



ASSESSING THE IMPACT OF SMART TV TECHNOLOGY ON MEMORY RETENTION OF KEY HISTORICAL EVENTS AMONG GRADE 10 SOCIAL STUDIES IN SULAT NATIONAL HIGH SCHOOL

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ABSTRACT

This study aims to assess the impact of smart Tv technology on Memory retention of key historical events in grade 10 social science in Sulat National High School (SNHS). Using the quasi-experimental research design, participants are assigned to group based on pre-existing characteristics or conditions. The study was conducted in Sulat National High School. The population of interest in this study are Grade 10 students who are officially enrolled in this school. Stratified purposive sampling was used in this study. The researcher used a constructed questions from social science subject teacher. Pre-test and Post-test assessment was utilized in this study. The data was analyzed using the inferential statistics to find out if there is a significant difference between experimental (using smart TVs) and control (traditional method) groups. Hence, a significant relationship was found in this study. The study concludes that using the smart Tv technology has a higher rate on memory retention rate of historical events among grade 10 social science in Sulat national high school. It is recommended to incorporate live polls and quizzes, group discussion, documentaries and films, animations and infographics and virtual field trips to promote a collaborative and cooperative learning environment.

KEYWORDS: Historical Event, Impact, Retention, Smart TVs, Social Science, SNHS

INTRODUCTION

The value of historical teaching cannot be overstated, for it forms the students' perception of the past, which shapes their present and their future (Barton & Levstik, 2004). The conventional teaching methodology tends to rest mainly upon the textbooks and the lectures, which restrict the participation and the retention of the students (Husbands, 1996). New technological innovations hold the promise of solutions. The smart TV technology in the form of interactive multimedia complements the learning process (Mayer, 2009). The research justifies the efficacy of interaction in learning (Hew & Cheung, 2013), the use of visualizations (Bui et al., 2016) and the integration of technologies (Koehler & Mishra, 2009) in better retaining historical knowledge.

In this 21st century the use of modern technology is rapidly increasing. Technology has profoundly shaped the human civilization, driving the economic growth, cultural shifts, and societal transformations (Roser, 2022). Educational organizations and schools are increasingly recognizing the potential of new technologies in improving educational outcomes so they are constantly searching the best pieces of technologies which can deliver that promise (Abuhmaid, 2014). It has a big factor in teaching and learning process (Groove, 2014). The gap between educator and student is an old problem faced by every academic institution. This is the reason why student-teacher interaction inside the classroom is few, then there came this Smart TV who made it easier for teachers to get along with the students (staffreporter, 2019). Educators

struggles in getting the learners attention during discussion that results to poor understanding and retention.

Today, smart television is one of the devices that being used in daily discussion. Integrating smart TVs in the classroom has the potential to increase teacher-student interaction. With smart TVs technology, the teachers can display interactive content such as video lessons, project videos, books, and engaging students and foster active participation (Agarwar, 2023). In the Philippines, the Batas Pambansa 2032 or also known as Educational Act of 1982, suggested to strengthen the technology in the classroom (Averion, Caleja, et all, 2020) As a result, the school main objective is to have all the classroom be equipped in smart tv's technology. Despite these findings, gaps remain in the impact of Smart TV technologies on Grade 10 students' retention of historical events. This knowledge gap was address in this study. This study collectively provides a foundation for investigating the Smart TV technology's impact on memory retention of key historical events among the students in Sulat National High School, informing teaching strategies and educational policy.

Objectives

1. To assess the difference in historical event recall scores between students taught using Smart TV technology and those taught using traditional methods.
2. To compare the effectiveness of Smart TV technology integration versus traditional teaching methods on historical event recall.



3. To investigate the impact of Smart TV technology on Grade 10 students' memory retention of key historical events.

METHODOLOGY

Research Design

This study employed a quasi-experimental research design in determining the significant difference in retention of historical event between students taught using the smart Tv technology and those taught using traditional methods.

The quasi-experimental design seeks to establish cause-and-effect relationship between variables without using random assignment (Hassan, 2024). Hence, this quasi-experimental research design was necessary in this study as it aimed to assess the memory retention of key historical events among grade 10 students on social science subject. The population of interest in this study is the grade 10 students who are officially enrolled in this subject.

Sampling Design

Stratified purposive sampling was used in this study, a sample of 90 students, divided equally over two sections. 2 had 90-85 grade, 4 in the range 84-80, 12 between 79-75 and 12 between 74-70 grades. This stratification is carried out based on social science first quarter final grades.

