Multimedia-Based Lessons and Academic Performance of Junior High School Learners in Araling Panlipunan

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ABSTRACT

This study investigated the effect of multimedia-based lessons on the academic performance of junior high school learners in Araling Panlipunan. Anchored on Mayer's Cognitive Theory of Multimedia Learning, the study examined whether the integration of multimedia resources could improve learners' achievement compared with instruction without multimedia exposure. A quasi-experimental one-group pre-test–post-test design was employed involving 50 Grade 10 students from Baquilan Resettlement High School during the school year 2025–2026. The participants were selected through convenience sampling from two sections, Matatag and Masikap. Data were gathered using a validated researcher-made 50-item test administered during two grading periods: the first quarter without multimedia exposure and the second quarter with multimedia-based instruction. The data were analyzed using SPSS version 27, with Shapiro–Wilk, Mann–Whitney U, and Wilcoxon tests used to determine differences in scores. Results showed that students' performance improved in both quarters; however, greater gains were observed during the quarter with multimedia exposure. In the first quarter, the weighted mean increased from 21.74 to 31.30, while in the second quarter it rose from 28.40 to 37.34. Significant differences were found between the pre-test and post-test scores in both quarters and between the post-test scores of students exposed and not exposed to multimedia, with all tests yielding a p-value of 0.001. The findings indicate that multimedia-based lessons can enhance students' academic performance in Araling Panlipunan. The study recommends the integration of multimedia-based instructional materials to promote more engaging and effective classroom learning.

Keywords: multimedia-based instruction, academic performance, Araling Panlipunan, junior high school

INTRODUCTION

Technology plays an important role in the teaching and learning process. As the learner explores in the classroom, multimedia-based lessons are essential in gaining knowledge, insights, experiences, and values. The learner in the high school level has already improved from that of a sensory to manipulatives through the aid of technology. The integration of technology in teaching and learning is rapidly evolving, with several current trends shaping the educational landscape. One significant trend is the use of virtual tools, which have become increasingly prevalent due to their flexibility and accessibility, especially highlighted during the COVID-19 pandemic (Botero-Gomez et al 2023). Another trend is the adoption of technology-enhanced language learning (TELL), which has gained prominence in language education, encouraging active participation from both instructors and students (Zainuddin 2023). Lastly, the integration of artificial intelligence in higher education is being explored to improve the quality and effectiveness of educational strategies, offering valuable guidance for decision-making in the digital era (Cueva 2024). These trends collectively highlight the transformative potential of technology in enhancing educational practices across various disciplines.

High school students often find it challenging to study Social Studies due to several factors. One significant issue is the influence of gender, locality, and the medium of instruction, which can affect students' ability to engage with the subject matter effectively. These factors can create disparities in how students perceive and interact with Social Studies content, leading to varied learning difficulties (1 Priya,& Premalatha, 2023). Additionally, the Social Studies curriculum itself may contribute to these challenges. Many high schools fail to

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adequately cover contemporary global issues and non-Western nations, which are crucial for understanding the modern world. This lack of comprehensive content can make the subject less engaging and relevant for students, thereby increasing the difficulty of studying it (Fernald 1963). Moreover, the structure of Social Studies courses can be problematic. When subjects like history, geography, and civics are taught separately, students may struggle to see the interconnectedness of these disciplines, which is essential for a holistic understanding of Social Studies. Unified courses aim to address this by presenting these subjects together, but they often face criticism for being too content-heavy and using vocabulary that is too advanced for students, further complicating the learning process(John 1933). These curriculum and instructional challenges highlight the need for a more integrated and accessible approach to teaching Social Studies in high schools.

One of the factors that could contribute to the academic performance of students are the strategies, techniques, and approaches in teaching like the use of multimedia. There are research studies on the use of multimedia in the teaching-learning process that say that multimedia plays a very important role in the learning and achievement of students. On this premise, poor or unsatisfactory performance of students can be attributed to inappropriate teaching strategies. Based on the results of the Regional Mid-Year Assessment conducted last school year, the results in Araling Panlipunan is unsatisfactory with only 53% who achieved or exceeded in the Minimum Proficiency Level or MPL. There are different factors affecting the academic performance of our students, one contributory factor could be the teaching practices of teachers. In this situation, there is a need to revise or shift teaching strategies and employ multimedia-based lessons. Based on the above premise, the researcher would like to determine the effectiveness of multimedia-based lessons on the academic performance of students. This study highlights how integrating technology in teaching enhances student engagement and retention, ultimately leading to improved academic performance. For teachers, this approach offers diverse tools and methods to cater to different learning styles, fostering a more interactive and dynamic classroom environment. Administrators and the broader academic community can benefit from these findings by promoting innovative, evidence-based teaching strategies that align with modern educational standards and improve overall institutional outcomes.

