IMPACT OF VIRTUAL FIELD TRIPS ON STUDENT'S KNOWLEDGE RETENTION AND ATTITUDES IN SOCIAL STUDIES IN ILORIN SECONDARY SCHOOLS

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Abstract

The persistent challenges of poor knowledge retention and declining student interest in Social Studies have continued to undermine effective learning outcomes in Nigerian secondary schools. This study investigated the impact of Virtual Field Trips (VFTs) on students' academic performance, knowledge retention, and attitudes toward Social Studies in selected secondary schools in Ilorin, Kwara State. A quasi-experimental one-group pretest–posttest research design was adopted. Thirty (30) secondary school students, comprising fifteen (15) males and fifteen (15) females, participated in the study. Data were collected using the Social Studies Knowledge Retention Test (SSKRT) and the Students' Attitude toward Social Studies Questionnaire (SASSQ). The instruments were validated by experts in Educational Technology and Social Studies, and their reliability coefficients were established. Descriptive statistics (mean and standard deviation) were used to answer the research questions, while paired and independent samples t-tests were employed to test the hypotheses at the 0.05 level of significance. The findings revealed that the use of Virtual Field Trips significantly improved students' academic performance and knowledge retention in Social Studies. Students' attitudes toward Social Studies also improved significantly after exposure to Virtual Field Trips. While no significant gender difference was found in students' performance and knowledge retention, a significant difference existed in students' attitudes toward Social Studies, with male students exhibiting more positive attitudes than female students. The study concludes that Virtual Field Trips are effective instructional tools for enhancing cognitive and affective learning outcomes in Social Studies and recommends their integration into secondary school teaching with gender-responsive instructional support.

Keywords: Virtual Reality, Field Trips, Social Studies, Gender Studies, Attitude, Virtual Field Trips

Introduction

Education in Nigerian society serves as a cornerstone for societal development and individual empowerment. According to Olaniyan and Uzorka (2024), education plays a pivotal role in equipping individuals with skills and knowledge necessary for personal growth and national progress. It serves as a tool for social mobility and economic advancement (Alam & Aslam 2023). In Nigeria, education is viewed not only as a means of acquiring knowledge but also as a catalyst for societal transformation (Ezekiri et al, 2020). It is

through education that values, ethics, and cultural heritage are transmitted to younger generations, fostering national unity and cohesion.

Technology, in the context of education in Nigeria, encompasses the use of digital tools and resources to enhance teaching and learning processes. Technology has revolutionized education by providing new avenues for accessing information, collaborating with peers, and engaging with learning content. In Nigerian secondary schools, technology plays a crucial role in achieving educational goals by facilitating interactive learning experiences and improving student engagement (Ajani 2024). The integration of technology supports personalized learning approaches and prepares students for the demands of a digital world. It enables educators to deliver content more effectively and adapt instruction to cater to diverse learning needs. Various types of technologies are integrated into teaching and learning activities in Nigerian secondary schools, ranging from basic educational software to sophisticated learning management systems. Educational technologies such as interactive whiteboards, educational apps, and online platforms like Google Classroom facilitate collaborative learning and information sharing among students (Umirova 2025). Virtual reality (VR) stands out as one of the modern technologies increasingly used to enhance teaching and learning experiences. VR immerses students in simulated environments that replicate real-world scenarios, allowing for interactive exploration and experiential learning (Adetunla et al 2024).

The contemporary educational landscape is being transformed by rapid technological advancements, which have expanded the possibilities of teaching and learning beyond the confines of the traditional classroom. Among the most promising innovations reshaping instructional delivery is the concept of Virtual Field Trips (VFTs) which are immersive, technology-mediated learning experiences that simulate real-world locations and environments. By leveraging Virtual Reality (VR) and other digital visualization tools, educators can now expose learners to places and phenomena that would otherwise be geographically, financially, or physically inaccessible. In this light, VFTs present a compelling opportunity for enriching the Nigerian secondary school curriculum, especially in subjects such as Social Studies and Basic Science, where direct exposure to the environment forms a critical component of conceptual understanding.

