

Utilization of Performance-Based Assessment Tools in Enhancing Student Learning Outcomes in Science 7

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Abstract

This study examined the extent of utilization of performance-based assessment tools in enhancing student learning outcomes in Science 7 among selected public secondary schools in the Division of Antipolo City, namely Dalig National High School, Dela Paz National High School, Maximo L. Gatlabayan Memorial National High School, San Roque National High School, and San Jose National High School. Utilizing a descriptive research design, the study involved 368 Grade 7 students and 22 Science teachers, selected through stratified sampling using Slovin's formula. Data were gathered through a researcher-made questionnaire-checklist and documentary analysis of students' academic performance based on their first and second grading period grades. The respondents were profiled in terms of demographic variables, while the extent of utilization of performance-based assessment tools was assessed in relation to hands-on experiments, oral or multimedia presentations, science journals or written reports, and portfolio assessments. Findings revealed that performance-based assessment tools were "much utilized" by teachers in Science 7 and were perceived to enhance students' learning outcomes. However, significant differences were found between teachers' and students' perceptions. The study further showed that most demographic variables of both teachers and students had no significant influence on their perceptions, except for students' sex and parents' educational attainment. The academic performance of students was rated as satisfactory, with a mean grade of 83.68. Moreover, a significant relationship was found between the utilization of performance-based assessment tools and students' academic performance, particularly in hands-on experiments, oral or multimedia presentations, and science journals or written reports. The study concludes that the effective use of performance-based assessment tools contributes positively to student learning outcomes in Science 7. It is recommended that school administrators support continuous professional development for teachers, while teachers enhance their assessment strategies and collaboration with parents to improve student engagement and performance.

Keywords: performance-based assessment, student learning outcomes, Science 7, academic performance, descriptive research, assessment tools

1. Introduction

Education is universally recognized as a fundamental human right and a key driver of national development, serving as the foundation for social progress, economic growth, and individual empowerment. In the Philippine context, education is envisioned not only as a means of acquiring knowledge but also as a transformative process that develops critical thinking, creativity, collaboration, and communication skills essential for 21st-century learners. As stated in the 1987 Philippine Constitution, Article XIV, Section 1, the State is mandated to protect and promote the right of all citizens to quality education at all levels and to take appropriate steps to make education accessible to all. This constitutional provision underscores the responsibility of the government and educational institutions to ensure inclusive, relevant, and quality education that prepares learners to contribute meaningfully to society. In response to this mandate, the Department of Education (DepEd) continues to implement reforms such as the K to 12 Basic Education Program and the MATATAG Curriculum. As emphasized in DepEd Order No. 10, s. 2024, the curriculum promotes learner-centered, inquiry-based, reflective, and collaborative approaches that encourage active engagement in the learning process. Within this framework, performance-based assessment (PBA) has emerged as a significant strategy in evaluating student learning. Unlike traditional assessments that primarily measure factual recall, PBA allows learners to demonstrate their knowledge and skills through authentic tasks such as experiments, presentations, journals, and project-based outputs. In Science 7, these assessments are particularly valuable as they foster scientific inquiry, critical thinking, and real-world application of concepts. Several studies support the effectiveness of performance-based assessment in enhancing student learning. International studies by Rahman and Elmiger (2022), Nakamura and Lee (2023), Martínez and Silva (2022), Johansson and Eriksson (2023), and Oliveira and Costa (2023) revealed that PBA significantly improves conceptual understanding, metacognitive skills, engagement, and collaboration among students. Similarly, local studies by Lorenzo (2022), Pérez and Montenegro (2023), Villarta et al. (2022), Santos and Navarro (2024), and Askali (2025) emphasized that performance-based tasks enhance learners' analytical thinking, motivation, and academic performance. These studies consistently

highlight that authentic assessment practices promote deeper learning by engaging students in meaningful and real-life tasks.

