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Effectiveness of Multimedia Instructional Materials in Improving the Academic Performance of Grade 8 Students in Araling Panlipunan

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Abstract. This action research aimed to determine the effectiveness of multimedia instructional materials in improving the academic performance of grade 8 students in Araling Panlipunan, specifically, the study focus on integration of technology to address the learning gap and to increase the learning interest of the students. Based on related literature and studies, it was highlighted that integration of technology in teaching process was really helpful in improving the academic performances of the students. This study utilized quasi-experimental design in order to determine the effectiveness of multimedia instructional materials. The participants of the study include 2 groups/section among grade 8 students (35 students considered as a controlled group, while other 35 students considered as an experimental group) and the researcher used random sampling method. A validated teacher-made test was utilized as the research instrument, and pre-test and post-test assessments were administered to measure students' academic performance before and after the intervention. Multimedia approach such as pictures, videos and interactive assessment was used as an intervention to the experimental group. The findings revealed that both the control and experimental groups demonstrated improvements in their post-test scores; however, the experimental group obtained a higher increase in performance compared with the control group. The statistical analysis showed a significant difference between the pre-test and post-test of the students after the implementation of multimedia instructional materials at a 0.05 level of significance. These results indicate that the integration of multimedia-based instructional materials can enhance students' learning experience and academic performance in Araling Panlipunan. The study recommends the integration of appropriate multimedia resources in classroom instruction to support active teaching and promote meaningful learning among students.

Keywords: Academic Performance; Araling Panlipunan; Grade 8; Instructional Materials; Multimedia Learning

Introduction

Education plays a vital role in developing students' knowledge, skills, and values. In K-12 spiral curriculum progression, Araling Panlipunan helps learners to recognize and appreciate world and local history, develop cultural awareness, and creates societal and civic responsibility. However, teaching World History among Grade 8 students seem to be challenging and difficult. Some of them lose their appetite in understanding history upon seeing the events, facts, and dates. In addition, they also get easily bored and lose their excitement for discovery learning. Traditional teaching such as rely on textbooks, lectures, written activities, and other printed materials may not always sustain to address the learning appetite and interest of the learners in learning process. As result, there is a need of innovation and engaging instructional approach and methodology in order to catch up the learning interest of the learners and involve them in meaningful learning process.

One way to encourage the students to listen and engage in learning procedure of teaching world history is through multimedia instructional materials. The researcher believes in the theory of John Dewey's "experiential learning" which implies that it is easy for the students to understand and retain knowledge if they discover the complex of necessity information. The Multimedia Instructional Materials will be used as pedagogy and teaching strategy. According to Mayer et.al. (2014) Multimedia refers to any combination instructional approach such as; text and pictures including diagrams, photos, videos and animation. The students can easily to understand and adopt information by viewing illustration such as pictures, videos rather

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than words alone. The objective of this study is to prove the effectiveness of multimedia instuctional materials correlation to the academic performance of the grade 8 students.

The findings of this study may benefit Grade 8 students by providing more engaging and introducing approaches for more accessible learning. They might be also useful to them to understand that technology is another platform in learning process. Hence, it will enhance their computer skills and it will help to understand more the lesson through the use of different illustration (pictures, videos, graphs, and other). Teachers. The result of the study will improve their different teaching style and strategy. These will lead to the teachers to integrate technology as a medium of instruction in teaching procedure. These will improve the performance rating of teachers resulting from the increased academic performance of the students. Lastly, for the School Administration and other Educators Institution may use the findings as a supporting database in order to develop technology-based approach. Ultimately, this action research aims to contribute to the continuous improvement of teaching and learning in Araling Panlipunan by determining whether multimedia instructional materials can serve as an effective intervention for improving students' academic performance.

Research Questions

The researcher aimed to prove the effectiveness of multimedia instructional materials in teaching World History. Specifically, the researcher sought to answer the following questions:

1. How may the academic performance of the student-respondents in Araling Panlipunan 8 be described in their:
   1.1 Pre-test; and
   1.2 Post-test?
2. Is there a significant difference between the pre-test and post-test results of the:
   2.1 Experimental Group; and
   2.2 Control Group?
3. What may be the implication of using Multimedia Instructional Materials in modular approach in teaching and learning delivery modalities in Araling Panlipunan?

Scope and Delimitation of the Study

This study "Effectiveness of Multimedia Instructional Materials in Improving the Academic Performance of Grade 8 Students: An Action," conducted during school year 2022-2023 at Governor Rafael L. Lazatin Integrated School, Division of Angeles City, Pampanga. The students who are not Grade 8 would not included to the study.