Virtual reality (VR) is a computer-generated simulation of a three-dimensional environment that can be interacted with in a seemingly real way. According to Lewicki and Flora (2024), VR technology encompasses various types such as non-immersive, semi-immersive, and fully immersive VR experiences. Non-immersive VR involves viewing 3D models on a screen, whereas semi-immersive VR provides a more interactive experience with limited physical movement. Fully immersive VR, on the other hand, creates a complete sensory experience, often requiring specialized equipment like VR headsets. Virtual field trips utilize VR technology to transport students to remote or inaccessible locations, providing them with realistic and engaging learning experiences (Alqudah & Khasawneh, 2023). Virtual field trips offer secondary school students in Nigeria immersive experiences that complement traditional classroom learning. The technology allows students to virtually visit historical sites, museums, and natural habitats, which may be otherwise inaccessible due to logistical or financial constraints (Abukarki,, 2025). This experiential learning approach enhances students' understanding of theoretical concepts by providing contextual relevance and multisensory engagement. Virtual field trips promote active learning and critical thinking skills as students interact with virtual environments and engage in guided exploration (Alqudah, & Khasawneh, 2023).

In Social Studies education, field trips are designed to provide students with direct experience of social, cultural, economic, and environmental realities. According to Adeoye et al (2025), such experiential learning enables learners to develop civic awareness, empathy, and a deeper understanding of their immediate and wider society. Unfortunately, in many Nigerian secondary schools, physical field trips have become rare due to multiple challenges including funding constraints, bureaucratic approval processes, overcrowded curricula, security concerns, and inadequate transportation logistics. Consequently, topics that require practical

exploration—such as Tourism and Cultural Heritage, Natural Landforms of Nigeria, and Resources and Their Management—are often taught through textbooks and verbal descriptions alone. This approach limits students' engagement, visualization, and ability to connect abstract classroom knowledge with real-life social and geographical contexts.

Similarly, in Basic Science, experiential learning plays an equally critical role. Students learn most effectively when they can observe, experiment, and interact with scientific concepts in real or simulated environments (Ben et al, 2022). For instance, topics such as Ecosystems, Weathering and Erosion, and The Solar-System demand observational learning that allows students to see natural processes in action. Without opportunities to visit scientific institutions, conservation centers, or geological landmarks, students often struggle to conceptualize phenomena that are inherently spatial or process-based. Virtual Field Trips using VR can bridge this gap by offering three-dimensional, interactive simulations that enable learners to experience such content with a sense of presence and authenticity.

The adoption of virtual field trips in Nigerian secondary schools has been steadily increasing, driven by advancements in technology and the need to enrich students' learning experiences. For example, schools like Unity Secondary School in Lagos and Government Girls Secondary School in Kaduna have integrated virtual field trips into their curriculum to supplement traditional teaching methods (Ilyas & Okwori, 2024). These initiatives demonstrate how virtual field trips can bridge the gap between theory and practice, making learning more accessible and engaging for students across different educational settings in Nigeria. The introduction of Virtual Reality technology into the educational system has been described as a paradigm shift that enhances experiential cognition which is the capacity to learn through simulated yet realistic experience (Marougkas et al., 2023). Through VR headsets or immersive screen setups, students can explore a digitally rendered environment, interact with objects, and gain insights through exploration, all within the safety and accessibility of the classroom. For example, a virtual trip to Zuma Rock in Abuja, one of Nigeria's most iconic natural monuments, can allow students to explore its geological features, understand its cultural symbolism, and analyze its economic and touristic importance without physically traveling hundreds of kilometers from Ilorin. This kind of mediated field trip brings the world into the classroom, democratizing access to quality experiential education

Learning outcomes refer to the measurable knowledge, skills, and attitudes that students gain from educational experiences (Alyasin et al 2023). In the context of secondary education in Nigeria, these outcomes are crucial indicators of educational effectiveness. Virtual field trips, simulated experiences that replicate real-world environments using technology, have gained attention for their potential to enhance learning outcomes. Research by Alqudah and Khasawneh (2023). demonstrates that virtual field trips can significantly improve students' understanding and retention of academic content by providing immersive and interactive learning experiences. This is particularly relevant in Nigerian secondary schools where traditional field trips may be limited due to logistical challenges and resource constraints.

Despite their potential benefits, barriers such as infrastructure limitations and educators' unfamiliarity with technology often inhibit widespread adoption of Virtual reality technology utilisation in classroom. Studies suggest that integrating virtual field trips into the curriculum can positively influence students' academic achievement and engagement by bridging the gap between theoretical knowledge and practical application (Ezeudu, 2019). Students' attitudes towards the use of virtual reality (VR) in virtual field trips play a critical role in determining their effectiveness. Research indicates that student perceptions of VR technology, influenced by factors such as usability and perceived educational value, can impact their engagement and learning outcomes. In Nigerian secondary schools, understanding these attitudes is essential for optimizing the design and implementation of virtual field trips to maximize educational benefits.