Despite the strong theoretical and empirical support for performance-based assessment, there remains a gap in its consistent implementation, particularly in Science 7 classrooms in the Philippine context. Many teachers still rely heavily on traditional assessment methods such as paper-and-pencil tests, which limit the assessment of higher-order thinking skills and practical application of knowledge. Additionally, there is limited local research examining the extent to which performance-based assessment tools are utilized and how they relate to students' academic performance in Science 7. Factors such as teacher preparedness, resource availability, and differences in student backgrounds may also influence the implementation and effectiveness of these assessment strategies. This study addresses these gaps by examining the utilization of performance-based assessment tools and their relationship to student learning outcomes in Science 7 in selected public secondary schools in the Division of Antipolo City. Specifically, it aims to determine the extent to which performance-based assessment tools—such as hands-on experiments, oral or multimedia presentations, science journals, and portfolio assessments—are utilized and how these influence students' academic performance. By filling this gap, the study seeks to provide empirical evidence that can guide educators, school administrators, and policymakers in enhancing assessment practices that align with the goals of the MATATAG Curriculum and the constitutional mandate for quality education.

2. Material and methods

2.1 Research Design

The study used the descriptive method of research, utilizing a researcher-made questionnaire checklist as a tool to gather the needed data.

2.2 Locale of the Study

The study was conducted in selected public secondary schools located in Division of Antipolo City, a component city in Rizal Province, Philippines, under the jurisdiction of the Department of Education – Division of Antipolo City. These schools include Dalig National High School, San Jose National High School, Dela Paz National High School, San Roque National High School, and Maximo L. Gatlabayan National High School. These schools were strategically selected based on their varied student demographics, geographic locations, and active involvement in science-related programs and authentic classroom assessment practices. Each school implements the MATATAG Curriculum and offers Science education in Grade 7, making them suitable for assessing the impact of Performance-Based Assessment (PBA) on students' learning outcomes.

2.3 Respondents of the Study

The study involved two groups of respondents, namely Science teachers and Grade 7 students from selected public secondary schools in Antipolo City under the Division of Antipolo during the School Year 2025–2026. A total of 22 Science teachers and 368 Grade 7 students participated in the study, representing a population of 4,672 students across the selected schools. The teacher-respondents were described in terms of their age, sex, civil status, educational attainment, position title, length of service, and in-service trainings attended, while the student-respondents were profiled according to their age, sex, sibling position, parents' educational attainment, parents' occupation, monthly family income, and number of children in the family.

2.4 Sample and Sampling Procedure

The study employed the stratified sampling technique to ensure that all subgroups within the population were adequately represented. The participating schools served as the primary strata, and within each school, Science teachers handling Grade 7 classes were identified and included as teacher-respondents. For the student-respondents, Grade 7 students were further stratified according to their sections to ensure proportional representation from different groups or performance levels. The sample size for the student-respondents was determined using Slovin's Formula at a 5% margin of error, resulting in a total of 368 students from the population of 4,672. Proportional allocation was applied in selecting the number of respondents per school to maintain fairness and balance, with the distribution as follows: Dalig National High School (50 students), Dela Paz National High School (75 students), Maximo L. Gatlabayan Memorial National High School (47 students), San Jose National High School (113 students), and San Roque National High School (83 students). This sampling procedure ensured that the selected respondents accurately represented the population of interest.

2.5 Research Instrument

The study utilized a researcher-made questionnaire-checklist as the primary instrument in gathering the required data. The questionnaire consisted of two parts: Part I focused on the personal profile of the respondents, including the teachers' age, sex, civil status, educational attainment, position title, length of service, and in-service trainings attended, as well as the students' age, sex, sibling position, parents' educational attainment, parents' occupation, monthly family income, and number of children in the family. Part II examined the extent of implementation of performance-based assessment in Science 7, specifically in terms of hands-on experiments, oral or multimedia presentations, science journals or written reports, and portfolio assessments, with each aspect containing ten items for a total of 40 items. A five-point Likert scale was used to interpret responses, ranging from "Very much utilized" to "Not utilized," with corresponding numerical values from 5 to 1. To ensure the validity of the instrument, it underwent content validation by the thesis adviser, statistician, dean, professional lecturers, master teacher, and head teacher, whose feedback and recommendations were incorporated in refining and finalizing the questionnaire before its administration to the respondents.