Literature Review

Multimedia Instructional Materials

Multimedia instruction refers to learning environment that contain both words and pictures which create interactive and engaging learning outcomes, such as; illustrated books, narrated slideshow presentations, and educational games (Mayer 2011). He also added that the framework and design of multimedia instruction should be guided by the learning process across subject areas. The principle of multimedia instruction containing words (printed and audio text) and graphics (such as, illustration, charts, photos, videos, animation) is intended to foster learning (Mayer, R. 2014). Moreover, this instuction will help the learners to understanding the concept and familiarize to the important events and historical facts and figure. Meanwhile, the integration of technologies in transforming teaching and learning process, creates an avenue for innovation and functional strategies to improve student engagement and learning outcomes (Staneviciene at.el 2025).

Information and Communication Technologies (ICTs) contribute a wide range in teaching to enhance and create new learning for those who use it. The University of Seville in Spain uses multimedia specifically instructional videos as a medium for teaching in the field of economics that some fields think as a barrier causing a delayed effect on the learning of the students. However, it is proven in the study of Exposito et.al. (2019) that using instructional videos in teaching economics help the students to achieve a higher test score. To some extent, Traditional way of teaching (Lecturing) and Computer-Aided Instruction (CAI) help students to build a high learning education. But these two methods in teaching were examined to see the difference of their effects on the learning of the students. In Tehran, 57 selected students in Junior High School were taught using two range methods in their Mathematics subject. Nevertheless, it is shown that using Computer-Aided Instruction (CAI) is highly effective on the creativity, elaboration, and originality of the students than the traditional way of teaching (Aqda, 2010). In addition, video clip presentation served as visual representation in order to engage and familiarized the learners into learning process (Burke, Synder, &Rager, 2009). The purpose of this is to increase the student's attention on the topic and lecture especially in teaching World

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History. Hence, since technology has been widely exploited, Multimedia often for improving teaching and learning such as; videos served as a tool in engaging the verbal, visual, and musical intelligence of the learners in leaning process, and self-learning discovery (Gardner, 2000). The higher degree of motivation of students is to use and choose digital based instruction (Rodgers and Thorton, 2005). It is included that, integration of multimedia such as; video clip, and other can attracted the attention of the learners, and to improve the learning process (Kay, 2012).

Digital Assessment

In 21st century skills learning, digital assessment has become and vital component in enhancing the effectiveness of learning process and outcome (Cope and Kalantzi 2015, Blundell 2021). Thus, assessment nowadays is no longer only way to measure and evaluate the learning ouctomes. it has become a strategic tool for giving real-time feedback, tracking competency development, and supporting personalized and adaptive learning (Dlab et al., 2021; Martin et al., 2022). For the continues rapid change of education and adopt new methods and strategies to enhance learning assessment, students are actively participating and taking ownership on their learning. The advancement of technology such as digital portfolio, gamification, educational platform, and digital learning materials opens of opportunities to create a more participatory, authentic, and relevant learning experiences with the demand 21st century digital literacy skills ((Gill & Younie, 2021; Cowie & Sakui, 2015).

Academic Performance

According to Cano Celestino and Robles Rivera 2018, Academic performance is the outcome of students ' achievements in school and influenced by factors such as family, peer, teachers, classmates, economics socio responsibilites, motivation, and interest in the subject activities. Others define academic performance as the set of students skills and abilities to demonstrate their knowledge in different areas (Bestué-Laguna and Escolano-Pérez 2021). Araling Panlipunan subject is governed by DepEd Order No. 015, s. 2026 "("Revised Guidelines on Classroom Assessment, Grading System and Awards and Recognition for the Revised K to 12 Basic Education Program") the following are classified and effect in students performance (Written works 20%, performance 50%, and final examination 30%). The revised grading system was pattern to the national standard of philippine education in order to evaluate and measure the student performance. Indeed, this study aims to strengthen and increase the academic performance of grade 8 students by integrating multimedia instructional materials as essential tool and teaching strategy.

Methodology

Research Design

The researcher used quasi-experimental research design. According to White and Sabarwal. (2014), quasi-experiment designs identify a comparison group that is as similar as possible to the treatment group in terms in baseline. In addition, according to Sivin-Kachala and Schneiderman (2003), quasi-experimental designs must include at least one comparison group, they may or not may include a control group. In this study, the researcher will administer 25-item validated pre-test and post-test to control group and experimental group. The goal of the study is to enhance and maximize the use of technology as an instructional tool and to create a positive and meaningful learning outcomes.

