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Experiential Simulation in Araling Panlipunan: A Quasi-Experimental Study on Grade 4 Learners' Academic Achievement

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ABSTRACT

This study examined the effectiveness of experiential simulation strategies in enhancing the academic performance of Grade 4 learners in Araling Panlipunan, particularly on the topic Likas-Kayang Kaunlaran. Grounded in constructivist and experiential learning theories, the study implemented Project ARVEN as an instructional intervention incorporating role-playing, reenactments, collaborative learning, and reflective discussions. A quasi-experimental one-group pretest–posttest design was employed, involving fifteen (15) Grade 4 learners from Dulag Elementary School, Lingayen I District, Pangasinan, during the School Year 2024–2025. Data were collected using a validated researcher-developed 40-item test administered before and after the intervention. Descriptive statistics and a paired samples t-test were utilized to analyze the data. Results revealed that learners initially demonstrated low performance, with a mean pretest score of 13.07, predominantly classified under "Not Proficient" and "Nearly Proficient" levels. Following the intervention, learners showed substantial improvement, achieving a mean posttest score of 30.20, with all participants reaching at least a "Proficient" level. The computed t-value of 12.577 exceeded the critical value at the 0.05 level of significance, indicating a statistically significant difference between pretest and posttest scores. These findings suggest that experiential simulation strategies are effective in improving learners' academic performance and conceptual understanding in Araling Panlipunan. The study recommends the integration of simulation-based approaches in social studies instruction and calls for further research to explore long-term impact and applicability across diverse contexts. Moreover, the intervention demonstrates potential for fostering learner engagement, critical thinking, and meaningful learning experiences, thus supporting broader educational goals within elementary social studies curriculum.

Keywords: *Experiential Simulation Learning, Araling Panlipunan, Elementary Education Project ARVEN, Experiential Learning Strategies*

INTRODUCTION

The challenge of effectively engaging students in Araling Panlipunan (AP), or Social Studies, is a persistent concern in contemporary elementary education. In the Philippines, where fostering a strong sense of national identity and civic responsibility is paramount in cultivating students' understanding and appreciation of their history, geography, and cultural values is crucial. However, a significant number of students struggle to connect with these subjects, often perceiving them as dry, irrelevant, or simply a collection of facts and dates. This lack of engagement is not confined to a single school; it reflects a broader national trend. National assessments, such as the Philippine National Achievement Test (NAT), consistently reveal that many elementary students, including those in Grade 4, perform below the national average in social studies (Cuajao, 2024). These results point to critical gaps in students' comprehension of historical events, civic principles, and cultural heritage. This underperformance underscores

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the need for innovative pedagogical approaches that can reignite students' interest and deepen their understanding of AP subjects.

In response to these pedagogical limitations, contemporary educational discourse has increasingly emphasized and recommended learner-centered and experiential approaches (e.g., Cochico, 2025). Among these, simulation-based learning has emerged as a promising strategy (Hendricks, 2024). Rooted in constructivist theory, simulation allows learners to actively engage in role-playing, reenactments, and problem-solving scenarios that mirror real-world contexts (Chand, 2023). Such approaches enable learners to construct knowledge through experience, thereby enhancing retention, engagement, and conceptual understanding.

Aligned with these principles, this study introduces Project ARVEN (Advancing Resilient Values and Engagement in Nationhood), a teacher-led initiative and intervention that integrates experiential simulation strategies into the teaching of Araling Panlipunan. Through structured activities such as historical reenactments, collaborative inquiry, and reflective discussions, the project seeks to transform passive learning environments into dynamic spaces for active knowledge construction. This study, therefore, investigates the effectiveness of experiential simulation in improving the academic performance of Grade 4 learners in Araling Panlipunan.