2.6 Data Gathering Procedure

The researcher followed a Gantt Chart of Activities as a guide in the conduct of the study. This included the formulation of research problems, title defense, colloquium, revision of the manuscript, and submission of the final copy. Different steps were taken, including the incorporation of the comments and suggestions of the panel members to ensure the quality of the study. Immediately after the defense of the research proposal, head teachers and master teachers validated the research instrument. Then, the researcher requested permission from the concerned authorities for the conduct of the study, first obtaining approval from the Schools Division Superintendent, followed by permission from the principals of public secondary schools in Antipolo. The administration of the researcher-made questionnaire followed, with strict adherence to the Data Privacy Act of 2012 (Republic Act No. 10173). Participants' personal information was kept confidential, and all responses were used solely for research purposes. Data privacy was maintained by encoding collected data in Excel, limiting access to the statistician, and ensuring that all analyses using the Statistical Package for Social Sciences (SPSS) safeguarded the anonymity of participants. All findings were reported in aggregate form, without revealing individual identities, to ensure compliance with ethical standards and data protection regulations. Based on the interpretation of the data, the summary of findings, conclusions, and recommendations were formulated. After the final oral defense, the manuscript was revised considering the comments and suggestions of the members of the Oral Examination Committee. The manuscript was subjected to an antiplagiarism test in compliance with research ethics policies. After finalization and completion of the revision process, the final printing, bookbinding, and submission of hardbound copies followed.

2.7 Data Analysis Techniques

The study employed various statistical tools to analyze and interpret the data gathered. Frequency, percentage, and rank distribution were used to describe the profile of the respondents in terms of selected variables. The weighted mean was utilized to determine the extent of utilization of performance-based assessment (PBA) in enhancing student learning outcomes in Science 7 as perceived by both teachers and students across different assessment aspects. To test for significant differences in the perceptions of teachers and students regarding the utilization of PBA tools, mean, standard deviation, and t-test were applied. Furthermore, one-way analysis of variance (ANOVA) was used to determine significant differences in perceptions when respondents were grouped according to their profile variables. The level of academic performance of Grade 7 students was analyzed using frequency, percentage, mean, and standard deviation based on their average grades in the first and second grading periods. Lastly, Pearson Correlation Analysis was employed to determine the significant relationship between the extent of utilization of performance-based assessment tools and students' academic performance in Science 7.

2.8 Ethical Considerations

This study strictly adhered to ethical standards in the conduct of research. Prior to data collection, permission was sought from the school authorities and concerned officials to ensure proper coordination and approval. The respondents were informed about the purpose of the study, and their participation was entirely voluntary. Informed consent was obtained, assuring them that they could withdraw from the study at any time without any consequences. Confidentiality and anonymity of the respondents were strictly maintained by not disclosing their identities and ensuring that all collected data were used solely for academic purposes. Additionally, the researcher ensured that no harm, discomfort, or bias would affect the participants throughout the process. All information gathered was treated with utmost respect and integrity, and results were presented honestly and objectively.

3. Results and Discussion

3.1 Profile of the Two Groups of Respondents in Terms of Selected Variables

Based on the table, the majority of teacher-respondents are in the 31–40 age bracket (45.5%), while the least are 51 years old and above (4.5%). The respondents are predominantly female (63.6%) compared to males (36.4%). In terms of civil status, most are married (68.2%), while the rest are single (31.8%). As to educational attainment, the majority hold a Master's Degree (54.5%), while the least are those with Master's Degree units (18.2%). Regarding position title, most teachers are Teacher II (36.4%), followed by Teacher I (27.3%), Teacher III (22.7%), Master Teacher I (9.1%), and the least is Head Teacher II (4.5%). In terms of length of service, most teachers have 1–10 years and 11–20 years of experience (both at 45.5%), while only a small percentage have 21–30 years (9.1%). For seminars and in-service trainings attended, the majority have participated in division-level trainings (45.5%), followed by school-based (31.8%), while only a few attended national (9.1%), district (9.1%), and regional (4.5%) trainings. Overall, the data indicate that the teacher-respondents are relatively young, predominantly female, highly qualified, and actively engaged in professional development, with most holding mid-level teaching positions and having moderate years of service.

