

Effects of Experiential Learning Approach on the Academic Performance in Science of Grade Five Pupils

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Abstract

This study determined the effects of the experiential learning approach on the academic performance in Science of Grade Five pupils in public elementary schools in District I-A, City Schools Division of Antipolo, during the School Year 2025–2026. Specifically, it examined the extent of experiential learning in terms of instructional motivation, concrete experiences, critical and creative thinking, and skills development, as well as its relationship with pupils' academic performance. The study employed a descriptive survey research design and documentary analysis. The respondents consisted of the total population of 81 Science teachers from Bagong Nayon I Elementary School, Dela Paz Elementary School, and Sta. Cruz Elementary School. A researcher-made questionnaire-checklist was utilized to gather data on teachers' perceptions, while the average Science grades of 358 Grade Five pupils served as the basis for determining academic performance. Statistical treatments included frequency, percentage, weighted mean, t-test, one-way analysis of variance (ANOVA), and Pearson product-moment correlation coefficient. Findings revealed that most teacher-respondents were 31 years old and above, female, married, held Teacher I–III positions, had more than ten years of teaching experience, were pursuing graduate studies, and had attended division to international-level trainings. Teachers perceived experiential learning as having a high effect on pupils' performance in Science across instructional motivation, concrete experiences, critical and creative thinking, and skills development. Significant differences in perceptions were found when grouped according to age, educational attainment, length of service, and in-service trainings attended, while no significant differences existed in terms of sex, civil status, and position title. Documentary analysis showed that the Grade Five pupils attained a very satisfactory level of academic performance in Science. Moreover, a significant positive relationship existed between the perceived effects of experiential learning and pupils' academic performance. The study concluded that experiential learning significantly enhances Science achievement and recommended continuous teacher professional development, consistent integration of experiential learning strategies in Science instruction, implementation of the proposed action plan, and the conduct of similar studies involving other variables and educational contexts.

Keywords: Experiential Learning, Academic Performance, Science Education, Grade Five Pupils, Instructional Motivation, Concrete Experiences, Critical and Creative Thinking, Skills Development, Descriptive Survey, Philippines

Introduction

Science education plays a crucial role in developing learners' scientific literacy, problem-solving abilities, and higher-order thinking skills necessary for lifelong learning and sustainable development. In the Philippine basic education curriculum, Science is expected to provide meaningful learning experiences that enable pupils to understand scientific concepts through observation, experimentation, inquiry, and real-life application. However, despite continuous curriculum reforms, many elementary pupils still experience difficulties in comprehending scientific concepts due to the continued use of teacher-centered instructional approaches that emphasize memorization rather than authentic learning experiences. These challenges have contributed to relatively low academic achievement in Science, making it imperative for teachers to adopt innovative pedagogical approaches that actively engage learners.

Experiential learning has emerged as one of the most effective learner-centered instructional approaches in science education. Grounded on Kolb's Experiential Learning Theory, this approach emphasizes learning through direct experiences, reflection, conceptualization, and active experimentation. Rather than passively receiving information, learners actively participate in hands-on activities, collaborative investigations, laboratory experiments, simulations, and problem-solving tasks that allow them to construct knowledge from authentic experiences. Numerous contemporary studies have consistently demonstrated that experiential learning improves learners' motivation, engagement, conceptual understanding, scientific inquiry skills, and academic achievement.

Recent literature further supports the growing importance of experiential learning in elementary Science education. Susiloningsih, Sumantri, and Marini (2023), through a systematic literature review, concluded that experiential learning consistently improves science learning outcomes by increasing learner participation, conceptual understanding, and

scientific process skills. The review emphasized that meaningful experiences enable learners to retain scientific knowledge more effectively than traditional lecture-based instruction.

Similarly, UCL Institute of Education (2024) synthesized findings from forty-four peer-reviewed studies and reported that experiential learning positively influences children's achievement in Science and Mathematics while simultaneously strengthening collaboration, communication, and critical thinking. The review highlighted that authentic learning experiences produce deeper understanding because learners actively construct knowledge rather than merely receiving information from teachers.

Koç and Kanadlı (2025) conducted a network meta-analysis on interactive learning environments in Science education and found that interactive and experiential instructional strategies significantly improve learners' academic performance compared with conventional teaching methods. Their findings demonstrated that student-centered learning environments promote greater engagement and conceptual mastery, particularly in science subjects.

