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Research Article

Audio –Visual Input for Improving the Cognitive Skills of Grade 10 Students in Araling Panlipunan

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ABSTRACT

This study aimed to improve the cognitive competence of the students by utilizing audio-visual inputs. The study employed the one-group-pretest-posttest research design under a pre-experimental study participated by 34 Grade Ten (10) respondents in San Isidro National High School who were chosen using the cluster sampling technique. This study utilized a one-group-pretest-posttest research design under a pre-experimental study. Data were gathered using pre-test and post-test questionnaires validated by the experts. Standard deviation and weighted mean were used to analyze the pre-test and post-test scores. T-test was used to calculate the significant difference. The study's findings revealed a significant difference between the pre-test and post-test scores. Specifically, perception has a .008 significant difference, attention with a .006 significant difference, memory with a .005 significant difference, and logical reasoning with a .007 considerable difference.

Keywords: *Attention, Audio-Visual Inputs, Cognitive Skills, Logical Reasoning, Memory, Perception*

Introduction

Technology in education, in all of its forms and manifestations, has been widely adopted by schools at all levels in the Philippines. The Department of Education's current K-12 Program aims to provide graduates with the information, media, and technology skills needed for school and work. This serves as proof that teachers of the 21st century are compelled to continually apply technology tools and programs to carry out and boost instruction (Department of Education, 2016). Technology is an intrinsic part of most students' everyday routines; the researcher believes that our 21st-century learners should be equipped with technological trends in education. This has an impact on our student's learning methods and study habits. Therefore, teachers should continue to adapt their teaching techniques and strategies to educational technological advances to continue to nourish their students' interest in academic performance. Based on

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Mansourzadeh's statement as cited in the study of Owusu (2020) has specified a set of values for audio-visual aids when used effectively in teaching. Increasing learning retention ability, as audio-visual content can be replayed multiple times, increasing student retention, encouraging cheerful learning to reduce boredom and make learning more fun, stimulating creative reactions in students by utilizing audio-visual aids to help them imagine what the video's content is like, provide the finest equivalent for the real-life experience; audio-visual aids in creating a realistic learning environment, and inspire curiosity and encourage self-expression. Students can convey their emotions. Most of the teacher faces difficulty in ensuring students master the lessons. Providing quality education, Division Memorandum No. 093, s. 2021 requires every school to consolidate the Mean Percentage Score (MPS) for the school year. The researcher found out that San Isidro National High School (SINHS) students, particularly in Araling Panlipunan, attained an MPS of 63.21 %, considered average, for the school year 2021-2022. The primary objective of SINHS is to have complete mastery of the subject, which will be reflected in the MPS report, which is 96-100%. Additionally, grade 10 students have difficulty remembering lessons in Araling Panlipunan, it is evident in the diagnostic test during the first week that resulted in 26.35 MPS. SINHS has adopted blended distance learning (face-to-face classes and printed modular) that added to the struggle of the students to understand the lesson. It gives the idea to the researcher to use audio-visual inputs in improving the cognitive skills of the learners in Araling Panlipunan 10 which is aligned with the Most Essential Learning Competencies (MELCs) that was stated in the Division Memorandum No. 286, s 2020 of DepEd Quezon following the new modality of learning amidst pandemic.

Methods

Research Design

This study utilized the one-group-pretest-posttest research design under a pre-experimental study. According to Baldwin (2018), this type of research design determines whether there are any significant differences between the pretest and posttest. Another benefit of this research design is that it determines the amount of change or growth between the pretest and the posttest. This type of design is very desirable in education because we usually want to know not only whether or not there is a difference between groups, but also how much of a change or growth happened between the pretest and the posttest.

Sampling and Ethical Considerations

The researcher utilized cluster sampling in selecting the subjects of the study. Cluster sampling is a method in which a group of participants who will represent the population is already identified. Furthermore, the cluster sampling technique is a probability sampling technique where researchers divide the population into multiple clusters or groups for conducting the research. The researcher secured a letter to conduct addressed to the head teacher, school heads, district heads, and division heads. Parents of students were also informed through parental consent to ensure the anonymity and confidentiality of data.

