (Dadzie, 2022; Tetteh, & Agyei, 2022; Yongqi, & Lam, 2023). However, a substantial number of these studies concentrated on student qualities as being the most important effects on SHS mathematics performance, including attitude, curiosity, a lack of practice, inadequate instruction and learning materials, home circumstances, and peer variables. Around the nation, various studies have examined the qualities of teachers. It seems that the research solely took into account the traits of a particular educator when predicting secondary school students' mathematics achievement.

For instance, Kpodoe *et al.*, (2023) did not examine other teacher characteristics like experience, pedagogical content knowledge, subject matter knowledge, prior education and training, or teachers' assessment literacy (test design and assessment feedback), instead focusing solely on the effects of teachers' professional qualifications on SHS students' academic performance.

This study investigates the predictive potency of specific teacher qualities and assessment literacy on students' performance in core mathematics within senior secondary schools in Akuapem North Municipality. The research aims to address two primary research questions:

1) How does the assessment quality of mathematics teachers, encompassing pedagogical expertise, subject-matter knowledge, and classroom management skills, influence students' academic achievement in core mathematics?
2) What is the impact of assessment literacy among mathematics teachers, particularly focusing on their understanding of test construction and assessment feedback practice, on students' academic performance in core mathematics?

By examining these dimensions, this research endeavours to shed light on the factors contributing to students' success in mathematics education, thereby informing educational practice and policy in the Akuapem North Municipality.

3. Methodology

The study employed a cross-sectional design to analyse the predicted effect of selected teacher traits and assessment literacy on students' performance in core mathematics in senior high schools located within Akuapem North Municipality. The census method was applied in the research endeavour, which is a statistical strategy that involves gathering data from every element or subdivision of the population. This kind of

technique is additionally referred to as "complete enumeration," "100% enumeration," and "complete survey." It is useful when performing case-intensive analysis or when the topic matter is restricted in scope. The participants in this study were core mathematics educators from the municipality of Akuapem North.

Table 2: Sample Distribution Table

Schools	**Number of Teachers**
School A	21
School B	18
School C	19
School D	21
School E	11
School F	18
School G	14
School H	7
Total	**129**

Source: Education Management Information System (EMIS). (2023). Senior High School Core Mathematics Performance Data for Akuapem North Municipality, 2023.

3.1 Demographic Characteristics of Respondents

Results for respondents are shown in this section based on demographic distribution. Table 3 provides a snapshot of the demographic characteristics of math teachers in terms of gender, age, qualification, and years of teaching.

As elaborated in Table 3, out of the 125 mathematics teachers, 51 (40.8%) are male, while 74 (59.2%) are female. Most teachers fall within the 31-40 (41.6%) and 41-50 (23.2%) age groups. Most mathematics teachers fall within the 31-40 age group. The qualification distribution of mathematics teachers is as follows, Cert A: 2 teachers (1.6%), Diploma, 20 teachers (16.0%), bachelor's degree: 38 teachers (30.4%), master's degree: 65 teachers (52.0%). The highest proportion of teachers hold a master's degree, followed by those with a bachelor's degree. The distribution of mathematics teachers based on years of experience in teaching is as follows, 1-5 years: 48 teachers (38.4%), 6-10 years: 48 teachers (38.4%), Above 10 years: 29 teachers (23.2%). There is a relatively equal distribution of teachers across the different experience levels. Overall, the table provides a snapshot of the demographic traits of mathematics teachers in terms of gender, age, qualification, and years of teaching.

Table 3: Demographic Data of Teachers

	Frequency	Percent
Gender		
Male	51	40.8
Female	74	59.2
Total	**125**	**100.0**
Age of Mathematics teachers		
21-30	15	12.0
31-40	52	41.6
41-50	29	23.2
51-60	29	23.2
Total	**125**	**100.0**
Qualification of teachers		
Cert A	2	1.6
Diploma	20	16.0
Bachelor's Degree	38	30.4
Master's Degree	65	52.0
Total	**125**	**100.0**
Years of teaching		
1-5	48	38.4
6-10	48	38.4
Above 10	29	23.2
Total	**125**	**100.0**

Source: Field survey (2024).