Lagua (2025) investigated the effectiveness of experiential learning strategies among Grade VI pupils in the Philippines and reported significant improvements in Science performance after implementing experiential learning activities. The study emphasized that contextualized and learner-centered activities encouraged scientific inquiry, active participation, and meaningful understanding of scientific concepts.

Chen and colleagues (2025) developed an augmented reality-based experiential learning approach grounded on Kolb's experiential learning framework. Their findings revealed that immersive experiential activities significantly enhanced pupils' academic achievement, learner engagement, scientific inquiry behaviors, and perceived competence in Science learning compared with traditional classroom instruction.

Panda and Mohalik (2025), in their comprehensive literature review, concluded that experiential learning effectively develops higher-order thinking skills and scientific temper among science learners by promoting inquiry, experimentation, reflection, and collaborative learning experiences. They emphasized that science education should move beyond factual knowledge toward authentic problem-solving experiences.

Cleopas (2026) examined the use of virtual laboratories as experiential learning environments and found significant improvements in learners' academic performance and engagement in Science. The study suggested that experiential learning may also be implemented through technology-enhanced instructional strategies that simulate authentic laboratory experiences.

Likewise, Lazim (2026) reported that hands-on laboratory approaches significantly improved both academic performance and learning engagement among senior high school Science learners. The study reinforced the value of practical experiences in strengthening conceptual understanding and sustaining learners' interest in science education.

Despite the growing body of evidence supporting experiential learning, several research gaps remain evident. First, most recent studies employed experimental or quasi-experimental designs focusing primarily on intervention effectiveness, while relatively few studies have examined teachers' perceptions regarding the extent of experiential learning implementation in elementary Science classrooms. Second, many investigations concentrated on secondary or higher education, leaving limited empirical evidence involving Grade Five pupils in Philippine public elementary schools. Third, previous studies largely emphasized learner engagement, inquiry skills, or conceptual understanding without comprehensively examining experiential learning across instructional motivation, concrete experiences, critical and creative thinking, and skills development simultaneously. Finally, there remains limited evidence establishing the relationship between teachers' perceived implementation of experiential learning and the actual academic performance of elementary pupils using documentary analysis of school records within the local context of the City Schools Division of Antipolo.

Addressing these identified gaps, the present study determined the extent of the effects of experiential learning on the academic performance in Science of Grade Five pupils in selected public elementary schools in District I-A, City Schools Division Office of Antipolo during the School Year 2025–2026. Specifically, it examined experiential learning in terms of instructional motivation, concrete experiences, critical and creative thinking, and skills development, and determined their relationship with pupils' academic performance. The findings of this study are expected to contribute to the growing body of knowledge on experiential learning and provide evidence-based recommendations for strengthening Science instruction, teacher professional development, and learner-centered pedagogical practices in Philippine elementary schools.

Material and methods

2.1 Research Design

The study employed a descriptive survey research design complemented by documentary analysis to determine the extent of the effects of experiential learning on the academic performance in Science of Grade Five pupils.

2.2 Locale of the Study

The study was conducted in Bagong Nayon I Elementary School, Dela Paz Elementary School, and Sta. Cruz Elementary School, all located in District I-A, City Schools Division Office of Antipolo, during the School Year 2025–2026.

2.3 Respondents of the Study

The respondents of the study were the 81 Science teachers from the selected public elementary schools, while the Science grades of 358 Grade Five pupils were utilized through documentary analysis to determine their level of academic performance.

2.4 Sample and Sampling Procedure

The study employed total population sampling, wherein all 81 Science teachers from the identified schools were included as respondents because of the manageable population size, while the academic records of all 358 Grade Five pupils served as the basis for documentary analysis.

2.5 Research Instrument

Data were collected using a researcher-made questionnaire-checklist designed to measure the perceived effects of experiential learning in terms of instructional motivation, concrete experiences, critical and creative thinking, and skills development, while pupils' academic performance was obtained from their official Science grades.

2.6 Data Gathering Procedure

After securing the necessary approvals from the school authorities, the researcher administered the validated questionnaire to the teacher-respondents, retrieved the accomplished instruments, and obtained the pupils' Science grades from official school records for documentary analysis.

2.7 Data Analysis Techniques

The data were analyzed using frequency and percentage to describe the respondents' profile, weighted mean to determine the extent of the effects of experiential learning, t-test and one-way analysis of variance (ANOVA) to determine significant differences, and Pearson Product-Moment Correlation Coefficient (Pearson r) to determine the significant relationship between the effects of experiential learning and the academic performance of Grade Five pupils.