Research Instruments

The researcher formulated three (3) sets of questionnaires and three (3) types of audio-visual inputs to gather the relevant data. These instruments include pre-test questionnaires, evaluation questionnaires, and post-tests. The audio-visual inputs are audio, video, and film type of lessons. The first set of questionnaires was the pretest to determine the cognitive competence of the learners in the lesson. The researcher formulated 40 items of multiple-choice type that were used for the pre-test as well as for the post-test together with the Table of Specification (TOS). The content of the test should examine the comprehension of the learners as to their cognitive skills (perception, attention, memory, and logical reasoning). This also served as a pre-test to determine the baseline data to be compared to the students' post-test scores after the intervention of the audio-visual inputs. The second set was the evaluation questionnaires to validate the instrument which is the audio-visual inputs. This instrument is for the acceptability level of the audio-

visual inputs in improving cognitive skills in terms of perception, attention, memory, and logical reasoning. The third one was the post-test which was adapted from the pre-test with relatively 40 items specified in the table of specifications.

Data Analysis

In analyzing the data relevant to the indicated research problems, descriptive and inferential statistics were used. First, to evaluate the pre-test and post-test scores of the respondents before and after the use of audio-visual inputs, standard deviation and mean were used. In calculating whether there is a significant difference between the post-test scores performance of the groups of respondents exposed to audio-visual inputs, T-test was used.

Result and Discussion

Mean pre-test scores of the student respondents in the use of audio-visual input in improving the cognitive competence of the Grade 10 students in Araling Panlipunan

The research participants' test results were evaluated and measured using the mean and standard deviation. As shown in Table 1, memory competence, or the ability to remember things, had the highest mean of 4.94 and a standard deviation of 2.19. The next most common skill, with a mean of 4.09 and a standard deviation of 1.58, is logical reasoning. Perception skills come in third, with a mean of 3.24 and a standard deviation of 1.23. The attention skill mean is the lowest, with a standard deviation of 1.23 and a mean of 2.29. The results revealed that Grade 10 students have low cognitive competence in perception, attention, memory, and logical reasoning. This study is supported by Warju et al. (2020), who discovered an intriguing finding that the respondents were already using audio-visual input to practice their cognitive skills before such input was implemented in the learning process. However, if it is not put into practice, there will be a tendency for the respondents' cognitive skills to deteriorate.

Table 1. Mean pre-test scores of the student respondents in the use of audio-visual input in improving the cognitive competence of the Grade 10 students in Araling Panlipunan

Cognitive Competence	Mean	Std. Deviation
Perception	3.24	1.23
Attention	2.29	1.27
Memory	4.94	2.19
Logical Reasoning	4.09	1.58

Table 2. Mean post-test scores of the student respondents in the use of audio-visual input in improving the cognitive skills of the Grade 10 students in Araling Panlipunan

Cognitive Competence	Mean	Std. Deviation
Perception	7.65	1.30
Attention	7.26	1.19
Memory	8.09	1.46
Logical Reasoning	7.82	1.62

The significant difference in the mean pre-test and post-test performance of the student respondents before and after using the audio-visual learning materials in the competence of the Grade 10 students in Araling Panlipunan

A t-test was run to determine the significant difference between the pre-test and post-test performance of the student respondents before and after using the audio-visual learning materials in the competence of the Grade 10 students in Araling Panlipunan. There was a significant difference in the pre-test scores in perception, attention, memory, and logical reasoning skills (M=3.24, 2.29, 4.94, 4.09; SD=1.23, 1.27, 2.19, 1.58) and post-test scores