A questionnaire was used to obtain information from the chosen teachers. This instrument was chosen based on Cohen, Atad, and Mevorach, (2023) claim that it is effective for capturing survey data, organizing it numerically, and can be delivered without the researcher's actual presence.

The questionnaire used in this research effort is divided into three parts:

Section A: Demographic Information - This segment gathered demographic information from participants, such as age, gender, years of instruction experience, and educational background.

Section B: Evaluation of Teachers' Assessment Literacy: Within this section, Teachers' Assessment Literacy was examined through three key dimensions: Teachers' Assessment Construction Skills, Teachers' Assessment Feedback, and Teachers' Assessment Design. These dimensions were adapted from two primary sources: Agu *et al.* (2013). The evaluation instruments utilized were named "Test Construction and Assessment Feedback," sourced from Agu *et al.* (2013), and "TECCARSAAQ" from Agu *et al.*, (2013). Through the use of these metrics, the study's instrument sought to develop a thorough picture of teachers' assessment literacy, including their knowledge of how to create exams, give feedback, and design efficient assessments.

Section C: Teacher Quality - This section modified Brookhart, Andrade, and Wolf, (2020) measured different dimensions of teacher quality, such as pedagogical expertise, subject knowledge, classroom management, and instructional practices. The instructional

practices element of section C was adopted from Brookhart, Andrade, and Wolf, (2020), while the pedagogical knowledge, content knowledge, and classroom management sections were adapted from Brookhart, Andrade, and Wolf, with the titles CMS scale and Content knowledge and pedagogical scale, respectively.

The instrument was pilot-tested at the Okyere District. The instrument was pilot-tested at the Okyere District. The questionnaire is divided into three sections. Section A measure teachers' biodata, section B measures "Teachers Assessment Literacy" which is made up of "Test Construction Skills of Teachers" constituting 24 items, "Teachers Assessment Feedback" which is made up of 12 items, "Teachers Assessment Design" which is made up of 19 items. Section C measures "Teachers Quality" which is made up of 28 items. 12 items measure teachers' pedagogical knowledge and content knowledge while 16 items measure teacher's classroom management. The Cronbach alpha for section B "Assessment Literacy" is .927 which is made up of 55 items. Cronbach alpha for "Test Construction Skills of Teachers" is .891, Cronbach alpha for "Teachers Assessment Feedback" is .759, and Cronbach alpha for "Teachers Assessment Design" is .707. The Cronbach alpha for section C "Teachers Quality" is .895 which is made up of 28 items. In general, the overall items for the data collection are 83 items with a Cronbach alpha of .957. The overall items for the data collection are 83 items with a Cronbach alpha of .957. The findings of this pilot test presuppose excellent internal consistency and reliability. It signifies a very high degree of consensus among the items, meaning that they have significant correlations and consistently evaluate the same underlying concept.

3.2 Participants

The participants in this study were mathematics teachers from eight secondary schools within a municipality in Ghana. A total of 129 mathematics teachers were contacted to participate in the study. Letters of consent were sent to all eight secondary schools seeking permission to involve their mathematics teachers in the research. Following approval from the respective schools, the teachers were provided with informed consent forms. Out of the 129 teachers contacted, 125 agreed to participate in the study by providing their consent. There was no selection procedure involved, as the researchers opted to utilize the census method, which involved including all 125 consenting teachers in the study.

During the investigation, several ethical issues were encountered and addressed to ensure the protection of participants' rights and well-being. One of the primary ethical concerns was obtaining informed consent from the participants. To address this, respondents were provided with an informed consent form outlining the purpose of the study, the procedures involved, and their rights as participants. They were given the opportunity to review the form thoroughly and voluntarily agree to participate by signing the consent form. Confidentiality and privacy of participants' information were also significant ethical considerations. To address these issues, assurances were given to participants regarding the confidentiality of their data. Measures were implemented to

protect the identities of participants, ensuring anonymity throughout the research process. This involved assigning unique identifiers or codes to each participant instead of using their names or any identifying information in the data analysis and reporting. Additionally, the study involved gathering data about specific individuals, which raised concerns about potential risks to participants' well-being or privacy. To mitigate these risks, the research team adhered to ethical guidelines and sought ethical clearance from the institutional Internal Review Board. This ensured that the study was conducted in an ethical manner, and measures were in place to protect the rights and welfare of the participants. Overall, the ethical issues encountered during the investigation were meticulously addressed through transparent communication, informed consent procedures, assurances of confidentiality and privacy, and adherence to ethical guidelines and regulations. These measures aimed to uphold the principles of respect, beneficence, and justice in conducting social research involving human participants.