2.8 Ethical Considerations

The study adhered to established ethical principles throughout the research process. Prior to data collection, permission was obtained from the concerned authorities and participating manufacturing companies. All respondents were informed of the purpose, procedures, and voluntary nature of the study, and their informed consent was secured before participation. Confidentiality and anonymity of the respondents were strictly maintained by ensuring that no personal or company-identifiable information was disclosed in the presentation of the results. Participants were assured that they could withdraw from the study at any time without any consequences. The data gathered were used solely for academic and research purposes, stored securely, and handled in accordance with the agreed confidentiality and non-disclosure provisions to protect the privacy and integrity of both the respondents and the participating organizations.

Results and Discussion

3.1 Profile of the Respondents in terms of the Selected Variables

As shown in the table, out of 81 teacher-respondents, in terms of age, 33.3 % have ages 31-40 years old while 29.6% are 41-50 years old. The respondents is female dominated with 77.8% females. In terms of civil status, most of the teacher-respondents are married with 69.1%. As to their educational attainment, 38.3% are Bachelors' degree holder, 32.1 % have MA units while 28.4% have Masters' degree. In terms of length of service, 24.7% have been teaching below 5 years, 19.8% for 5-9 years and 16% for 10-14 years while 18.5 % have been teaching for 15-19 years. The rest have been teaching for 20 years and more. With regard to their position title, 44.5% are Teacher II, 29.6% are Teacher III while 17.3% are Teacher I. The rest are Teacher IV, Teacher V, and Master Teacher. In terms of in-service trainings attended, 61.7% have attended in the Division level, 22.3 % have attended in the District level and the rest have attended in the regional, national and international level.

Table 1
Profile of the Respondents

Profile	Frequency	Percentage	Rank
Age			
61 years old and above	2	2.5	5
51-60 years old	14	17.3	3.5
41-50 years old	24	29.6	2
31-40 years old	27	33.3	1
21-30 years old	14	17.3	3.5
Total	81	100.0	
Sex			
Female	63	77.8	1
Male	18	22.2	2
Total	81	100.0	
Civil Status			
Single	19	23.5	2
Married	56	69.1	1
Widow/Widower	5	6.2	3
Separated	1	1.2	4
Total	81	100.0	
Educational Attainment			
MA with Doctorate Units	1	1.2	4
Master's Degree	23	28.4	3
With MA Units	26	32.1	2
Bachelor's Degree	31	38.3	1
Total	81	100.0	
Length of Service			
25-29 years	8	9.9	6
20-24 years	9	11.1	5
15-19 years	15	18.5	3
10-14 years	13	16.0	4
5-9 years	16	19.8	2
Below 5 years	20	24.7	1
Total	81	100.0	
Position Title			
Master Teacher I	1	1.2	6
Teacher V	4	4.9	4
Teacher IV	2	2.5	5
Teacher III	24	29.6	2
Teacher II	36	44.5	1

Teacher I	14	17.3	3
Total	81	100.0	
In-Service Trainings Attended			
International	1	1.2	5
National	9	11.1	3
Regional	3	3.7	4
Division	50	61.7	1
District	18	22.3	2
Total	81	100.0	

3.2 Extent of Effects of Experiential Learning Approach on the Performance in Science of Grade Five Pupils as Perceived by the Teacher-Respondents with Respect to the Different Aspects

Table 2 presents the summary of the extent of the effects of the experiential learning approach on the performance in Science of Grade Five pupils as perceived by the teacher-respondents. Among the four aspects, Concrete Experiences obtained the highest weighted mean (WM = 4.46), followed by Skills Development (WM = 4.44), Instructional Motivation (WM = 4.43), and Critical and Creative Thinking (WM = 4.40), all verbally interpreted as High Effect. The composite weighted mean of 4.43 further indicates that experiential learning has a High Effect on pupils' Science performance. These findings suggest that experiential learning effectively enhances pupils' engagement, motivation, practical skills, and higher-order thinking by providing meaningful hands-on experiences and real-world applications that facilitate deeper understanding of scientific concepts. The results support the view that experiential learning transforms pupils from passive recipients of information into active participants in the learning process, thereby improving academic performance in Science. These findings are consistent with Bansal et al. (2022), who emphasized that experiential learning promotes active knowledge construction through authentic experiences, reflection, and application, leading to greater learner engagement, improved concept retention, and enhanced academic achievement.