Statistical Design

The data was analyzed using the Inferential statistics to find out if there are significant differences between the experimental (using smart TVs) and control (traditional method) groups. The data was analyzed using a statistical software like JASP (Jeffreys's Amazing statistics Program), specifically it used the T-TEST to compare the means of two groups. For pre-test, it was administered the historical events quiz for both group before the discussion and post-test was administered after the discussion.

Geographical Area

The study was conducted in Sulat National High School located in RF54+VG2, Barangay San Francisco Sulat, Eastern Samar, Philippines. Smart Tv Technology is already present in this school, and the teachers already received training on how to use it in daily teaching.

RESULTS

I. Status on Grade 10 Students in key historical events using the traditional teaching method

In the table 1 shows the pre-test and post-test mean results of grade 10 students on memory retention in historical events in social science using the traditional method. In pre-test, mean score for control group is 1.067 and standard Deviation (SD) is 1.015. The average of the pre-test score was approximately 1.067, it indicates that the students in control group has a limited prior knowledge on the key historical events before the intervention conducted. The SD (1.015) indicates a moderate variability among the students in control group. While in post-test, the mean score shows with 3.533 and a SD with 1.655. the average post-test score (3.533) indicates that the students had a moderate improvement on the retentions of key historical

events after the intervention was conducted. With an SD of 1.655, it indicates an increased variability among the students. The mean increased with 2.466 (3.533-1.067) results; it indicates a substantial improvement with 68% of retention rate. Figure 2 shows the result of mean score of pre-test and post-test result using the traditional method. This indicates that the pre-test in control group had a lower result at the beginning of the study and moderate result after the study.

II. Status on Grade 10 students on memory retention rate of key historical events using the smart TV

In table 2 shows the pre-test and post-test mean results of grade 10 students on memory retention in historical events in social science using the smart Tv technology. In pre-test, the treat group had a mean score of 0.833 and SD of 0.529. this average results. Indicated that the student had a limited prior knowledge of the key historical events before the intervention. With SD of 0.529 that indicates to had a moderate homogeneity. While in post-test result, the mean score is 4.8 with a SD of 1.833. This result indicates a significant improvement in retention of key historical events after the intervention and an increase of variability (SD 1.833). The mean increased with 3.967 (4.8-0.833) results; it indicates a higher improvement with an 85% of retention rate. Figure 3 shows the result of mean score of pre-test and post-test using the smart TV technology. This indicates that the pre-test in treat group had a lower result at the beginning of the study and a significant result after the study.

III. Significant differences on memory retention rates before and after the use of smart Tv technology

Table 3 shows the result on the pre-test and post-test scores between the TREAT group and CONTROL group. The t-statistics for pre-test is -1.088 and the t-statistics for post-test is 2.767; this result indicates that a negative value means one of the groups is lower than the other. The p-value result for pre-test is 0.281, in which it is higher than the typical significance level of 0.05; this indicates that the treat and control group that there is no statistically significance between the pre-test score. Which means that the treat and control group are similar in pre-test. While the post-test id 0.008, in which it is less than the typical significance level of 0.05; this indicates that there is statistically significance difference between treat and control post-test scores. Which means that the post-test score of the treat group and control group are significantly different. The independent sample t-test result indicated that from the pre-test and post-test scores there was a statistically significant improvement. Which also means that the invention had a significant impact on the participants score. Furthermore, the 1-10 constructed assessment (quiz), the result shows that in pre-test the most answered item is number 3, which only required a name of heroes. The rest of the item required to answered a specific complete date an concept. This indicated that they commonly remember the name only on the key historical contents in social science. While on post-test their common error is in the concepts.

Suggestions

1. Implementing of Multimedia resources like documentaries, films, animations, infographics and virtual filed trips can help those students with a different learning style to participate in classroom discussion/activities. Like using historical films or educational documentaries can help the students enhance their reflective writing skills to analyze the historical contents. Visual animations can help the students remember more the details being shown on the smart tv.
2. Gamified assessments and feedbacks mechanism can be implemented regularly to help students discuss their answer and can promote a collaborative and cooperative learning environment to review what they learned. Its not only to make the learning fun but also to enhance their memory retention through repetition and competition. Real-time feedback can also help the students learn from each other and also can depend their understanding on the content specifically on the key historical events in social science.

Conclusions

1. Integrating smart Tv in daily discussion can boost the memory retention rate of the learners. Reading books and lecturing was a type of traditional teaching method that was used in the past, it often cannot engage some student's attention. With the integration of smart tv in classroom, it can present a dynamic and interactive discussion in a form of videos, documentaries, interactive quizzes. Learners who are involved

actively in the classroom activities tend to likely remember or retain information. They tend to participate in discussion, asking questions, and connect with the information being discussed. Deeper understanding can occur with more engagement, which is what the memory depends on. One of the examples is the movie viewing of a historical event can evokes emotional feelings from the learners and can raise interest to remember the events.