Statement of the Problem

This study aimed to examine the effectiveness of experiential simulation strategies in enhancing the academic performance of Grade 4 learners in Araling Panlipunan at Dulag Elementary School

Specifically, it seeks to answer the following questions:

1. What is the level of performance of Grade 4 learners in Araling Panlipunan before the implementation of experiential simulation strategies?
2. What is the level of performance of Grade 4 learners in Araling Panlipunan after the implementation of experiential simulation strategies?
3. Is there a significant difference in the learners' performance before and after the implementation of experiential simulation strategies?

Scope and Delimitations

This study assessed the impact of experiential simulation strategies on the academic performance of Grade 4 learners in Araling Panlipunan at Dulag Elementary School, Lingayen I District, Pangasinan, during the School Year 2024–2025. The participants were limited to fifteen (15) Grade 4 learners identified as experiencing difficulties in understanding the selected topic. Learners from other grade levels and schools were not included, thereby limiting the generalizability of the findings. The content coverage was also confined to the topic Likas-Kayang Kaunlaran, a core component of the Araling Panlipunan curriculum. The study did not extend to other subject areas or competencies within AP. The intervention consisted exclusively of experiential simulation strategies implemented under Project ARVEN. These included role-playing, historical reenactments, guided reflections, and peer evaluations. Other instructional strategies were not examined.

Review of Related Literatures

The evolving landscape of education has increasingly emphasized the need for pedagogical

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approaches that move beyond passive content delivery toward active and meaningful learning experiences. Traditional instructional strategies in social studies have often relied on memorization and teacher-centered approaches, which limit learners' ability to internalize concepts and apply them in real-world contexts. In contrast, contemporary educational research advocates for constructivist and experiential learning approaches that actively engage learners in the knowledge construction process.

Constructivist theory, as advanced by Piaget and Vygotsky, posits that learning occurs through active engagement, social interaction, and reflection. Learners do not merely absorb information; rather, they construct meaning based on their experiences and prior knowledge. While Piaget emphasizes individual cognitive development, Vygotsky underscores the social dimension of learning, particularly through collaborative activities and guided interaction (Chen, 2024; Singh et al., 2024). These perspectives collectively support the integration of interactive and participatory strategies in classroom instruction.

Simulation-based learning is one such approach that aligns strongly with constructivist principles. It situates learners in realistic or semi-realistic scenarios where they assume roles, make decisions, and engage in problem-solving tasks. Simulation-based learning has evolved across disciplines as an effective pedagogical tool for enhancing engagement and fostering deeper understanding. Their analysis demonstrates that simulations promote active participation and enable learners to experience complex systems in a controlled environment (Diab et al., 2024).

Empirical studies further substantiate the effectiveness of simulation strategies in improving academic performance. Hendricks (2024) asserts that simulation-based learning enhances both student engagement and knowledge retention in social studies by transforming abstract concepts into tangible experiences. Similarly, Rommer et al. (2026) and Ormanci (2026) found that simulation-based experiential learning significantly improves learners' student motivation and conceptual understanding, particularly in social studies education.

In addition, Ali (2025) and Chernikova et al. (2023), through a meta-analysis of simulation-based activities, concluded that simulation strategies consistently yield higher effectiveness in developing skills across subject areas as well as interpersonal skills. This finding reinforces the growing consensus that active learning approaches are more effective than conventional lecture-based instruction in promoting meaningful learning.

The principles underlying simulation-based learning are also closely aligned with experiential learning theory. Dewey's foundational work emphasizes that education must be grounded in experience, arguing that learners develop a deeper understanding when they actively participate in the learning process. Moreover, experiential and constructivist teaching approaches foster critical thinking, engagement, and long-term retention of knowledge. By engaging learners in reflective and participatory activities, simulation-based strategies create opportunities for authentic learning experiences (Singh-Pillay, 2024; Adebanjo et al., 2026).

Furthermore, Chand (2023) underscores the importance of constructivist teaching in modern classrooms, emphasizing that learner-centered approaches enable students to become active participants in their own learning. Simulation strategies operationalize this principle by shifting the teacher's role from knowledge transmitter to facilitator of learning experiences.