Table 2

Extent of Effects of Experiential Learning Approach on the Performance in Science of Grade Five Pupils as Perceived by the Teacher-Respondents with Respect to the Different Aspects

Aspects	WX	Verbal Interpretation	Rank
Instructional Motivation	4.43	High Effect	3
Concrete Experiences	4.46	High Effect	1
Critical and Creative Thinking	4.40	High Effect	4
Skills Development	4.44	High Effect	2
Composite WX	4.43	High Effect	

3.3 Significant Difference on the Extent of Effects of Experiential Learning Approach on the Performance in Science of Grade Five Pupils as Perceived by the Teacher-Respondents with Respect to the Different Aspects in Terms of Their Profile

Table 3 presents the results of the tests of significant difference on the perceived extent of the effects of the experiential learning approach on the performance in Science of Grade Five pupils when teacher-respondents were grouped according to their profile. The findings revealed that sex, civil status, and position title yielded probability values greater than .05 across all aspects, indicating no significant differences in teachers' perceptions. Conversely, age, educational attainment, length of service, and in-service trainings attended obtained probability values less than .05, signifying significant differences in perceptions regarding instructional motivation, concrete experiences, critical and creative thinking, and skills development. These results suggest that demographic and professional characteristics related to teachers' experience and professional growth influence how they perceive the effectiveness of experiential learning, whereas personal characteristics such as sex and civil status and organizational position do not. This implies that teachers with varying ages, educational backgrounds, years of teaching experience, and exposure to professional development may differ in their appreciation and implementation of experiential learning strategies in Science instruction. The findings are consistent with Sandoval (2022), who reported that teachers' perceptions of experiential learning vary according to their demographic characteristics, indicating that professional qualifications and teaching experiences shape the extent to which experiential learning is understood, valued,

Table 3

Significant Difference on the Extent of Effects of Experiential Learning Approach on the Performance in Science of Grade Five Pupils as Perceived by the Teacher-Respondents with Respect to the Different Aspects in Terms of Their Profile

Age	Fcomp	p-values	Decision	VI
Instructional Motivation	2.932	.006	Rejected	Significant
Concrete Experiences	3.116	.011	Rejected	Significant
Critical and Creative Thinking	2.421	.049	Rejected	Significant
Skills Development	4.215	.001	Rejected	Significant
Sex				
Instructional Motivation	0.247	.071	Accepted	Not Significant
Concrete Experiences	1.248	.294	Accepted	Not Significant
Critical and Creative Thinking	1.519	.076	Accepted	Not Significant
Skills Development	0.376	.921	Accepted	Not Significant
Civil Status				
Instructional Motivation	1.552	.225	Accepted	Not Significant
Concrete Experiences	1.171	.216	Accepted	Not Significant
Critical and Creative Thinking	1.121	.837	Accepted	Not Significant
Skills Development	0.975	.921	Accepted	Not Significant
Educational Attainment				
Instructional Motivation	4.419	.008	Rejected	Significant
Concrete Experiences	3.821	.019	Rejected	Significant
Critical and Creative Thinking	4.445	.034	Rejected	Significant
Skills Development	6.821	.006	Rejected	Significant
Position Title				
Instructional Motivation	1.164	.061	Accepted	Not Significant
Concrete Experiences	1.032	.927	Accepted	Not Significant
Critical and Creative Thinking	0.911	.294	Accepted	Not Significant
Skills Development	0.087	.094	Accepted	Not Significant
Length of Service				
Instructional Motivation	11.741	.024	Rejected	Significant
Concrete Experiences	9.041	.012	Rejected	Significant
Critical and Creative Thinking	8.279	.038	Rejected	Significant
Skills Development	9.945	.005	Rejected	Significant
In-Service Trainings Attended				
Instructional Motivation	2.353	.043	Rejected	Significant
Concrete Experiences	3.164	.014	Rejected	Significant
Critical and Creative Thinking	4.422	.003	Rejected	Significant
Skills Development	6.743	.005	Rejected	Significant