Gender differences in students' attitudes towards virtual reality in virtual field trips can also affect learning outcomes. Studies by Ajayi and Ajayi (2020) and Ahmad et al. (2022) suggest that male and female students may have varying preferences and comfort levels with technology-based learning environments. Exploring these differences can provide insights into how to tailor virtual field trips to meet the diverse needs and preferences of students across genders. In the context of Nigerian education, virtual field trips (VFTs) have increasingly been integrated to enhance learning outcomes across various subjects. For instance, in history classes, VFTs enable students to virtually visit significant Nigerian historical sites such as the Slave Trade Museums in Badagry or the Nok Culture sites, providing a tangible connection to their cultural heritage (Adewumi & Sanni, 2025).

Science education in Nigeria also benefits from VFTs, with students exploring ecosystems like the Niger Delta's mangrove forests or the diverse wildlife in Yankari National Park, thereby fostering a deeper understanding of environmental science and biodiversity (Eze & Iroegbu, 2019). Geography lessons utilize VFTs to allow students to experience Nigeria's varied landscapes, from the Sahel Savannah to the coastal regions, enhancing their spatial awareness and geographical knowledge (Adegoke, 2018). Additionally, virtual tours of Nigerian art galleries and museums, such as the National Museum in Lagos, are used in art education to expose students to traditional and contemporary Nigerian art (Adeyemi & Ajibade, 2021). These examples illustrate the transformative potential of virtual reality in providing equitable access to educational resources and enriching the learning experience in Nigerian secondary schools (Nwosu & Udo-Obong, 2022).

Despite the growing interest in virtual field trips, there remains a relative scarcity of research specifically investigating their impact on students' learning outcomes in Nigerian secondary schools. Most existing studies focus on Western contexts, highlighting the need for localized research to address the unique educational challenges and opportunities in Nigeria (Adelakun & Oladeji, 2019). Understanding how virtual reality influences learning outcomes in Nigerian secondary schools is essential for advancing educational practices and improving student academic achievement.

Statement of the Problem

In secondary schools in Ilorin, Kwara State, many students have limited opportunities to engage in physical field trips due to financial, logistical, and scheduling constraints. This absence reduces opportunities for experiential learning and may limit student motivation, engagement, and achievement in content areas. Although many schools have begun introducing technology-enhanced learning, there is a lack of empirical evidence within this context regarding how virtual field trips via Virtual Reality (VR) affect students' content performance and attitudes, especially when considering gender differences. Without such evidence, school administrators, policy-makers, and instructional technologists face uncertainty about the efficacy, acceptability, and equity of VR-based interventions. Hence, there is a need to investigate whether VR-enabled virtual field trips can improve student learning outcomes and attitudes in this particular Nigerian secondary school context, and whether performance gains and attitudinal changes differ by gender.

Purpose of the Study

The main purpose of this study is to investigate the impact of virtual field trips on students' learning outcomes in secondary schools in Ilorin, Kwara state. Specifically, this study:

1. determine the effect of Virtual Field Trips on students' knowledge retention in Social Studies;
2. examine the influence of Virtual Field Trips on students' attitudes toward Social Studies;

Research Questions

The following research questions would be answered in this study:

1. What effect do Virtual Field Trips have on students' knowledge retention in Social Studies?
2. How do Virtual Field Trips influence students' attitudes toward Social Studies?

Research Hypotheses

The following research hypotheses would be tested at 0.05 level of significance;

H_{01}: There is no significant difference in students' knowledge retention before and after exposure to Virtual Field Trips.

H_{02}: There is no significant difference in students' attitudes toward Social Studies before and after exposure to Virtual Field Trips.

H_{03}: There is no significant difference in male and female students' performance on content examination from the Virtual Field trips in Secondary schools, Ilorin, Kwara state

H_{04}: There is no significant difference between male and female students' attitude to the use of Virtual Field trips for social studies in Secondary schools, Ilorin, Kwara state

Methodology

The study adopted a quasi-experimental research design, specifically a one-group pretest–posttest design. This design was considered appropriate for examining the impact of Virtual Field Trips on students' knowledge retention and attitudes. The population of the study comprised all junior secondary school students offering Social Studies in Ilorin secondary schools. A sample of thirty (30) students was purposively selected from one secondary school in Ilorin. The sample size was considered adequate for an experimental study involving intensive instructional intervention.