2. Smart tv technology can enhance the learners specially the grade 10 social science students, it is important to ensure the balance of usage of smart tv technology. If there is a positive impact of smart tv technology, there is also a negative impact of the usage of smart tv technology. On the positive impact it can enhance the retention rate on the historical knowledge, learners' engagement and it can help those multimedia learners freely explore the content and accessibility of information provided by the different educational resources. Having this positive impact, there is also a negative impact on the usage of smart tv technology. Which is the over-reliance on technology, where the learners tend to depend on the information provided by the smart tv. It can lead to decline their ability to process the information, to think critically, difficulty in recalling facts and hard to study independently. It can also lead to distraction on the educational content. And lasty it can reduce to think critically where students are hard to distinguished the facts of the information that can lead to superficial understanding of the contents.

Figures and Tables

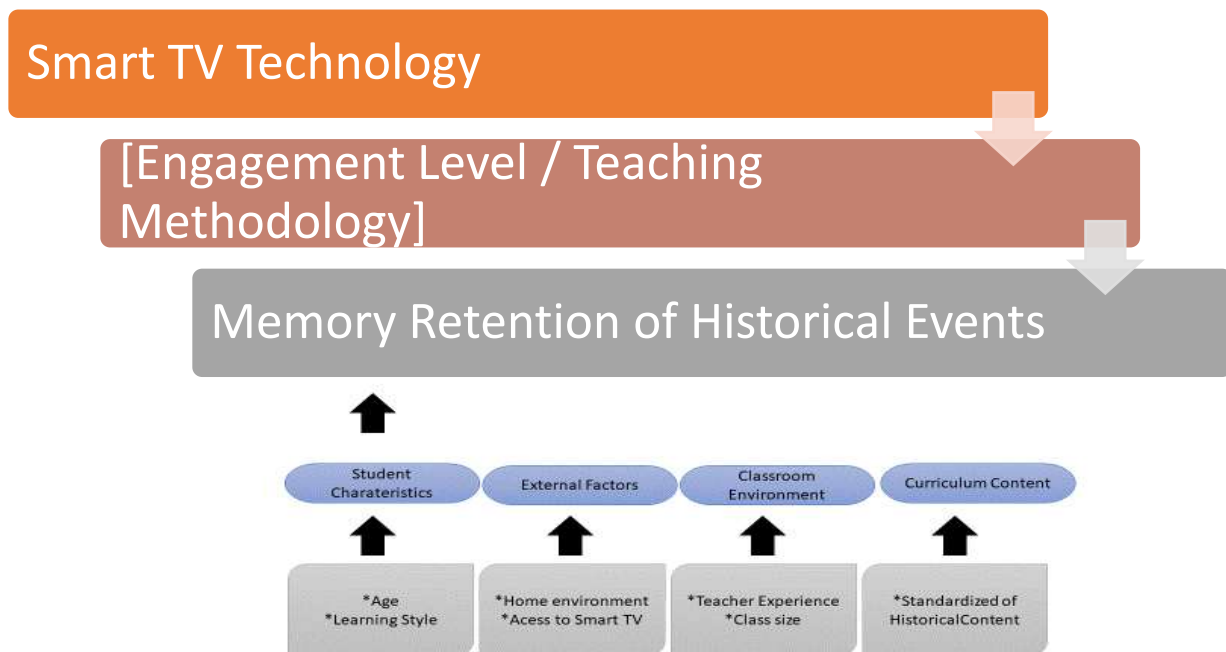


Figure 1: This diagram showing the relationship of variables involved in the study.



Table 1. Status on Grade 10 students on memory retention of key historical events using the traditional teaching method

	Group	Mean	SD	Interpretation
Pre-test	CONTROL	1.067	1.015	students had limited prior knowledge
Post-Test	CONTROL	3.533	1.655	students had moderate retention rate

Note: CONTROL = control group using traditional teaching method

Table 2. Status on Grade 10 students on memory retention of key historical events using the smart TV technology

	Group	Mean	SD	Interpretation
Pre-test	TREAT	0.833	0.529	students had a limited prior knowledge
Post-Test	TREAT	4.8	1.883	students had a higher retention rate

Note: TREAT = treatment group using smart TV technology

Table 3 Independent Samples T-Test on significant differences on memory retention rates before and after the use of smart TV technology

	t	df	p
Pre-test	-1.088	58	0.281
Post-Test	2.767	58	0.008

Note: Compare the means of two independent groups to determine if there is a statistically significant between them

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