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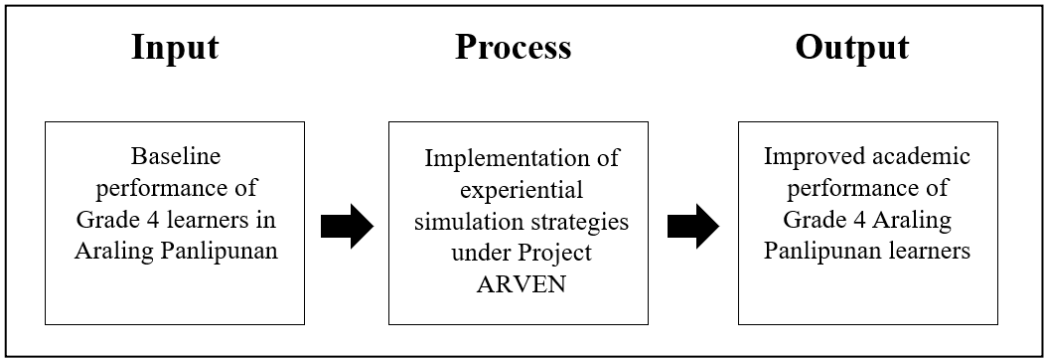
Despite claims of a body of literature supporting simulation-based learning, there remains a need for localized empirical studies examining its effectiveness in specific educational contexts. In particular, research focusing on elementary-level learners in Philippine public schools is limited. This study addresses this gap by investigating the impact of experiential simulation strategies on Grade 4 learners' academic performance in Araling Panlipunan.

Conceptual Framework

This study is anchored on the Input–Process–Output (IPO) model, which provides a systematic framework for understanding the relationship between the intervention and learning outcomes. The input consists of the baseline performance of Grade 4 learners in Araling Panlipunan, as measured through the pretest. It also includes the existing instructional practices prior to the intervention's implementation. The process involves implementing experiential simulation strategies under Project ARVEN. This includes structured learning activities such as contextual orientation, role assignment, collaborative learning, reenactment of historical and socio-cultural scenarios, reflective discussions, and peer evaluation. The output refers to the improved academic performance of learners, as measured through the posttest.

Figure 1: Paradigm of the Study



METHODOLOGY

This section outlines the research procedures employed to investigate the effectiveness of experiential simulation strategies in enhancing the academic performance of Grade 4 learners in Araling Panlipunan. It presents the research design, procedural steps, data collection methods, analytical techniques, and ethical considerations that guided the study. The methodological framework ensures the validity, reliability, and integrity of the findings.

Research Design

This study utilized a quasi-experimental research design, specifically the one-group pretest–posttest design, to determine the effectiveness of experiential simulation strategies. This design involves measuring a single group of participants before and after the intervention to assess changes in performance. The choice of this design was informed by practical and ethical considerations. Given the limited number of learners at the barrio school and the intent to provide all participants, including a control group, with the benefits of the intervention, this was not feasible. Despite this limitation, the design remains appropriate for action research, as it enables the systematic evaluation of instructional innovations in authentic classroom settings

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(Insorio, 2025; Phutthima et al., 2025). The difference between pretest and posttest scores served as the primary indicator of the intervention's effectiveness.

Research Steps

The study was conducted through a systematic sequence of a seven-step procedure to ensure consistency and replicability: (a) Identification of the Problem. The researcher identified low learner engagement and performance in Araling Panlipunan. (b) Development of the Intervention (Project ARVEN) Experiential simulation strategies were designed, incorporating role-playing, reenactments, collaborative tasks, and reflective discussions aligned with the lesson objectives. (c) Preparation of Research Instruments. A 40-item test was developed, validated, and aligned with the Most Essential Learning Competencies (MELCs) for the selected topic. (d) Administration of the Pretest. The pretest was administered to establish the baseline level of learners' performance prior to the intervention. (e) Implementation of the Intervention. The experiential simulation strategies were implemented over a six-week period. Learners participated in structured simulation activities, including historical reenactments, group discussions, and reflective exercises. (f) Administration of the Posttest. After the intervention, the same test was administered to measure changes in learners' performance. (g) Data Analysis and Interpretation. The collected data were analyzed using appropriate statistical tools to determine the significance of the observed differences.