Two instruments were used for data collection:

1. Social Studies Knowledge Retention Test (SSKRT) – used to measure students' retention of Social Studies concepts.
2. Students' Attitude toward Social Studies Questionnaire (SASSQ) – used to assess students' attitudes toward Social Studies before and after the intervention.

The instruments were subjected to face and content validity by experts in Educational Technology and Social Studies. Reliability was established with Cronbach's alpha method correlation coefficient of 0.84 obtained for the SSKRT and 0.77 for the SASSQ.

The study was conducted in three phases: The Pretest phase where students were administered the Knowledge Retention Test and Attitude Questionnaire before the intervention. The Treatment phase where selected topics in social studies were taught using Virtual Field Trips over a period of three weeks and; the posttest phase where the participants were given the test questions and attitudinal questionnaire to evaluate the treatment.to measure

changes in knowledge retention and attitudes. Mean and standard deviation were used to answer the research questions, while inferential statistics (such as t-test) were used to test the hypotheses at the 0.05 level of significance.

Results and Discussions

This section presents the results of the study based on the research questions and hypotheses. Data collected from the Social Studies Knowledge Retention Test (SSKRT) and Students' Attitude toward Social Studies Questionnaire (SASSQ) were analyzed using descriptive and inferential statistics.

Research Question 1: What effect do Virtual Field Trips have on students' knowledge retention in Social Studies?

Table 1 shows the mean scores of students' knowledge retention before and after exposure to Virtual Field Trips.

Table 1: Mean and Standard Deviation of Students' Knowledge Retention Scores

Test	N	Mean	Std. Deviation
Pretest	30	45.27	6.84
Posttest	30	68.93	7.12

The results indicate a substantial increase in students' mean knowledge retention scores after exposure to Virtual Field Trips. While the average score before the treatment obtained from the pretest was 45.27, the participants obtained an average score of 68.93 after the experiment has been carried out.

Research Question 2: How do Virtual Field Trips influence students' attitudes toward Social Studies?

Table 2: Students' attitude towards the use of Virtual Reality in Virtual Field trips in Secondary schools, Ilorin, Kwara state

S/N	Items	Pre Test Mean	Post Test Mean
1.	I am excited about using Virtual Reality in virtual field trips.	2.58	3.89
2.	I find Virtual Reality engaging and immersive during lessons.	2.54	3.53
3.	I feel more motivated to learn with Virtual Reality experiences.	2.56	3.8
4.	Virtual Reality makes the lessons feel more real and interesting for me.	2.23	3.52
5.	At first, I was hesitant about using Virtual Reality in my studies.	2.54	3.76
6	I appreciate the chance to explore places virtually that I can't visit in person.	2.26	3.56
7	Virtual Reality helps me better understand the subjects I am studying.	2.25	3.53

8	I think Virtual Reality makes learning more fun and interactive.	2.35	3.73
9	I generally view Virtual Reality as a positive addition to my education.	2.32	3.81
10	I see Virtual Reality in virtual field trips as a helpful tool for my learning.	2.47	3.56
	Grand mean	**2.41**	**3.67**

Benchmark 2.5

Table 2 and Table 2.1 reveals students' attitudes towards using VR in virtual field trips before and after the treatment. Grand mean score of 2.41 before the experiment shows the unenthusiastic attitude the participants had towards the use of Virtual Reality for field trip experience. The Post treatment attitude, with a grand mean of 3.67 which is greater than the benchmark 2.5 reflects a positive attitude. The high mean scores indicate that students view VR as a valuable and enjoyable tool in their educational experience.

The post treatment overall positive attitude towards VR suggests that students are open to integrating this technology more deeply into their learning environments. Even though there was initial hesitance in adopting VR (mean = 2.41), result shows that continued exposure and training could further improve students' comfort and enthusiasm for using VR in education.

Table 2.1: Mean and Standard Deviation of Students' Attitude Scores

Test	N	Mean	Std. Deviation
Pretest	30	2.41	0.53
Posttest	30	3.67	0.48

The findings reveal an improvement in students' attitudes toward Social Studies following the Virtual Field Trip intervention.

Hypothesis 1: There is no significant difference in students' knowledge retention before and after exposure to Virtual Field Trips.