Table 1.1

Frequency and Percentage Distribution of the Rank Distribution of the Teacher-Respondents in Terms of the Selected Variables

Age	F		%	R
51 years old and above	1		4.5	4
41-50 years old	3		13.6	3
31-40 years old	10		45.5	1
21-30 years old	8		36.4	2
Total	22		100.0	
Sex	F		%	R
Male	8		36.4	2
Female	14		63.6	1
Total	22		100.0	
Civil Status	F		%	R
Single	7		31.8	2
Married	15		68.2	1
Total	22		100.0	
Educational Attainment	F		%	R
Doctorate Degree (with units)	6		27.3	2.5
Master's Degree	12		54.5	1
Master's Degree (with units)	4		18.2	4
Total	22		100.0	
Position Title	F		%	R
Master Teacher I	2		9.1	4
Head Teacher II	1		4.5	5
Teacher III	5		22.7	2
Teacher II	8		36.4	1
Teacher I	6		27.3	3
Total	22		100.0	
Length of Service	F		%	R
21-30 years	2		9.1	3
11-20 years	10		45.5	1.5
1-10 years	10		45.5	1.5
Total	22		100.0	
Seminars and In-Service Trainings Attended f			%	R
National	2		9.1	3.5
Regional	1		4.5	5
Division	10		45.5	1
District	2		9.1	3.5
School-based	7		31.8	2
Total	22		100.0	

As depicted in the table 1.2 below, the majority of the student-respondents are 13 years old (55.7%), followed by those who are 12 years old (30.2%), while a smaller proportion are 14 years old and above (13.9%) and only a few are 11 years old (0.3%). In terms of sex, most of the respondents are female (66.6%), while males comprise 33.4%. Regarding sibling position, the majority are middle children (35.1%), followed by youngest (30.7%) and eldest (25.0%), while only 9.2% are only children. As to parents' educational attainment, most fathers and mothers are high school graduates (33.4% and 36.1%, respectively), followed by college graduates (19.3% for fathers and 21.2% for mothers), while only a very small percentage have attained higher degrees such as master's or doctorate levels. In terms of parents' occupation, most fathers fall under the "others" category (47.3%), followed by private employees (16.6%) and self-employed (14.1%), while only 5.4% are OFWs. For mothers, the majority are housewives (57.1%), followed by those categorized as "others" (15.5%) and private employees (9.8%), with a small percentage working as OFWs (6.5%). With regard to monthly family income, nearly half of the respondents' families earn below ₱10,000 (45.1%), followed by ₱10,001–₱20,000 (23.6%), while only a few belong to higher income brackets, with 7.6% earning ₱40,001 and above. Lastly, in terms of the number of children in the family, most respondents belong to large families with five or more children (26.4%), followed by families with three children (24.7%) and two children (21.5%), while only 10.9% are only children. Overall, the data indicate that the student-respondents are predominantly female, mostly 13 years old, come from relatively large families, and belong to low- to middle-income households with parents who are mostly high school graduates.

Table 1.2
Frequency and Percentage Distribution of the Rank Distribution of the Student-Respondents
in Terms of the Selected Variables

Age	F		%	R		
11 years old	1		0.3	4		
12 years old	111		30.2	2		
13 years old	205		55.7	1		
14 years old above	51		13.9	3		
Total	368		100.0			
Sex	F		%	R		
Male	123		33.4	2		
Female	245		66.6	1		
Total	368		100.0			
Sibling Position	F		%	R		
Eldest	92		25.0	3		
Middle	129		35.1	1		
Youngest	113		30.7	2		
Only Child	34		9.2	4		
Total	368		100.0			
Educational Attainment	Father			Mother		
	F	%	R	F	%	R
Doctorate Degree	3	0.8	8.5	1	0.3	11
With Doctorate Units	2	0.5	10	4	1.1	8.5
Master's Degree	3	0.8	8.5	4	1.1	8.5
With Master's Unit	1	0.3	11	3	0.8	10
College Graduate	71	19.3	2	78	21.2	2
College Undergraduate	43	11.7	4	57	15.5	3
Technical-Vocational Graduate	20	5.4	7	11	3	7
High School Graduate	123	33.4	1	133	36.1	1
High School Undergraduate	45	12.2	3	30	8.2	4.5
Elementary Graduate	30	8.2	5	30	8.2	4.5
Elementary Undergraduate	27	7.3	6	17	4.6	6
Total	368	100.0		368	100.0	
Parents' Occupation	Father			Mother		
	F	%	R	F	%	R
Government employee	38	10.3	4	16	4.3	6
Private employee	61	16.6	2	36	9.8	3
Self-employed	52	14.1	3	25	6.8	4
OFW	20	5.4	6	24	6.5	5
Househusband	23	6.3	5	210	57.1	1