Data Collection and Sample Selection

The participants of the study consisted of fifteen (15) Grade 4 learners from Dulag Elementary School in the Lingayen I District, Pangasinan, during the School Year 2024–2025. These learners were selected through purposive sampling, based on observed difficulties in engagement and performance in Araling Panlipunan. Data were collected using a validated, researcher-developed 40-item test that served as both the pretest and posttest. The instrument measured learners' knowledge and understanding of the topic, Likas-Kayang Kaunlaran. The use of the same test for both administrations ensured comparability of results. All data were collected within the natural classroom setting to ensure ecological validity and relevance to actual teaching and learning conditions.

Data Analysis Methods

The quantitative data collected were analyzed using both descriptive and inferential statistical methods. Descriptive statistics, including frequency counts, percentages, and means, were used to assess learners' performance before and after the intervention. These measures provided a clear summary of performance distribution and central tendency. To determine whether the observed differences between pretest and posttest scores were statistically significant, a paired samples t-test was employed. This test is appropriate for comparing two related means and assessing the impact of an intervention on a single group. The level of significance was set at 0.05 alpha level, indicating that results with a probability value less than 0.05 were considered statistically significant.

Research Hypotheses and Validation

The study tested the following null hypothesis:

H_0: There is no significant difference in the academic performance of Grade 4 learners in Araling Panlipunan before and after the implementation of

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experiential simulation strategies.

This hypothesis was tested using the paired samples t-test. The decision to reject or accept the null hypothesis was based on the comparison between the computed t-value and the critical t-value at the 0.05 level of significance. If the computed t-value exceeded the critical value, the null hypothesis was rejected, indicating that the intervention had a statistically significant effect on learners' performance.

Study Limitations and Ethical Considerations

This study is subject to several limitations. First, the absence of a control group restricts the ability to establish causal relationships with absolute certainty. While improvements in performance can be associated with the intervention, other external factors may have influenced the results. Second, the small sample size (n = 15) limits the generalizability of the findings to broader populations. The results are context-specific and may not fully represent other schools or learner groups. Third, the study relied solely on quantitative data derived from test scores. Other important dimensions, such as learner motivation, engagement, and perceptions, were not explored. Lastly, the duration of the intervention was limited to six weeks, which may not be sufficient to capture long-term learning outcomes.

Ethical standards were strictly observed throughout the conduct of the study. Permission to conduct the research was obtained from the school administration. Informed consent was secured from the learners' parents or guardians prior to participation. Participants were assured that their responses would be treated with confidentiality and used solely for research purposes. Furthermore, the intervention posed no harm to participants and was designed to enhance their learning experience. All learners were given equal access to the instructional innovation, ensuring fairness and inclusivity.

RESULTS AND DISCUSSION

SOP 1. What is the level of performance of Grade 4 learners in Araling Panlipunan before the implementation of experiential simulation strategies?

The findings revealed that prior to the implementation of experiential simulation strategies, the majority of Grade 4 learners demonstrated low levels of performance in Araling Panlipunan. Specifically, 14 out of 15 learners (93.34%) were classified as "Not Proficient" or "Nearly Proficient," while only one learner (6.67%) reached the "Proficient" level. Notably, no learner attained the "Highly Proficient" level.