Statement of the Problem

The research study aimed to examine the effectiveness of multimedia-based instruction on the academic performance of junior high school students in Araling Panlipunan. Specifically, the study sought to answer the following questions:

1. What are the pre -test and post-test scores of the students without multimedia exposures during the first quarter?

2. What is the pre-test and post-test scores of the students exposed to multimedia during the second quarter?

3. Do pre-test and post-test scores show a significant difference during the first quarter without multimedia exposure and second quarter with multimedia exposure?

4. Do post-test scores differ significantly between quarters with and without multimedia exposures?

Framework of the Study

This study was anchored on Mayer's Cognitive Theory of Multimedia Learning, which posits that learners process information through dual channels with limited capacity and achieve meaningful learning when they actively select, organize, and integrate words and pictures, Mayer, R. (2024). When multimedia materials are properly designed, they enhance academic achievement by improving comprehension and reducing cognitive overload (Almasseri & Alhojailan, 2019; Kassa et al., 2024; Sezgin & Coşkun, 2016). In line with constructivist and student-centered learning theories, technology-based multimedia instruction promotes active engagement, motivation, and deeper processing, which are linked to better academic performance in various subjects, including Araling Panlipunan and other social studies fields (Santillan & Olana, 2025; Florese, 2025; Agustin et al., 2025; Cherif, 2025). The framework assumes that multimedia-based instruction in Araling Panlipunan 10 will facilitate more effective cognitive processing and active learning among Grade 10 students,

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resulting in significantly improved academic performance. This study was anchored on the idea that integrating multimedia-based instruction in Araling Panlipunan 10 can enhance students' academic performance, similar to findings where multimedia and technology-integrated instruction significantly improve learners' achievement in various subjects, including Biology, English, and Social Studies (Kassa et al., 2024; Caballes, A. (2025), Cabasan, P., & Quirap, E. (2023), Zhou, Y. (2023).

The independent variable is the level and manner of using multimedia-based instructional materials (such as videos, audio-visual presentations, images, and interactive digital resources) in teaching Araling Panlipunan 10. The dependent variable (output) is the academic performance of Grade 10 students, measured through their scores in teacher-made or standardized tests and their quarterly grades in Araling Panlipunan, Kassa M et al (2024), Caballes, A. (2025), Ala, B., & Ferenal, E. (2025), Cabasan, P., & Quirap, E. (2023). The framework assumes that higher and more effective use of multimedia-based instruction will lead to better academic performance in Araling Panlipunan, as multimedia can make content more engaging, clarify complex concepts, and support diverse learners.

METHODOLOGY

Research Design

The study utilized a quasi-experimental, one-group pre-test post-test design to realize the objectives of the undertaking. It measures the student's performance (pre-test and post-test) between quarters with and without exposure to multimedia. By comparing the results, the study aims to assess the effectiveness of multimedia-based lessons on enhancing student academic performance. The design allows for a clear evaluation of how multimedia interventions influence learning outcomes across different time periods. This approach provides valuable insights into the impact of multimedia on students' academic growth and achievement. A one-group pretest posttest design involves measuring a single group of participants before and after an intervention to assess its impact. This design is often used in educational and clinical settings to evaluate the effectiveness of interventions, despite its limitations such as lack of control for external variables and potential for regression to the mean (Marsden & Torgerson, 2012), (Knapp 2016). For example, a study might assess the impact of a new teaching method on student performance by administering a test before and after the method is applied, analyzing the differences in scores to determine effectiveness (Abidin, et al 2023). However, researchers should be cautious of confounding factors like maturation and history effects, which can influence the results (Spurlock 2018).

Respondents and Location

The respondents were students of grade 10, from the two sections – Matatag and Masikap. The students selected were enrolled in Grade 10 class for the school year 2025-2026.There are 86 enrolled Grade 10 students, with 45 from Grade 10 Matatag (23 males and 22 females) and 41 from Grade 10 Masikap (19 males and 22 females). However, due to time constraints and convenience, only fifty (50) Grade 10 students from Baquilan Resettlement High School will be selected using a convenient sampling method. Specifically, in Grade 10 Masikap, 15 males and 10 females (totaling 25 students) were chosen, while in Grade 10 Matatag, 10 males and 15 females (also totaling 25 students) were selected.