Others	174	47.3	1	57	15.5	2
Total	368	100.0		368	100.0	
Monthly Family Income	F		%		R	
Below ₱10,000	166		45.1		1	
₱10,001–₱20,000	87		23.6		2	
₱20,001–₱30,000	58		15.8		3	
₱30,001–₱40,000	29		7.9		4	
₱40,001 and above	28		7.6		5	
Total	368		100.0			
No. of Children in the Family	F		%		R	
1	40		10.9		5	
2	79		21.5		3	
3	91		24.7		2	
4	61		16.6		4	
5 and above	97		26.4		1	
Total	368		100.0			

3.2 Extent of Utilization of Performance-Based Assessment Tools in Enhancing the Student Learning Outcome With Respect to Hands-On Experiments, Oral or Multimedia Presentations, Science Journals or Written Reports, and Portfolio Assessment

Table 2 presents the extent of utilization of performance-based assessment tools in enhancing student learning outcomes in Science 7, focusing on hands-on experiments, oral or multimedia presentations, science journals or written reports, and portfolio assessment. Both teacher-respondents (WM = 4.35) and student-respondents (WM = 3.93) rated the utilization of these tools as “Often,” indicating that performance-based assessment is frequently implemented and perceived as effective in improving student competencies. Teachers ranked oral or multimedia presentations as the most utilized, followed by science journals or written reports and portfolio assessment, while hands-on experiments ranked last. Conversely, students ranked portfolio assessment highest, followed by science journals or written reports, hands-on experiments, and oral or multimedia presentations. Despite differences in perception, both groups agreed that all aspects are often utilized, suggesting that performance-based assessments promote active engagement, critical thinking, communication skills, and reflective learning among Grade 7 students, thereby supporting the development of deeper understanding and improved learning outcomes

Table 2

Extent of Instructional Competencies of Non- Specialized Teachers Teaching Major Subjects in Senior High Schools as Perceived by Themselves with Respect to the Different Aspects

Aspects	Teachers			Students		
	W $\bar{X}$	VI	R	W $\bar{X}$	VI	R
Hands-On Experiments	4.32	Often	4	3.92	Often	3
Oral or Multimedia Presentations	4.38	Often	1	3.85	Often	4
Science Journals or Written Reports	4.35	Often	2.5	3.96	Often	2
Portfolio Assessment	4.35	Often	2.5	3.99	Often	1
Overall W$\bar{X}$	4.35	Often		3.93	Often	

3.3 Significant Difference Between the Perceptions of the Two Groups of Respondents on the Extent of Utilization of Performance-Based Assessment Tools in Enhancing the Student Learning Outcomes With Respect to the Cited Aspects

It could be gleaned from the results that the p-values obtained for hands-on experiments (0.014), oral or multimedia presentations (0.002), science journals or written reports (0.020), and portfolio assessment (0.037) are all lower than the 0.05 level of significance, leading to the rejection of the null hypothesis. This indicates that there is a significant difference between the perceptions of teachers and students on the extent of utilization of performance-based assessment tools in enhancing the competencies of Grade 7 students in Science 7. Findings further reveal that while both groups recognize the value of these assessment tools, teachers generally rated them higher than students, suggesting a stronger

perception of their effectiveness in promoting engagement, understanding, and skill development. In contrast, students' slightly lower ratings may reflect the challenges they experience in accomplishing the tasks or applying the skills independently. Overall, the results imply that teachers and students have different perspectives and experiences regarding performance-based assessments, highlighting the need to better align instructional practices with students' actual learning experiences, which is supported by the findings of Villarta, Dela Cruz, and Ramos (2022) who also noted similar differences in perceptions despite recognizing the benefits of such assessments.

Table 3

Result of the t-test in the Significant Difference Between the Perceptions of the Two Groups of Respondents on the Extent of Utilization of Performance-Based Assessment Tools in Enhancing the Student Learning Outcomes With Respect to the Cited Aspects

Aspects	Groups	N	Mean	SD	t-value	p-value	Ho	Verbal Interpretation
Hands-on Experiments	Teachers	22	4.318	0.594	2.466	0.014	Rejected	Significant
	Students	368	3.917	0.749				
Oral or Multimedia Presentation	Teachers	22	4.382	0.599	3.073	0.002	Rejected	Significant
	Students	368	3.845	0.806				
Science Journals or Written Reports	Teachers	22	4.355	0.611	2.336	0.020	Rejected	Significant
	Students	368	3.964	0.769				
Portfolio Assessment	Teachers	22	4.373	0.662	2.089	0.037	Rejected	Significant
	Students	368	3.990	0.844				