(M=7.65,7.26, 8.09, 7.82; SD=1.30, 1.19, 1.46, 1.62, respectively) conditions; t (33) = 2.39, 2.53, 1.74, 1.74; p = 0.008, 0.006, 0.005, 0.007." These results suggest that audio-visual input affects the perception, attention, memory, and logical reasoning skills of Grade 10 students. Specifically, the results indicate that when audio-visual input is used in the lesson, Grade 10 students increase their perception, attention, memory, and logical reasoning skills. The present study's findings are corroborated by Ho (2018), whose research demonstrates that using audio-visual aids can help students understand concepts better, as evidenced by the experimental group's noticeably higher post-test scores. When audio-visual aids were used, students were seen to be more attentive. Most of the students in the experimental group concurred that using audio-visual aids piqued their interest and improved their memory capacity. Most of the students said that if audio-visual aids were included in the teaching and learning process, they would be encouraged to learn.

Table 3. The significant difference in the mean pre-test and post-test performance of the student respondents before and after using the audio-visual learning materials in the competence of the grade 10 students in Araling Panlipunan

Cognitive Competence	Pre-test		Post-test		t	df	Sig. (2-tailed)
	Mean	SD	Mean	SD			
Perception	3.24	1.23	7.65	1.30	2.385	33	.008
Attention	2.29	1.27	7.26	1.19	2.527	33	.006
Memory	4.94	2.19	8.09	1.46	1.736	33	.005
Logical Reasoning	4.09	1.58	7.82	1.62	1.742	33	.007

Significant Difference in The Mean Pre-test and Post-test Performance of The Student Respondents

A t-test was run to determine the significant difference between the pre-test and post-test performance of the student respondents before and after using the audio-visual learning materials in the competence of the Grade 10 students in Araling Panlipunan. There was a significant difference in the pre-test scores in cognitive competence (M=14.56) and post-test scores (M=30.82) conditions, t (33) = 1.703, p = 0.003."

Cognitive competence has a p-value of .003 which is less than the significance value of 0.05, the analysis revealed that there's enough evidence to suggest that there is a significant difference between the pre-test and post-test.

Thus, the researcher rejects the null hypothesis "There is no significant difference in the student respondents' mean pre-test and post-test performance before and after using the audio-visual learning materials in the competence of the Grade 10 students in Araling Panlipunan".

The result of Table 4 is supported by Yang He et al., (2023), who proved that the presence of auditory stimuli interfered with visual working memory to a moderate to large extent, thus, the cognitive competence of students increases.

Table 4. Significant Difference in The Mean Pre-test and Post-test Performance of The Student Respondents

Variables	Pre-test		Post-test		T	df	Sig. (2-tailed)
	Mean	SD	Mean	SD			
Cognitive Competence	14.56	4.16	30.82	3.28	1.703	33	.003

Conclusion

There is a significant difference in the pre-test and post-test scores of the respondents in Grade 10 students in Araling Panlipunan in improving cognitive competence using audio-visual inputs. Thus, the null hypothesis is rejected. The study implies that the cognitive abilities of Grade 10 students are impacted by audio-visual input. The findings show that Grade 10 students' cognitive ability increases when audio-visual input is incorporated into the session.

Recommendations

With the significant difference in the post-test scores of the students after utilizing the audio-visual inputs, the teachers in Araling Panlipunan are recommended to integrate audio-visual inputs such as video, audio recordings, and film.

The Araling Panlipunan teachers are suggested to be guided by the current research findings and process in creating audio-visual inputs not only in grade 10 but for all junior high schools for the entire school which can be integrated into the In-Service Training Program for the teachers.

The district office and respective schools in General Luna, as well as the rest of DepEd Quezon and concerned offices, are suggested to conduct Learning Action Cells that will strengthen the integration of the technology and create contextualized audio-visual inputs with the objectives of raising the Mean Percentage Score (MPS) of the learners, thus supporting the DepEd campaign “no child left behind”.

With the significant difference in the post-test scores of the students after utilizing the audio-visual inputs, parents and learners are recommended to integrate audio-visual as an intervention for better understanding and comprehension in improving their cognitive capabilities

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