Instruments

The researcher used a self-made test question which were checked by the School Head and the two other School Research Managers and was validated by pilot-testing on 20 Grade 11 students of Baquilan Resettlement High School. The Pre-test items in the First and Post test in the Second Quarter are all 50 items.

Submitted Table of Specifications and Test Question were checked by the School Head before crafting the test to be used in the pre and posttests. The items in the tests were based on the Most Essential Learning Competency. The Most Essential Learning Competency in the First Quarter are as follows:(1) Nasusuri ang kahalagahan ng pag-aaral ng Kontemporaryong Isyu; (2) Natatalakay ang kalagayan, suliranin at pagtugon sa isyung pangkapaligiran ng Pilipinas. (3) Natutukoy ang mga paghahandang nararapat gawin sa harap ng

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panganib na dulot ng mga suliraning pangkapaligiran; (4) Nasusuri ang kahalagahan ng kahandaan, disiplina at kooperasyon sa pagtugon ng mga hamong pangkapaligiran; and (5) Naisasagawa ang mga angkop na hakbang ng CBDRRM Plan, while in the Second Quarter, the Most Essential Learning Competency are as follows: (1) Nasusuri ang dahilan, dimensyon at epekto ng ng globalisasyon; (2) Naipaliliwanag ang kalagayan, suliranin at pagtugon sa isyu ng paggawa sa bansa; (3) Nasusuri ang dahilan at epekto ng migrasyon dulot ng globalisasyon; and (4) Naipahahayag ang saloobin tungkol sa epekto ng globalisasyon.

Data Collection

The research study covered two grading periods – first and second grading. In the First grading period, teacher used a non-multimedia traditional teaching approach while in the second quarter teacher used multimedia in teaching lessons. Academic performance of students in both quarters were analyzed and compared. A communication letter was submitted to the office of the school head to seek approval for the conduct, distribution, and retrieval of the questionnaire. The researcher based the instrument from the statement of the problem which was validated by three (3) research experts from the School Research Managers (SRMs). Grades from the first quarter where non-multimedia-based lessons are used and grades from the second quarter where multimedia-based lessons are used were secured from the subject teacher of Araling Panlipunan. Grades from both quarters were analyzed using t-test to determine the effectiveness of multimedia-based lessons on students' academic performance. The researcher considers the respondents' willingness in participation with the study. The researcher respected the decision of the respondent to participate or not to participate in the study. Moreover, the researcher do not force the respondent to answer any part of the questionnaire. Respondents were informed of their rights to refrain from answering parts or portions of the questionnaire. If the respondents did not feel comfortable in answering the questions, they can withdraw any time in participating in the study. The researcher also secured parental consent in participating in this study. Secrecy of the information given by the respondent was ensured. No sensitive information relating to the respondents were published. Furthermore, the researcher only used the gathered data for research purposes only. The respondents were given ample time to examine the content and purpose of the study before answering.

Data Analysis

All the data gathered from the respondents was organized, tallied, tabulated, and presented in a series of tables and graphs. SPSS v.27 was used to compute the gathered data. A test of normality was conducted using Shapiro-Wilk Test to determine the normality of data. If the data were normal based on the results, Mann-Whitney U Test and Wilcoxon W were used to determine the difference of every variable.

RESULTS AND DISCUSSION

1. Pre -Test and Post-Test Scores of the Students without Multimedia Exposures during the First Quarter

Table 1 shows the pre-test and post-test scores of the students during the first quarter without multimedia exposure. The data reveal that students' academic performance improved even under regular classroom instruction. The weighted mean increased from 21.74, interpreted as Approaching Proficient, in the pre-test to 31.30, interpreted as Proficient, in the post-test. In the pre-test, only 2 students were in the Proficient level, while 27 were in the Approaching Proficient level and 21 were in the Developing level. In the post-test, the number of students in the Proficient level increased to 22, while the Developing level decreased to 1. Likewise, 4 students reached the Advanced level in the post-test, whereas no student belonged to this category in the pre-test. No student fell under the Beginning level in either testing period.