3.4 Significant Difference Between the Perceptions of the Two Groups of Respondents on the Extent of Utilization of Performance-Based Assessment Tools in Enhancing the Student Learning Outcomes with Respect to the Cited Aspects in Terms of Their Profile

As shown in the results in the table 4.1 below, the majority of p-values obtained from the F-test across teachers' profiles—such as age, sex, educational attainment, position title, length of service, and seminars or in-service trainings attended—are all greater than 0.05, leading to the acceptance of the null hypothesis and indicating no significant differences in their perceptions of the extent of utilization of performance-based assessment tools in Science 7. This suggests that these personal and professional characteristics generally do not influence how teachers view the effectiveness of performance-based assessment in enhancing student learning outcomes through activities like hands-on experiments, oral or multimedia presentations, science journals, and portfolio assessments. However, a few exceptions were noted, particularly in civil status for oral or multimedia presentations and science journals or written reports, where the p-values were at or below the level of significance, indicating a slight influence on perceptions in these specific areas. Overall, the findings imply that teachers, regardless of their background, share a common understanding of performance-based assessment as an effective instructional strategy that promotes meaningful, authentic, and skill-based learning experiences among students, supporting the view that such assessments are primarily shaped by pedagogical practices rather than teacher demographics.

Table 4.1.

Result of the F-Test in the Significant Difference Between the Perceptions of the Teacher Respondents on the Extent of Utilization of Performance-Based Assessment Tools in Enhancing the Student Learning Outcomes With Respect to the Cited Aspects in Terms of Their Profile

Aspects/Profile	F-value	p-value	Ho	Verbal Interpretation
Age				
Hands-On Experiments	1.143	0.358	Accepted	Not Significant
Oral or Multimedia Presentations	0.718	0.554	Accepted	Not Significant
Science Journals or Written Reports	1.045	0.397	Accepted	Not Significant
Portfolio Assessment	0.572	0.641	Accepted	Not Significant
Sex				
Hands-On Experiments	0.572	0.641	Accepted	Not Significant
Oral or Multimedia Presentations	0.011	0.917	Accepted	Not Significant
Science Journals or Written Reports	0.035	0.854	Accepted	Not Significant
Portfolio Assessment	0.000	0.991	Accepted	Not Significant
Civil Status				
Hands-On Experiments	3.996	0.059	Accepted	Not Significant
Oral or Multimedia Presentations	4.959	0.038	Rejected	Significant
Science Journals or Written Reports	4.339	0.050	Rejected	Significant
Portfolio Assessment	0.576	0.457	Accepted	Not Significant
Educational Attainment				
Hands-On Experiments	0.380	0.689	Rejected	Significant
Oral or Multimedia Presentations	0.357	0.704	Rejected	Significant
Science Journals or Written Reports	0.230	0.797	Rejected	Significant
Portfolio Assessment	0.226	0.800	Rejected	Significant
Position Title				
Hands-On Experiments	1.271	0.320	Rejected	Significant
Oral or Multimedia Presentations	1.195	0.349	Rejected	Significant
Science Journals or Written Reports	1.159	0.363	Rejected	Significant
Portfolio Assessment	0.783	0.552	Rejected	Significant
Length of Service				
Hands-On Experiments	1.877	0.180	Rejected	Significant
Oral or Multimedia Presentations	1.595	0.229	Rejected	Significant
Science Journals or Written Reports	1.309	0.293	Rejected	Significant
Portfolio Assessment	1.194	0.325	Rejected	Significant
Seminars and In-Service Trainings Attended				
Hands-On Experiments	0.384	0.817	Rejected	Significant
Oral or Multimedia Presentations	0.473	0.755	Rejected	Significant
Science Journals or Written Reports	0.539	0.709	Rejected	Significant
Portfolio Assessment	0.712	0.595	Rejected	Significant

As presented in Table 4.2, most p-values obtained from the F-test across students' demographic and family profiles—including age, sibling position, parents' occupation, monthly family income, and number of children in the family—are greater than 0.05, leading to the acceptance of the null hypothesis and indicating no significant differences in their perceptions on the extent of utilization of performance-based assessment tools in Science 7. This implies that these factors do not significantly influence how students perceive their competencies in tasks such as hands-on experiments, oral or multimedia presentations, science journals or written reports, and portfolio assessment. However, certain exceptions were identified: sex showed a significant difference in hands-on experiments, sibling position was significant in portfolio assessment, and mothers' educational attainment showed significant differences in both science journals or written reports and portfolio assessment. These findings suggest that while most demographic and family-related variables do not affect students' perceptions, specific factors such as gender, birth order, and mothers' educational background may influence how students view their skills and performance in certain assessment tasks, highlighting the need to consider these aspects in understanding student engagement and learning experiences in Science.