4. Results

Research Objective 1: Examine the impact of assessment quality of mathematics teachers on students' academic performance in Akuapem North Municipality in terms of pedagogical expertise, subject-matter knowledge, and classroom management skills.

This study aimed to investigate the influence of assessment quality, including pedagogical expertise, subject-matter knowledge, and classroom management skills, on students' academic performance in the Akuapem North Municipality. Regression analysis was conducted to examine the relationship between assessment quality and student academic performance. The results revealed a non-significant regression equation, $F(3, 120) = 0.890$, $p > .05$, indicating that the overall model did not significantly explain the variance in student academic performance. Furthermore, none of the individual predictor variables significantly predicted student academic performance. Specifically, pedagogical expertise ($\beta = -.084$, $p = .514$), subject-matter knowledge ($\beta = .002$, $p = .991$), and classroom management skills ($\beta = .186$, $p = .234$) were found to have non-significant effects on student academic performance. In conclusion, based on the statistical analysis, it can be inferred that assessment quality, as measured by pedagogical expertise, subject-matter knowledge, and classroom management skills, did not have a statistically significant impact on students' academic performance in the Akuapem North Municipality.

Table 4: Regression Parameters for the Relation between Assessment Quality and Student Academic Performance

Model	**Sum of squares**	***Df***	**Mean square**	***F***	***P***	***R2***	**R**
Regression	267.42	3	89.14	.890	.491	.020	.141
Residual	13217.56	120	110.14				
Total	13484.99	123					
	B	**SE**	**Beta**	**t**	**P**		
(Constant)	66.23	5.77		11.462	<.001		
Pedagogical expertise	-.292	.446	-.084	-.654	.514		
Subject-matter knowledge	.004	.342	.002	.012	.991		
Classroom management skills	.242	.202	.186	1.196	.234		

Dependent variable: Student Academic Performance.
Predictors: Assessment Quality (Pedagogical expertise, Subject-matter knowledge, and Classroom management skills).

Research Objective 2: Examine the impact of assessment literacy of mathematics teachers on students' academic performance in Akuapem North Municipality concerning their understanding of test construction, and assessment feedback practice.

This study aimed to explore the influence of assessment literacy, focusing on mathematics teachers' understanding of test construction and assessment feedback practice, on students' academic performance in the Akuapem North Municipality. Regression analysis was conducted to assess the relationship between assessment literacy and student academic performance. The results revealed a non-significant regression equation, $F(2, 122) = 0.540$, $p > .05$, indicating that the overall model did not significantly explain the variance in student academic performance. Furthermore, neither of the individual predictor variables significantly predicted student academic performance. Specifically, assessment feedback practice ($\beta = -.043$, $p = .635$) and test construction ($\beta = .082$, $p = .363$) were found to have non-significant effects on student academic performance. In conclusion, based on the statistical analysis, it can be inferred that assessment literacy, as measured by assessment feedback practice and test construction understanding among mathematics teachers, did not have a statistically significant impact on students' academic performance in the Akuapem North Municipality.

Table 5: Regression Parameters for the Relation between Assessment Literacy and Student Academic Performance

Model	**Sum of squares**	***Df***	**Mean square**	***F***	***P***	***R2***	**R**
Regression	119.48	2	59.740	.540	.584	.094	.009
Residual	13485.36	122	110.53				
Total	13604.84	124					
	B	SE	Beta	t	P		
(Constant)	65.61	17.72		3.70	<.001		
Assessment Feedback Practice	-.063	.132	-.043	-476	.635		
Test Construction	.143	.157	.082	.913	.363		

Dependent variable: Student Academic Performance
Predictors: Assessment Literacy (Assessment feedback practice, Test construction).