Table 1 Pre -Test and Post-Test Scores of the Students without Multimedia Exposures during the First Quarter

Proficiency Level	**Scores**	**Frequency**	
		Pre-Test	**Post-Test**
Advanced (A)	41 – 50	0	4

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Proficient (P)	31 – 40	2	22
Approaching Proficient (AP)	21 – 30	27	23
Developing (D)	11 – 20	21	1
Beginning (B)	1 – 10	0	0
Total		**50**	**50**
Weighted Mean		**21.74 (AP)**	**31.30 (P)**

The improvement in scores during the first quarter suggests that students were able to learn through regular classroom teaching even without multimedia-based lessons. This may be attributed to effective teacher guidance, repeated exposure to lessons, classroom interaction, and conventional learning activities that still support knowledge acquisition. This finding is consistent with research showing that academic gains do not depend on technology alone, because the quality of pedagogy and student engagement also play central roles in learning outcomes. For example, Valverde-Berrocoso et al. (2022) found in their systematic review that educational technology can improve performance, but the effect depends greatly on how instruction is organized. Similarly, Msafiri et al. (2023) reported that student achievement in secondary education is shaped not only by ICT tools but also by sound teaching strategies and implementation conditions. In the same way, Akinsola et al. (2020) emphasized in their review of multimedia tools in teaching and learning that improved learner performance is often linked to how instructional resources are used to support meaningful learning rather than to the mere presence of technology. These studies support the present result that even in the absence of multimedia, learners can still demonstrate measurable academic progress when instruction is structured and purposeful (Akinsola et al., 2020; Msafiri et al., 2023; Valverde-Berrocoso et al., 2022).

2. Pre-Test and Post-Test Scores of the Students exposed to Multimedia during the Second Quarter

Table 2 presents the pre-test and post-test scores of the students during the second quarter when multimedia-based lessons were used. The results show a marked improvement in students' academic performance. The weighted mean rose from 28.40, interpreted as Approaching Proficient, in the pre-test to 37.34, interpreted as Proficient, in the post-test. A substantial shift in proficiency level can also be observed. In the pre-test, no student reached the Advanced level, but in the post-test, 19 students were already in this category. The number of students in the Proficient level also increased from 17 to 23, while those in the Approaching Proficient level decreased from 29 to 8. Moreover, no student remained in the Developing level in the post-test.

Table 2 Pre -Test and Post-Test Scores of the Students with Multimedia Exposures during the Second Quarter

Proficiency Level	**Scores**	**Frequency**	
		Pre-Test	**Post-Test**
Advanced (A)	41 – 50	0	19
Proficient (P)	31 – 40	17	23
Approaching Proficient (AP)	21 – 30	29	8
Developing (D)	11 – 20	4	0
Beginning (B)	1 – 10	0	0
Total		**50**	50
Weighted Mean		**28.40 (AP)**	**37.34 (P)**

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The stronger improvement during the second quarter indicates that multimedia-based lessons may have contributed positively to students' academic performance in Araling Panlipunan. Multimedia resources such as videos, visuals, audio, animation, and interactive presentations may have helped make lesson content more concrete, engaging, and easier to understand. This interpretation is supported by Abimbade et al. (2023), who found that digital storytelling significantly improved pupils' achievement in Social Studies, showing that multimedia-rich strategies can enhance understanding in socially oriented subjects. Likewise, Akinsola et al. (2020) concluded that multimedia tools help bridge instructional gaps and improve learner performance by providing more flexible and stimulating learning experiences. In addition, Valverde-Berrocoso et al. (2022) reported that many reviewed studies showed better student performance in learning environments enriched with educational technology. Taken together, these studies support the present finding that multimedia-based instruction can serve as an effective tool in improving students' academic achievement (Abimbade et al., 2023; Akinsola et al., 2020; Valverde-Berrocoso et al., 2022).

3. Test of Difference on the Pre-Test and Post-Test Scores between Quarters with and without Multimedia Exposures

Table 3 presents the test of difference between the pre-test and post-test scores of the students during the first quarter without multimedia exposure and the second quarter with multimedia exposure. The results show that both quarters had a significant difference between pre-test and post-test scores, with a p-value of 0.001, which led to the rejection of the null hypothesis. In the first quarter, the mean score increased from 21.74 to 31.30, while in the second quarter, it increased from 28.40 to 37.34. Although both quarters showed improvement, the second quarter recorded higher mean scores, particularly in the post-test.