Table 4.2.

Result of the F-Test in the Significant Difference Between the Perceptions of the Student Respondents on the Extent of Utilization of Performance-Based Assessment Tools in Enhancing the Student Learning Outcomes With Respect to the Cited Aspects in Terms of Their Profile

Aspects/Profile	F-value	p-value	Ho	Verbal Interpretation
Age				
Hands-On Experiments	0.353	0.787	Accepted	Not Significant
Oral or Multimedia Presentations	1.296	0.276	Accepted	Not Significant
Science Journals or Written Reports	1.462	0.225	Accepted	Not Significant
Portfolio Assessment	0.451	0.717	Accepted	Not Significant
Sex				
Hands-On Experiments	6.120	0.014	Rejected	Significant
Oral or Multimedia Presentations	1.767	0.185	Accepted	Not Significant
Science Journals or Written Reports	3.741	0.054	Accepted	Not Significant
Portfolio Assessment	0.664	0.416	Accepted	Not Significant
Sibling Position				
Hands-On Experiments	1.342	0.261	Accepted	Not Significant
Oral or Multimedia Presentations	1.035	0.377	Accepted	Not Significant
Science Journals or Written Reports	1.020	0.384	Accepted	Not Significant
Portfolio Assessment	3.021	0.030	Rejected	Significant
Fathers' Educational Attainment				
Hands-On Experiments	1.706	0.078	Accepted	Not Significant
Oral or Multimedia Presentations	1.297	0.230	Accepted	Not Significant
Science Journals or Written Reports	1.417	0.171	Accepted	Not Significant
Portfolio Assessment	1.591	0.107	Accepted	Not Significant
Mothers' Educational Attainment				
Hands-On Experiments	1.813	0.057	Accepted	Not Significant
Oral or Multimedia Presentations	1.757	0.067	Accepted	Not Significant
Science Journals or Written Reports	2.102	0.024	Rejected	Significant
Portfolio Assessment	2.651	0.004	Rejected	Significant
Fathers' Occupation				
Hands-On Experiments	1.720	0.129	Accepted	Not Significant
Oral or Multimedia Presentations	1.233	0.293	Accepted	Not Significant
Science Journals or Written Reports	1.589	0.162	Accepted	Not Significant
Portfolio Assessment	0.485	0.788	Accepted	Not Significant
Mothers' Occupation				
Hands-On Experiments	0.679	0.639	Accepted	Not Significant
Oral or Multimedia Presentations	0.796	0.553	Accepted	Not Significant
Science Journals or Written Reports	1.208	0.305	Accepted	Not Significant
Portfolio Assessment	0.527	0.756	Accepted	Not Significant
Monthly Family Income				
Hands-On Experiments	1.895	0.111	Accepted	Not Significant
Oral or Multimedia Presentations	1.383	0.239	Accepted	Not Significant
Science Journals or Written Reports	2.268	0.061	Accepted	Not Significant
Portfolio Assessment	1.220	0.302	Accepted	Not Significant
Number of children in the family				
Hands-On Experiments	0.228	0.923	Accepted	Not Significant
Oral or Multimedia Presentations	0.266	0.899	Accepted	Not Significant
Science Journals or Written Reports	0.507	0.730	Accepted	Not Significant
Portfolio Assessment	1.100	0.356	Accepted	Not Significant

3.5. Level of Academic Performance in Science of the Grade 7 Students as Revealed By Their Average Grade during the First and Second Quarter