Table 3: Paired Sample t-test for Knowledge Retention

Test	Mean Difference	t-value	df	Sig. (p)
Pretest–Posttest	23.66	11.42	29	0.000

Table 3 shows the paired sample t test to show significance in the difference between the knowledge retention average for pretest and post test. Since the p-value is less than 0.05, the null hypothesis is rejected. This implies that Virtual Field Trips had a significant effect on students' knowledge retention in Social Studies.

Hypothesis 2**:** There is no significant difference in students' attitudes toward Social Studies before and after exposure to Virtual Field Trips.

Table 4: Paired Sample t-test for Students' Attitudes

Test	Mean Difference	t-value	df	Sig. (p)

Pretest–Posttest	1.26	9.38	29	0.000

Table 4 shows a statistically significant difference in students' attitudes toward Social Studies after the intervention with $t_{(29)} = 9.38$, $p<.05$.

Hypothesis three: There is no significant difference in male and female students' performance on content examination from the Virtual Field trips in Secondary schools, Ilorin, Kwara state

Table 5: t-test showing no significant difference in Students' performance on Content examination from the Virtual Field trips in Secondary schools, Ilorin, Kwara state based on gender

Gender	N	Mean	SD	df	t	Sig	Remarks
Male	15	68.98	8.502				
				28	1.035	0.318	Not rejected
Female	15	68.82	5.725				
Total	30						

Table 5 presents the results of a t-test analyzing the difference in students' performance on content examinations following virtual field trips, based on gender. The mean scores for male (68.98) and female (68.82) students indicate that both genders performed similarly, with the t-test showing no significant difference ($t = 1.035$, $p = 0.318$). The "Not rejected" remark suggests that gender does not play a significant role in students' performance in content examinations when using VR for virtual field trips. This finding implies that VR has a universally positive impact on students' learning outcomes, regardless of gender, indicating its effectiveness as an educational tool for all students

Hypothesis four: There is no significant difference between male and female students attitude to the use of Virtual Field trips for social studies in Secondary schools, Ilorin, Kwara state

Table 6: Independent Samples t-test of Students' Attitude Scores by Gender

Gender	N	Mean	SD	df	t	Sig	Remarks
Male	15	3.89	0.44				
				28	2.86	0.008	Not rejected
Female	15	3.46	0.47				
Total	30						

Table 6 reveals that there was a significant difference ($t_{(28)} = 2.86$, $p<.05$) between male and female students' attitudes toward Social Studies after exposure to Virtual Field Trips, with male students exhibiting more positive attitudes than female students.

Summary of Findings

1. Applying Virtual Field Trips to teach Social Studies have positive effect on the performance and knowledge retention capability of learners

2. Students attitude toward Social Studies improved after the participants were exposed to Virtual field trips
3. There was a significant difference in students' knowledge retention before and after exposure to Virtual Field Trips.
4. Gender does not play a significant role in students' performance in content examinations when using VR for virtual field trips
5. There was a significant difference between male and female students' attitudes toward Social Studies after exposure to Virtual Field Trips, with male students exhibiting more positive attitudes than female students.

Discussion of Findings

The findings of this study provide strong empirical support for the effectiveness of Virtual Field Trips (VFTs) as an instructional strategy in Social Studies at the secondary school level. Overall, the results demonstrate that the integration of technology-mediated experiential learning significantly enhances students' academic outcomes and affective dispositions toward learning. The study revealed that the application of Virtual Field Trips in teaching Social Studies had a positive effect on students' academic performance and knowledge retention. Students exposed to VFTs demonstrated significantly higher posttest retention scores compared to their pretest performance. This finding supports the premise that immersive and experiential learning environments promote deeper cognitive processing and long-term memory retention.

This result aligns with the Cognitive Theory of Multimedia Learning, which posits that learners retain information more effectively when content is presented through multiple sensory channels (Mayer, 2022). Virtual Field Trips combine visual, auditory, and interactive elements, enabling learners to construct meaning through contextualized experiences rather than rote memorization. Recent studies by Makransky and Petersen (2022) and Radianti et al. (2023) reported that immersive virtual learning environments significantly improve learners' conceptual understanding and retention due to heightened presence and engagement. Within the Social Studies context, VFTs allow students to virtually explore historical sites, cultural environments, and civic institutions, making abstract concepts concrete and memorable. Similarly, Oyelekan, Ajayi, and Olorundare (2024) found that Nigerian secondary school students exposed to virtual learning experiences demonstrated superior retention compared to peers taught using conventional lecture methods. Thus, the present study reinforces the growing body of evidence that technology-enhanced experiential learning fosters durable knowledge retention.