5. Discussion

5.1 Impact of Assessment Quality of Mathematics Teachers on Students' Academic Performance

The findings of this study regarding the influence of assessment quality, encompassing pedagogical expertise, subject-matter knowledge, and classroom management skills, on students' academic performance in the Akuapem North Municipality, present an interesting contrast to a broader body of research examining assessment literacy levels among educators. While the present study did not find a significant relationship between assessment quality and student academic performance, previous research conducted in various regions has shed light on the assessment literacy levels of educators. For example, studies in Hong Kong (Wong & Cheng, 2018), Turkey (Yenilmez & Özdamar, 2018; Ayvaci & Çakmak, 2019), and Nigeria (Okoli & Asiegbu, 2020) have consistently revealed moderate levels of assessment literacy among teachers.

The Hong Kong study by Wong *et al.*, (2018) found that teachers had a better understanding of designing assessments compared to other aspects of assessment, which aligns with the importance of test construction knowledge highlighted in the present study. Similarly, Turkish studies emphasized the role of professional development and teaching experience in influencing assessment literacy levels, echoing the significance of pedagogical expertise observed in the current research. However, the Nigerian study by Okoli and Asiegbu (2020) offered a comparative perspective, indicating relatively low assessment literacy levels among mathematics teachers in terms of designing assessments and providing feedback. This highlights the importance of comprehensive teacher training and professional development opportunities, a recommendation also relevant to the current study's findings.

In conclusion, while the regression analysis in this study did not find a significant relationship between assessment quality and student academic performance in the Akuapem North Municipality, the findings are consistent with larger trends in the field of education regarding assessment literacy levels among mathematics teachers. The study emphasizes the importance of conducting targeted professional development programs to improve instructors' assessment literacy, which may ultimately enhance assessment techniques and positively influence student learning outcomes.

5.2 Impact of Assessment Literacy of Mathematics Teachers on Students' Academic Performance

The current findings from the regression analysis offer insights into the relationship between students' core mathematics performance and core mathematics teachers' assessment literacy in the Akuapem North Municipality. These results deviate from previous research on the relationship between teacher quality and student success in mathematics and other academic areas, as highlighted by Bahar, Murdiana, and Rifani, (2024); Gallo *et al.*, (2022). Darling-Hammond's analysis extensively supports the idea that

teacher quality, encompassing knowledge and abilities, significantly influence student achievement, particularly in mathematics Oyoo, Mwaura, and Kinai. Similarly, Bahrami *et al.* (2023) research provides substantial evidence indicating that teacher quality has a pronounced impact on student achievement, with a particular emphasis on mathematics (Bahrami *et al.* 2023).

However, the current study's findings suggest that there is no statistically significant relationship between students' performance in core mathematics and their teachers' assessment literacy in terms of assessment feedback practice and test construction understanding. This finding contrasts with the previously established literature and underlines the complexity of factors influencing student academic performance. While the absence of a substantial correlation challenges conventional assumptions about the direct impact of assessment literacy on student academic performance, it is important to acknowledge potential nuances specific to the context of this study that may have contributed to these results.

To further understand the reasons behind the lack of a significant relationship, additional investigation is warranted, including an exploration of potential additional factors that could impact students' performance in core mathematics. Variables such as teaching methods, classroom environment, or curriculum design may play a role and should be considered in future research. Overall, these findings suggest the importance of a holistic approach to improving student academic achievement. While assessment literacy is undoubtedly a critical aspect of teacher quality, the current study implies that other factors beyond assessment literacy may also significantly contribute to student success in mathematics and other subjects. Therefore, educators and policymakers should consider a comprehensive approach that addresses various elements to enhance student academic performance effectively.