As perceived from the table, first in rank shows that the majority of Grade 7 students have Fairly Satisfactory academic performance at 31%, followed by Satisfactory performance at 25%, while the last in rank are those with Outstanding performance at 23%. The mean score of the students is 83.68 with a standard deviation of 0.31, which indicates that the students' grades are closely clustered around the mean, showing consistency in their academic performance. This means that most of the Grade 7 students have satisfactory to fairly satisfactory academic performance based on their average grades in the first and second quarters. The results further suggest that performance – based assessment tools contributed to the improvement of academic performance, as these activities support students' ability to follow instructions, master the

subject matter, accomplish individual tasks, and work effectively in groups. The result implies that to enhance student engagement and creativity, interactions between students and teachers should be planned to combine knowledge acquisition with active application. Performance – based assessment provide students with opportunities to practice skills, apply concepts in meaningful contexts, and participate actively in their learning. Such authentic, real-world applications of knowledge help motivate students and sustain their interest, fostering deeper learning. This is supported by the study of Nakamura and Lee (2023) that emphasizes hands-on, performance-based tasks improve academic performance by engaging students in active learning, promoting mastery of content, following instructions, completing tasks individually or collaboratively, and applying knowledge in meaningful ways. This aligns with the idea that performance-based assessments enhance engagement, creativity, and deeper learning through authentic, real-world applications.

Table 5

. Level of Academic Performance in Science of the Grade 7 Students as Revealed By Their Average Grade during the First and Second Quarter

Grade	Verbal Interpretation	f	%
90 and above	Outstanding	84	23
85 – 89	Very Satisfactory	76	21
80 – 84	Satisfactory	93	25
75 – 79	Fairly Satisfactory	115	31
below 75	Did not meet expectations	-	-
Total		368	100.0
Highest Grade	96.5		
Lowest Grade	73.5		
Mean	83.68 – Satisfactory		
Standard Deviation	0.31		

3.6. Significant Relationship between the Extent of Utilization of Performance-Based Assessment Tools in Enhancing the Student Learning Outcomes and Their Level of Academic Performance

The results show that there is a significant positive relationship between the extent of utilization of performance-based assessment tools and students' academic performance in Science 7. Specifically, hands-on experiments ($p = 0.014$), oral or multimedia presentations ($p = 0.038$), and science journals or written reports ($p = 0.001$) all yielded p-values lower than 0.05, leading to the rejection of the null hypothesis, while portfolio assessment ($p = 0.061$) was found to have no significant relationship with academic performance. This indicates that students who actively engage in performance-based tasks such as experiments, presentations, and written outputs tend to achieve higher academic performance, as these activities enhance understanding, application of knowledge, and development of essential skills. On the other hand, portfolio assessment, although contributory to learning, does not significantly predict students' grades in this study. Overall, the findings suggest that performance-based assessment tools play an important role in promoting meaningful learning, active participation, and improved academic outcomes, aligning with the study of Cerezo (2025), which emphasizes that such assessments foster deeper engagement, collaboration, and skill development, ultimately enhancing both competence and confidence in Science.

Table 6

. Computed r-Value on Significant Relationship between the Extent of Utilization of Performance-Based Assessment Tools in Enhancing the Student Learning Outcomes and Their Level of Academic Performance

Aspects	r-values	p-values	Ho	Verbal Interpretation
Hands-On Experiments	0.128	0.014	Rejected	Significant
Oral or Multimedia Presentations	0.108	0.038	Rejected	Significant
Science Journals or Written Reports	0.166	0.001	Rejected	Significant
Portfolio Assessment	0.098	0.061	Accepted	Not Significant

4. Conclusion & Recommendations

The study concludes that teachers and students differ in their perceptions regarding the extent of utilization of performance-based assessment tools in enhancing student learning outcomes in Science 7. It further reveals that most personal and demographic profiles of both teachers and students do not significantly influence their perceptions, except for certain student-related factors such as sex and parents' educational attainment, which have some contributory effect. Moreover, the findings establish that the utilization of performance-based assessment tools—particularly hands-on experiments, oral or multimedia presentations, and science journals or written reports—is significantly related to students' academic performance, indicating that these approaches positively contribute to improved learning outcomes. Based on these conclusions, it is recommended that school administrators support continuous teacher development through in-service trainings, while teachers are encouraged to utilize varied and well-planned performance-based assessment strategies to enhance student learning. Teachers and parents should collaborate in monitoring students' progress, and students should be motivated to actively engage in performance-based tasks to strengthen their competencies and participation. The implementation of the proposed action plan is also recommended, along with conducting further studies to validate and expand the findings of this research in other contexts.

Compliance with ethical standards

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