Table 3 Test of Difference between Pre-Test and Post-Test Results of 1st and 2nd Quarter

Quarter	Test	Mean	Mann-Whitney U Test	Wilcoxon U Test	Sig.	Decision
1st Quarter	Pre-Test	21.74	2240.500	3515.500	0.001	**Reject HO Significant**
	Post-Test	31.30				
2nd Quarter	Pre-Test	28.40	2149.000	3424.000	0.001	**Reject HO Significant**
	Post-Test	37.34				

This finding indicates that while student performance improved in both periods, the improvement was greater when multimedia-based lessons were integrated into instruction. The result supports the view that multimedia can strengthen learning by improving attention, motivation, and understanding of lesson content. Valverde-Berrocoso et al. (2022) found that the majority of studies included in their systematic review reported a positive relationship between educational technology and academic performance. Similarly, Msafiri et al. (2023) concluded that ICT integration in secondary education promotes improved learning outcomes, greater engagement, and better access to instructional resources when effectively implemented. In addition, Abimbade et al. (2023) demonstrated that technology-supported storytelling strategies can significantly raise achievement in Social Studies. At the same time, the higher second-quarter pre-test mean suggests that some part of the improvement may also reflect cumulative learning from the first quarter. Thus, the present findings suggest that multimedia-based instruction likely enhanced achievement, although the gains should be interpreted together with the natural progression of student learning over time (Abimbade et al., 2023; Msafiri et al., 2023; Valverde-Berrocoso et al., 2022).

4. Test of Difference between Post-Test Results of Student's Exposed and Not Exposed to Multimedia

Table 4 shows the test of difference between the post-test results of students who were not exposed to multimedia during the first quarter and those who were exposed to multimedia during the second quarter. The results reveal a significant difference between the two post-test means, with a p-value of 0.001, leading to the rejection of the null hypothesis. The mean post-test score of students without multimedia exposure was 31.30,

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while the mean post-test score of those exposed to multimedia was 37.34. This clearly indicates that students performed better in the quarter when multimedia-based lessons were used.

Table 4 Test of Difference between Post-Test Results of Student's Exposed and Not Exposed to Multimedia

Post-Test Result	Mean	Mann-Whitney U Test	Wilcoxon U Test	Sig.	Decision
Not Exposed to Multimedia (1st Quarter)	31.30	1876.500	3151.500	0.001	**Reject Ho Significant**
Exposed to Multimedia (2nd Quarter)	37.34				

The significantly higher post-test performance during the second quarter supports the claim that multimedia-based lessons can positively affect academic performance in Araling Panlipunan. This is in line with Abimbade et al. (2023), who found that digital storytelling produced significant gains in Social Studies achievement. It is also supported by Akinsola et al. (2020), who observed that multimedia tools can improve learner performance by making instruction more accessible, engaging, and interactive. Furthermore, Msafiri et al. (2023) noted that ICT-supported learning in secondary education can improve student outcomes when aligned with sound pedagogy and classroom needs. These related studies strengthen the interpretation that multimedia-based lessons can be an effective instructional strategy for improving student achievement in content-heavy and concept-based subjects such as Araling Panlipunan (Abimbade et al., 2023; Akinsola et al., 2020; Msafiri et al., 2023). The results imply that integrating multimedia-based lessons into Araling Panlipunan instruction can help schools improve learner achievement by making classroom teaching more engaging, comprehensible, and effective. The findings of this study is similar to other researchers where significant changes enhanced academic performance, Kassa, M.,et al (2024), Ongor, M., & Uslusoy, E. (2023)

CONCLUSION AND RECOMMENDATION

The study concludes that junior high school learners in Araling Panlipunan improved their academic performance in both quarters, but greater gains were observed during the quarter when multimedia-based lessons were used. Although students already showed improvement under regular instruction during the first quarter, the second quarter recorded a higher post-test mean and a stronger shift of students toward the Proficient and Advanced levels. The significant differences in the pre-test and post-test results, as well as in the comparison of post-test scores between quarters, indicate that multimedia-based lessons were more effective than instruction without multimedia exposure. Therefore, multimedia-based instruction may be considered a valuable and effective pedagogical approach for enhancing the academic performance of junior high school learners in Araling Panlipunan. Teachers are encouraged to integrate multimedia-based lessons such as videos, interactive presentations, audio-visual materials, animations, maps, and digital learning activities into Araling Panlipunan classes to enhance student engagement and achievement. School administrators should provide the necessary technological resources, teacher training, and instructional support to ensure the effective and meaningful use of multimedia in classroom teaching. Multimedia materials should also be carefully aligned with curriculum standards, lesson objectives, and learners' needs so that technology use strengthens instruction rather than distracts from it.

Future studies may include a larger sample size, involve multiple schools, and use a more rigorous experimental or quasi-experimental design with a comparison group to provide stronger evidence of the effects of multimedia-based lessons on academic performance. Researchers may also examine which specific multimedia elements, such as video, animation, interactive quizzes, or digital storytelling, produce the strongest effects in Araling Panlipunan. In addition, future research may explore long-term retention, motivation, classroom participation, and teacher readiness in order to better understand how multimedia-based instruction can be sustained and improved across different learning contexts.

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