Research Locale

The study was conducted at Governor Rafael L. Lazatin Integrated School in Barangay Sapalibutad, East District, Division of Angeles City. The school offers education from kindergarten to Grade 12 and is considered a large public school. This reseach focused on Grade 8 students from the Junior High School Department particularly for grade 8. The school was selected as the research locale because it provided the appropriate setting and the lesson, learning standard, and intervention was fit among grade 8 students. The study profiled the students based on their academic performance, learning interest, and technology literacy skills were considered relevant characteristics in understanding their learning experiences and outcomes in instructional intervention.

Research Participants

This study included the Grade 8 students limited in 2-section in the Junior High School Department of Governor Rafael L. Lazatin Integrated School. The total population of student-respondents was 70 across the grade level. The participants were divided into two groups; (1) Control Group - 35 students from Grade 8-Pythagoras who received instruction through traditional approach. (2) Experimental Group - 35 students from Grade 8- Hipparchus who received learning intervention (Multimedia instructional approach). Both groups

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participated in pre-test and post-test assessment. The control and experimental group received instructional covering the lessons/topics in World History. However, the instructional approaches differed accordingly to the assigned instruction of each group.

Research Instrument

In this study, the researcher used teacher-made test as an instrument. According to Merriam Webster test is a series of questions in measuring the capacities, knowledge, understanding, or skills of an individual or group. The researcher constructed a series of test questions: Pre-test and Post-test. The said set of tests consists of 25-items and it shall undergo validation before administering to the participants. Before administering pre-test and post-test, the reseacher submitted the instruments to qualified experts/validators, such as subject area teacher, subject coordinator, and head in social studies with higher degree. The validators examine the instrument based on the content, structure, relevance, and alignment with the intended learning competencies. Their comments and recommendations were considered in order to improving the test questions.

Data Gathering Procedure

The data of this study were collected by administering test. The set of tests: pre-test and post-test were validated by at least three (3) Araling Panlipunan expertise: Mr. Rovic P. Gutierrez (AP Coordinator/Head Teacher) Ma'am, Bichelle O. David (Grade 10 AP Teacher) and Ma'am, Millecent Jumao-as (Grade 7 AP Teacher). The validated set of tests (pre-test and post-test) has undergone pilot testing to grade 8 students who were not the participants in this study, before actually administering it to the respondents. After the pilot testing, it was administered to the selected participants. 35 learners of 8-Hipparchus as experimental group, and 35 learners of 8-Pyhtagoras as controlled group.

Results and Discussions

Research Question 1: How may the academic performance of the student-respondents in Araling Panlipunan 8 be described in their: Pre-test; and Post-test?

The researcher conducted tests to the participants, the two groups of thirty-five (35) Grade 8 students of Governor Rafael L. Lazatin Integrated School, School Year 2022-2023. The two groups had undergone a validated pre-test. After series of discussions, post-test was administered.

Table 1. Pre-Test (Controlled and Experimental Group)

Group	Mean	N
1. Controlled	9.6571	35
2. Experimental	10.4571	35

Table 1 presents the descriptive statistic of pre-test and post-test results for the experimental and controlled groups, consisting of 35 Grade 8 students each from Governor Rafael L. Lazatin Integrated School during School Year 2022-2023.

According to this table, the pre-test findings among experimental group had a mean score of 10.4571, whereas the controlled group obtained a mean score of 9.6571. this indicates that the experimental group had a slightly higher initial performance than to the controlled before the implementation of the instructional intervention.

The post-test mean scores and standard deviations are required. This descriptive statistic will provide information based on students' academic performance before and after the instructional intervention.

Research Question 2: Is there a significant difference between the pre-test and post-test results of the: Experimental Group; and Control Group?

Table 2. Paired Sample T-Test (Controlled and Experimental Group Post-Test)

				statistic	df	p	Mean difference	SE difference
1.	Controlled (pre-test)	Controlled (post-test)	Student's t	-6.46	34.0	<.001	-4.63	0.716
2.	Experimental (pre-test)	Experimental (post-test)	Student's t	-6.87	34.0	<.001	-5.26	0.716

Table 2 shows the results of paired sample t-test for both controlled and experimental group to determine wether there is a significant differences between the pre-test and post-test scores of the two group.