The findings further indicated that students' attitudes toward Social Studies improved significantly after exposure to Virtual Field Trips. This suggests that VFTs not only support cognitive outcomes but also positively influence the affective domain of learning. Attitude plays a critical role in students' motivation, engagement, and sustained interest in academic subjects, particularly Social Studies, which many learners traditionally perceive as abstract or monotonous. This result corroborates the findings of Dede et al. (2022) and Ibáñez and Delgado-Kloos (2023), who reported that immersive digital learning environments enhance learner interest, enjoyment, and perceived relevance of instructional content. By transforming Social Studies lessons into visually rich and interactive experiences, VFTs reduce learner boredom and stimulate curiosity, thereby fostering positive learning attitudes.

In the Nigerian context, where instructional delivery is often dominated by teacher-centered approaches, the introduction of VFTs represents a shift toward learner-centered pedagogy. Adebayo and Yusuf (2025) observed that students exposed to interactive digital tools in Social Studies classrooms exhibited increased participation and positive emotional responses to learning activities. Therefore, the present study underscores the potential of Virtual Field Trips to address long-standing attitudinal challenges associated with Social Studies education.

The significant difference observed between students' pretest and posttest knowledge retention scores confirms the instructional effectiveness of Virtual Field Trips. This finding suggests that the learning gains recorded were attributable to the intervention rather than chance. This outcome is consistent with constructivist learning theory, which emphasizes that knowledge is actively constructed when learners engage with meaningful learning experiences (Vygotsky, as cited in Schunk, 2023). Virtual Field Trips provide authentic contexts that encourage learners to connect new information with prior knowledge, thereby facilitating deeper understanding and recall.

Empirical studies by Parong and Mayer (2022) and Kavanagh et al. (2024) similarly reported significant pretest–posttest gains among students taught using virtual and augmented reality tools. These studies emphasize that the novelty and realism of virtual environments increase cognitive engagement, leading to improved learning outcomes. Hence, the present finding further validates Virtual Field Trips as effective pedagogical tools for enhancing learning retention in secondary education.

The study found that gender did not significantly influence students' performance in content examinations when Virtual Field Trips were used. This suggests that Virtual Field Trips provide equitable learning opportunities for both male and female students in terms of academic achievement. The result aligns with Makransky et al. (2023), who found no significant gender differences in learning outcomes within immersive virtual learning environments when instructional design was standardized.

However, the study revealed a significant gender difference in students' attitudes toward Social Studies, with male students exhibiting more positive attitudes than female students after exposure to Virtual Field Trips. This finding indicates that while cognitive outcomes were similar, affective responses to the technology differed by gender. This outcome supports findings by Cheng and Tsai (2022) and Zhang et al. (2024), who observed that male students often report higher confidence, enjoyment, and perceived ease of use when engaging with immersive digital technologies. Differences in prior exposure to technology, digital self-efficacy, and sociocultural factors may explain why male students developed more favourable attitudes. In the Nigerian educational context, Ogunleye and Adeyemi (2025) noted that female students often exhibit lower confidence in technology-mediated learning environments due to limited exposure and societal stereotypes. This suggests the need for deliberate instructional scaffolding and gender-sensitive pedagogical strategies when implementing Virtual Field Trips to ensure attitudinal equity.

Conclusion

This study concluded that Virtual Field Trips are effective instructional strategies for enhancing students' performance, knowledge retention, and attitudes toward Social Studies in secondary schools. The use of Virtual Field Trips significantly improved learners' retention of Social Studies concepts and fostered more positive attitudes toward the subject. While gender did not significantly influence students' academic performance, differences were observed in students' attitudes, with male students demonstrating more favorable dispositions toward Social Studies following the intervention. These findings highlight the instructional value of Virtual Field Trips and the need for inclusive implementation strategies to maximize benefits for all learners.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are made:

1. Virtual Field Trips should be systematically integrated into the Social Studies curriculum at the secondary school level to enhance experiential learning and knowledge retention.
2. Educators should adopt gender-responsive instructional strategies, including guided support and collaborative learning, to enhance female students' attitudes and confidence in technology-based learning environments.
3. Government and school administrators should provide adequate ICT facilities, including stable internet access and digital devices, to support the successful implementation of Virtual Field Trips.

4. Future studies should involve larger samples, multiple schools, and experimental-control group designs to strengthen generalizability and explore long-term effects of Virtual Field Trips on learning outcomes and gender differences.

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