5.3 Strengths and Limitations

The study's strengths lie in its clear and focused objective of examining the impact of assessment quality on students' academic performance. Utilizing regression analysis adds statistical rigor to the investigation, enabling precise measurement and analysis of teacher factors such as pedagogical expertise, subject-matter knowledge, and classroom management skills in relation to student outcomes. Conducting the study in the specific context of the Akuapem North Municipality provides valuable insights into localized educational dynamics, potentially informing tailored policies and practices. However, limitations exist, including the relatively small sample size of teachers and students, which may limit the generalizability of the findings. Additionally, the study may not fully account for contextual factors such as socioeconomic status or school resources that could influence student outcomes. Self-report bias in the assessment of teacher factors and the cross-sectional design of the study also poses limitations, hindering the ability to establish causal relationships between assessment quality and student academic performance.

Addressing these limitations in future research could enhance the validity and applicability of the findings to broader educational contexts.

5.4 Practical Implications

The study's findings have several practical implications for educators, policymakers, and educational institutions. Firstly, the non-significant relationship between assessment quality and student academic performance suggests that simply focusing on improving teachers' pedagogical expertise, subject-matter knowledge, and classroom management skills may not be sufficient to enhance student outcomes in the Akuapem North Municipality. Instead, educators should adopt a more holistic approach to improving student achievement, considering additional factors such as teaching methods, classroom environment, and curriculum design.

Secondly, the study highlights the importance of targeted professional development programs for mathematics teachers in the Akuapem North Municipality. These programs should not only focus on enhancing assessment literacy, including knowledge of test construction and assessment feedback practice but also address broader teaching practices and instructional strategies that may impact student academic performance.

Furthermore, policymakers should consider the findings of this study when designing educational policies and initiatives aimed at improving student outcomes in mathematics. Rather than focusing solely on assessment quality, efforts should be directed towards creating supportive learning environments, providing resources for teacher training and professional development, and addressing socio-economic factors that may influence student achievement.

Additionally, educational institutions in the Akuapem North Municipality can use the findings of this study to inform their teacher evaluation and support systems. By identifying areas for improvement in assessment literacy and teaching practices, institutions can provide targeted support and resources to help teachers enhance their effectiveness in the classroom.

Overall, the practical implications of this study emphasize the need for a comprehensive approach to improving student academic performance in mathematics, one that considers multiple factors beyond assessment quality and incorporates targeted interventions at the teacher, school, and policy levels.

6. Conclusions

Based on the findings of this study, it is evident that assessment quality, encompassing pedagogical expertise, subject-matter knowledge, and classroom management skills, as well as assessment literacy, focusing on test construction understanding and assessment feedback practice among mathematics teachers, did not exert a statistically significant influence on student's academic performance in the Akuapem North Municipality. These

results are contrary to what might have been anticipated given the importance traditionally attributed to these factors in educational settings. One unexpected finding is the lack of significance observed across all predictor variables in both regression analyses. This suggests that within the context of the Akuapem North Municipality, factors beyond those assessed in this study may have a more pronounced impact on students' academic performance. Potential explanations for this could include external factors such as socioeconomic status, home environment, or peer influences, which were not accounted for in the current analysis. Additionally, the specific instructional methods employed by teachers or variations in curriculum implementation could also play a role. Furthermore, the non-significant findings challenge conventional assumptions about the direct relationship between assessment quality/literacy and academic performance. It indicates that while these aspects are undoubtedly important components of effective teaching practices, their impact on student outcomes may be more nuanced and context-dependent than previously assumed. In terms of the study's overall contribution, it highlights the complexity of factors influencing student academic performance and emphasizes the need for comprehensive, multifaceted approaches to educational research and practice.

By revealing the non-significant relationship between assessment quality/literacy and academic performance in this specific context, the study highlights the importance of considering local contexts and exploring a broader range of variables when seeking to understand educational outcomes. This study provides new insight by challenging established assumptions and highlighting the need for further research to uncover the nuanced interactions between various factors influencing student academic performance in diverse educational settings. Doing so contributes to a better understanding of the complexity of educational processes and highlights the importance of context-specific approaches in educational research and practice.

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Ethics Statement

Ethical guidelines for research were followed throughout; in particular, participants gave written informed consent and were made aware that they were free to withdraw anytime during data collection.

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