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For controlled group, the computed t-value was -6.46 with 34 degrees of freedom and a p-value of less than .001. Since the computed p-value is lower than the 0.005 level of significance, therefore, the null hypothesis is rejected. This indicates that there is statiscally significant difference between the pre-test and post-test scores among controlled group.

Similarly, the experimenta group obtained a computed t-value of -6.87, with 34 dgrees of freedom and a p-valie of less than .001. Based on level of significance, the null hypothesis likewise is rejected, indicating that there is a significant difference between pre-test and post-test scores of the experimental group. The mean difference of -5.26 in experimental group demonstrated an improvements in academic performance following the instructional intervention (multimedia instructional materials).

The results suggested that both instructional approaches contributed to the improvements of the academic performance of grade 8 students. Howevers, the experimental group obtain a greater mean which is 5.26 points than controlled group 4.63 points after utilizing instructional approaches.

Research Question 3: What may be the implication of using Multimedia Instructional Materials in modular approach in teaching and learning delivery modalities in Araling Panlipunan?

Table 3. Independent Samples T-Test

		Statistic	Df	P
Results	Student's t	-174	68.0	0.044

However, table 3 shows the results between the post test of the controlled and experimental group is shown using independent sample t test. Given a p value of 0.044 which is less than the level of significance (0.05), the null hypothesis that there is a significant difference between the post test of the controlled and experimental group is rejected. Hence, the experimental group is more effective than the traditional group.

Based on the results, it was clearly shown that the use of multimedia instructional materials really made an impact to increase the academic performance of the participants. Both the control and experimental group got higher pre-test scores but, a big difference happened after the post-test. Both groups had an increase of scores in the post-test but the experimental group had a huge increase compared to the controlled group as shown by the mean scores of -4.63 and -5.26 respectively. Also, the pre-test and post test scores of the experimental group were close to that of its mean. In the level of significance, the p-value of experimental group which is 6.523 is greater than the 2.042 in the t- test table at 0.05 alpha level. Therefore, there is significant difference between the pre-test and post-test of the participants.

Discussion of findings in Relation to Related Literature

The findings of the study demonstrate that both controlled and experimental groups significantly improve their academic performance after the instructional approaches. However, the experimental group obtain a greater mean than controlled group, which indicate and suggested the potential effectiveness of multimedia instructional materials in improving the academic performance.

This findings can be explained through Mayers Cognitive Theory of Multimedia Learning. According to Mayer, students can easily to understand the lesson by more deeply from words and pictures together together than in just word alone. This learning theory explained the level of understanding of the learning through multimedia presentation until long term memory.

To conclude, the researcher suggested to integrate multimedia as an intructional approach to improve the academic performance of the students. By presenting information through different media platforms and making an interactive learning assessment, the teachers may help the students to understand concepts and to engage them in meaningful learning process.

Ethical Considerations

The researcher made the responses of the participants as confidential and used only for educational and research purposes. A letter was presented from the parents of the participants to notify them regarding the role of their children in the study. A letter was also given to the School Head for the permission to conduct the study at Governor Rafael L. Lazatin Integrated. With consent, the researcher administered the validated pre-test. The test construction was not related to the personal information of the respondents, but it was constructed according to the information involve in research purposes. In classroom instruction, the use of multimedia approach such as (power point, videos and computer-based education) were used to the experimental group while the usual lecture and interactive discussion were administered in the control group. After discussion, post-test was administered to both groups.

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Conclusion

Based on the summary of the findings, the researcher concluded. The control and experimental group both achieved low mean scores in the pre-test. While, in post-test after utilization of Multimedia approach as an instructional material in teaching Araling Panlipunan 8, experimental group got higher mean score compared the control group. There was a significant difference between pre-test and post-test of control and experimental group. However, the experimental group who utilized multimedia had higher significant difference compared to the control group. The use of multimedia instructional materials promoted learner engagement and active participation through the integration of digital resources such as videos, images, and interactive assessment/activities.

Recommendations

Araling Panlipunan teachers can utilize the use of multimedia approach rather than the traditional way teaching. The study showed that many learners easily understand and remember the lesson with the integration of technology such as pictures, videos and interactive games. It has been proven effective that the use of multimedia approach could increase the academic performance of the learners, especially in the current situation as 21st century learners. It is recommended to experiment and use variety of other futures of multimedia approach that match the lessons, interest and skills of the students to ensure their understanding. Thus, maximum learning can be achieved.

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