3.4 Level of Academic Performance of Grade Five Pupils as Revealed by their Average Grades in Science

Table 4 presents the level of academic performance of Grade Five pupils based on their average grades in Science. Out of the 358 pupils, the largest proportion (43.0%) obtained grades ranging from 85–89, interpreted as Very Satisfactory, followed by 24.9% who achieved Outstanding performance with grades of 90 and above. Meanwhile, 23.5% attained Satisfactory performance (80–84), while only 8.6% were classified as Fairly Satisfactory (75–79), and none obtained grades below 75. The pupils posted a mean grade of 88.43, verbally interpreted as Very Satisfactory, with the highest grade of 93, the lowest grade of 79, and a standard deviation of 2.212, indicating relatively minimal variation in academic performance. These findings suggest that the majority of Grade Five pupils demonstrated commendable achievement in Science, reflecting the effectiveness of existing instructional practices, including learner-centered approaches such as experiential

learning. Nevertheless, the presence of pupils within the fairly satisfactory range indicates the need for targeted interventions to further improve their learning outcomes. The findings support the study of Conel and Avilla (2022), who reported that experiential learning enhances pupils' academic performance in Science by promoting active engagement, meaningful understanding of concepts, and improved retention of learning.

Table 4
Level of Academic Performance of Grade Five Pupils as Revealed by their Average Grades in Science

Grades	Verbal Interpretation	F	%
90 and above	Outstanding	89	24.9
85 – 89	Very Satisfactory	154	43.0
80 – 84	Satisfactory	84	23.5
75 – 79	Fairly Satisfactory	31	8.6
below 75	Did not meet expectations	-	-
Total		358	100
Highest Grade		93	
Lowest Grade		79	
Mean		88.43 – Very Satisfactory	
Standard Deviation		2.212	

3.5 Significant Relationship Between the Perceived Extent of Effects of Experiential Learning Approach on the Performance in Science of Grade Five Pupils and Their Level of Academic Performance

Table 5 presents the computed Pearson r-values on the significant relationship between the perceived extent of the effects of the experiential learning approach and the academic performance in Science of Grade Five pupils. The results revealed strong positive correlation coefficients across all aspects, namely Instructional Motivation ($r = 0.766$, $p = 0.007$), Concrete Experiences ($r = 0.897$, $p = 0.009$), Critical and Creative Thinking ($r = 0.812$, $p = 0.003$), and Skills Development ($r = 0.749$, $p = 0.013$), all of which obtained probability values lower than the 0.05 level of significance. Consequently, the null hypothesis was rejected, indicating that a significant relationship exists between the perceived effects of experiential learning and the academic performance of Grade Five pupils in Science. These findings suggest that increased implementation of experiential learning strategies is associated with higher levels of pupils' academic achievement. By engaging learners in meaningful hands-on activities, real-world applications, reflective experiences, and collaborative problem-solving, experiential learning enhances motivation, deepens conceptual understanding, strengthens critical thinking, and develops scientific process skills, ultimately contributing to improved academic performance in Science.

Table 5
Significant Relationship Between the Perceived Extent of Effects of Experiential Learning Approach on the Performance in Science of Grade Five Pupils and Their Level of Academic Performance

Aspects	r-values	p-values	Ho	Verbal Interpretation
Instructional Motivation	0.766	0.007	Rejected	Significant
Concrete Experiences	0.897	0.009	Rejected	Significant
Critical and Creative Thinking	0.812	0.003	Rejected	Significant
Skills Development	0.749	0.013	Rejected	Significant

Conclusions & Recommendations

The study concluded that the teacher-respondents generally perceived the experiential learning approach as having a high effect on the academic performance in Science of Grade Five pupils, particularly in terms of instructional motivation, concrete experiences, critical and creative thinking, and skills development. Teachers' perceptions significantly differed according to age, educational attainment, length of service, and in-service trainings attended, while no significant differences were found when grouped according to sex, civil status, and position title. Moreover, the Grade Five pupils attained a very satisfactory level of academic performance in Science. The significant positive relationship between the

perceived effects of experiential learning and pupils' academic performance indicates that the effective implementation of experiential learning strategies contributes to improved Science achievement and meaningful learning experiences.

Based on the findings and conclusions, it is recommended that school heads continuously strengthen teachers' professional development through seminars, workshops, coaching, and learning action cells focusing on experiential and learner-centered Science instruction. Science teachers are encouraged to consistently integrate hands-on activities, inquiry-based learning, real-life applications, and reflective practices into their classroom instruction to further enhance pupils' engagement and academic performance. Schools may also implement the proposed action plan to institutionalize experiential learning practices, while future researchers are encouraged to conduct similar studies involving other grade levels, subject areas, school settings, and additional variables to further validate and expand the findings of the present study.

Compliance with ethical standards

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