The computed mean pretest score of 13.07 further confirms this trend, which indicates an overall low level of mastery of the concepts related to Likas-Kayang Kaunlaran. This result suggests that learners had limited prior knowledge and insufficient conceptual understanding of the subject matter before the intervention. This finding aligns with broader educational concerns regarding the teaching of social studies, where learners often struggle with abstract and content-heavy material. The observed low performance may be attributed to the dominance of traditional instructional methods that emphasize passive learning. Such approaches tend to limit student engagement and hinder deeper comprehension, particularly in subjects that require contextual understanding and critical thinking. Moreover, the result is consistent with national trends indicating below-average performance in social studies among elementary learners. These persistent gaps highlight the need for pedagogical innovations that can transform the learning experience into one that is more interactive, relevant, and learner-

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centered.

From a theoretical perspective, the low baseline performance reinforces the constructivist argument that learning cannot be achieved effectively through passive reception of information alone. Without opportunities for active engagement and experiential learning, learners are less likely to internalize concepts or develop meaningful understanding. Thus, the pretest results provide a compelling basis for implementing experiential simulation strategies. Such findings clearly demonstrate the need for an intervention that can address both engagement and comprehension gaps in Araling Panlipunan.

Table 1: Pretest Results

Scale	Descriptions	Frequency	Percentage
31-40	Highly Proficient	0	0.00%
21-30	Proficient	1	6.66%
11-20	Nearly Proficient	7	46.67%
0-10	Not Proficient	7	46.67%
	Total:	**15**	**100.00**
	Mean Score:	**13.07**	**--**

SOP 2. What is the level of performance of Grade 4 learners in Araling Panlipunan after the implementation of experiential simulation strategies?

The posttest results indicate a substantial improvement in the performance of Grade 4 learners following the implementation of experiential simulation strategies. All learners achieved at least a "Proficient" level of performance. Specifically, 11 learners (73.33%) were categorized as "Proficient," while 4 learners (26.67%) attained the "Highly Proficient" level. Notably, no learners remained in the "Not Proficient" or "Nearly Proficient" categories. The mean posttest score increased significantly to 30.20, reflecting a marked enhancement in learners' understanding of Likas-Kayang Kaunlaran. This improvement represents not only a quantitative gain but also a qualitative shift in learners' level of mastery.

The findings suggest that experiential simulation strategies were effective in promoting active engagement and facilitating deeper understanding of the subject matter. These results are consistent with existing literature on simulation-based learning. Research has shown that simulation enhances student engagement by transforming learners from passive recipients of information into active participants in the learning process. Studies by Hendricks (2024), Rommer et al. (2026), and, Ormanci (2026), demonstrate that such approaches significantly improve both academic performance and problem-solving skills in social studies.

Table 2: Post-test Results

Scale	Descriptions	Frequency	Percentage
31-40	Highly Proficient	4	26.67%
21-30	Proficient	11	73.33%
11-20	Nearly Proficient	0	0.00%
0-10	Not Proficient	0	0.00%
	Total:	**15**	**100.00**
	Mean Score:	**30.20**	**--**

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SOP 3. Is there a significant difference in the learners' performance before and after the implementation of experiential simulation strategies?

To determine whether the observed improvement in learners' performance was statistically significant, a paired samples t-test was conducted. The analysis yielded a computed t-value of 12.577, which is substantially higher than the critical t-value of 2.145 at the 0.05 level of significance. This result indicates that the difference between the pretest and posttest scores is statistically significant. Consequently, the null hypothesis is rejected. This confirms that the implementation of experiential simulation strategies had a significant positive effect on the academic performance of Grade 4 learners in Araling Panlipunan. The magnitude of improvement is further evidenced by the mean difference of 17.13 points, as well as the increase in mean percentage score from 32.68% to 75.50%, representing a gain of 42.82 percentage points.

These findings are strongly supported by prior research on simulation-based learning. Diab et al. (2024) emphasize that simulations provide immersive learning environments and promote active participation Similarly, Hendricks (2024), Rommer et al. (2026), and, Ormanci (2026) also argues that simulation-based instruction is an effective strategy in improving academic outcomes. The significant results may also be explained through the lens of experiential and constructivist learning theories. As learners actively engaged in the simulation process, they were able to construct knowledge through experience, interaction, and reflection. This aligns with the work of Singh-Pillay (2024), and, Adebanjo, et al., (2026) who highlighted that active participation is a critical factor in achieving meaningful learning outcomes.

Table 3: Significant Difference Between the Pre-test and Post-Tests Results

Compared Categories	Mean	Computed t-Value	Critical t-Value	Remarks
Pre-Test Post-Test	13.07 30.20	12.577	2.145	Significant

SUMMARY

This study investigated the effectiveness of experiential simulation strategies in enhancing the academic performance of Grade 4 learners in Araling Panlipunan, particularly in the topic Likas-Kayang Kaunlaran. Grounded in constructivist and experiential learning theories, the study implemented Project ARVEN as an instructional intervention utilizing role-playing, reenactments, collaborative learning, and reflective discussions. A quasi-experimental one-group pretest–posttest design was employed, involving fifteen (15) Grade 4 learners from Dulag Elementary School in the Lingayen I District, Pangasinan. Data were collected using a validated 40-item test administered before and after the intervention. Statistical analysis included descriptive statistics and a paired-samples t-test to assess the significance of performance differences. Findings revealed that prior to the intervention, the majority of learners demonstrated low levels of proficiency, with a mean pretest score of 13.07. Following the implementation of experiential simulation strategies, all learners achieved at least a proficient level, with a mean posttest score of 30.20. The computed t-value of 12.577 indicated a statistically significant difference between pretest and posttest scores at the 0.05 level of

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significance. These results confirm that experiential simulation strategies significantly improved learners' academic performance in Araling Panlipunan. The study highlights the potential of active, learner-centered pedagogies to address persistent learning gaps and enhance conceptual understanding in social studies education.

CONCLUSIONS

The findings of this study lead to several important conclusions regarding the effectiveness of experiential simulation strategies in teaching Araling Panlipunan. Initially, the Grade 4 learners demonstrated a low level of performance, indicating limited prior understanding of the concepts related to Likas-Kayang Kaunlaran. This baseline condition underscores the challenges associated with traditional instructional approaches in social studies. Following the implementation of experiential simulation strategies, a substantial improvement in learners' academic performance was observed, as evidenced by the significant increase in posttest scores. Statistical analysis further confirmed that this improvement was not due to chance, thereby rejecting the null hypothesis and establishing the intervention's effectiveness. These results suggest that experiential simulation strategies are a powerful pedagogical tool for promoting active engagement, enhancing conceptual understanding, and improving learning outcomes. Moreover, the integration of constructivist and experiential learning principles into classroom instruction appears to address learner disengagement and facilitate deeper, more meaningful learning among elementary students.

RECOMMENDATIONS

In light of the findings and conclusions of this study, several recommendations are proposed to enhance instructional practices and future research. Teachers are encouraged to adopt experiential simulation strategies as part of their pedagogical repertoire, particularly when teaching complex and abstract concepts in Araling Panlipunan, as these approaches have been shown to improve both engagement and academic performance. To support this, professional development initiatives should be implemented to equip educators with the skills needed to design and facilitate simulation-based learning activities. School administrators play a crucial role in fostering an enabling environment by providing adequate resources, instructional support, and opportunities for collaborative planning among teachers. At the policy level, curriculum developers and educational leaders are encouraged to integrate experiential and simulation-based approaches into curriculum frameworks to ensure alignment with national educational priorities such as those outlined in the Basic Education Research Agenda. Furthermore, future researchers are advised to conduct studies with larger sample sizes and more rigorous experimental designs, including control groups, to strengthen causal inferences. Additional investigations may also explore the long-term impact of simulation strategies, their applicability across different subject areas and grade levels, and the potential of digital technologies to further enhance experiential learning environments.

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