

THE EFFECTIVENESS OF VIRTUAL FIELD TRIPS ON LEARNING ACHIEVEMENT OF SOCIAL STUDIES FOR GRADE 6 BHUTANESE STUDENTS

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ABSTRACT

This study investigated the effectiveness of incorporating Virtual Field Trips (VFTs) on the learning achievement and satisfaction of Grade 6 Bhutanese students in social studies. A mixed-method research design was employed with a sample of 30 students selected through cluster random sampling from a higher secondary school in Bhutan. The instruments used for the study included lesson plans, learning achievement tests, and a semi-structured interview. These instruments were validated by three experts, with an IOC index ranging from -1 to +1. Quantitative data were collected through pre-test and post-tests, with the post-test mean score ($\bar{X} = 15.02$) significantly higher than the pre-test mean score ($\bar{X} = 11.35$), resulting in a mean difference of 3.7. Analysis using a paired sample t-test revealed a significance p-value of 0.01, confirming the effectiveness of VFTs. Qualitative data, gathered through semi-structured interview and analyzed thematically, highlighted increased learning satisfaction. This approach enabled students to virtually explore Bhutan's sacred places, promoting holistic education while supporting cultural preservation. VFTs enhanced learning by improving academic achievement and personal growth. The findings highlighted the potential of VFTs as a valuable instructional tool for enhancing academic outcomes and recommends broader implementation to enrich learning and preserve heritage.

Keywords: Social Studies, Virtual Field Trips, Learning Achievement, Learning Satisfaction, Grade 6

INTRODUCTION

Bhutan, a small nation known for its unique cultural history and holistic development, emphasizes integrating cultural values into education system. Education in Bhutan reflects these values, with the government embedding cultural preservation into the curriculum through initiatives like “Education for GNH” (Drakpa & Singh, 2018). This initiative integrates cultural and environmental awareness into education, ensuring students develop both academic knowledge and a deep connection to their heritage and environment. By incorporating local traditions and encouraging community participation, Bhutan’s curriculum emphasizes the role of cultural preservation in shaping the nation’s identity and achieving developmental goals.

In Bhutan, the social studies curriculum for grades four to six, lays foundational understanding of history, geography, and economics, with higher grades exploring these subjects in depth (Dorji & Chalermnirundorn, 2021; Peldon & Chalermnirundorn, 2018). This curriculum supports the Gross National Happiness framework by encouraging critical thinking, informed decision-making, and cultural understanding, equipping students to engage with diverse perspectives and navigate

modern complexities. Grade 6 represents a critical stage in Bhutan’s education system, marking the transition from elementary to middle school. As the final phase of primary education, this stage is crucial for preparing students for more rigorous curricula. At this stage, field trips play an essential role in enhancing engagement and providing hands-on learning opportunities.

Learning, as emphasized by Nathani (2021), extends beyond classroom walls. Citing Frank Herbert, Nathani highlights the value of experiential learning: “One learns from books and examples only that certain things can be done. Actual learning requires that you do those things.” In social studies, outdoor activities such as field trips to historical sites and cultural events allow students to explore the connections between society, culture, and historical contexts (Munter, 2002). These experiences improve understanding and help students make meaningful connections to real-world contexts.

However, challenges such as limited financial and human resources constrain the education system of Bhutan (Gyeltshen & Zangmo, 2020), making it difficult to organize outdoor learning experiences. Additionally, the Department of Curriculum

and Professional Development (2021) notes that social studies are allocated only four periods per week in grades four to six. These time constraints often restrict lessons to classroom settings, limiting the potential for outdoor learning on topics like “Sacred Places.”

The COVID-19 pandemic intensified the existing challenges within the education system of Bhutan, highlighting the need for innovative solutions. In response, Bhutan shifted to competency-based learning (CBL) and integrated digital tools to bridge classroom instruction with real-world applications (Gyeltshen & English, 2021). This transition marked a significant adaptation for both teachers and students, who embraced new curricula and online teaching methods to meet the demands of the changing educational landscape (Drukpa, 2022). Among these innovations, virtual field trips (VFTs) emerged as a practical valuable alternative to traditional field trips. VFTs enabled students to explore key topics that were previously restricted by logistical and financial barriers. Furthermore, VFTs proved to be an effective educational resource, offering interactive and inclusive learning experience, enhancing accessibility, interactively and inclusively supporting environmental sustainability,

and ensuring continuity during crises (Banyan, 2022).

To explore the potential of VFTs, the researcher used this method to teach about sacred places of Bhutan, combining recorded materials, live video interactions, and expert insights. The study aimed to assess the effectiveness of VFTs in teaching social studies to Grade 6 Bhutanese students and to evaluate learning satisfaction with this approach. By overcoming traditional classroom limitations, VFTs provide students with enriched learning experiences, aligning with Bhutan’s goals of holistic education and cultural preservation.

RESEARCH OBJECTIVES

1. To examine the effectiveness of virtual field trips in social studies of Grade 6 Bhutanese students.
2. To investigate students’ learning satisfaction after using virtual field trips.

LITERATURE REVIEW

1. Social studies curriculum in Bhutan

In Bhutan, social studies is an interdisciplinary subject that combines geography, history, culture, and civic duties. It was created in 1992 and has since

undergone several revisions to reflect changing educational trends and societal demands, including the 2015 Curriculum Framework and modifications for the COVID-19 pandemic. Key strands like “My World,” “History, Civics, and Culture,” “Human Wellbeing and the Environment,” and “Living and Economy” promote interdisciplinary learning, focus on human-nature relationships, and build civic skills (DCPD, 2022). The curriculum aims to prepare students as informed decision-makers who contribute to a diverse global society. By integrating real-world issues, it encourages critical thinking and respect for diverse perspectives, equipping students to address complex challenges in an interconnected world.

In line with experiential learning theory and ecological constructivist learning theory, the New Normal Curriculum Framework was created in 2021 and emphasizes learner-centered, flexible, and context-sensitive teaching methods. Ecological Constructivist Learning Theory asserts that social interactions, context, and the environment all influence learning. The framework changes the role of the teacher from one of imparting knowledge to one of facilitating learning, establishing a learning ecosystem in which students engage with real-world

issues, growing resilient, and acquire 21st-century skills. In order to promote deeper comprehension and information retention, Experiential Learning Theory places a strong emphasis on the value of practical experiences and reflection in the learning process. The goal of the New Normal Curriculum Framework is to give students a comprehensive and engaging education that equips them for success in a world that is always changing by fusing these two ideologies. This aligns with Bronfenbrenner’s ecological model, which stresses that learning is influenced by multiple environmental layers—from family and peers to broader societal forces (Bronfenbrenner, 1979).

2. Virtual Field Trips in education

A Virtual Field Trip (VFT) is an interactive educational experience conducted through digital platforms, offering real-time access to experts and resources. It enables learners to explore diverse subjects and locations, overcoming geographical and financial barriers. Additionally, VFTs incorporate hands-on activities and guided discussions to simulate the benefits of on-site visits (Kokotsaki, 2019). These immersive experiences aim to encourage curiosity and enhance engagement with the subject matter, while ensuring inclusivity for all individuals,

regardless of their socioeconomic status, health conditions, or physical disabilities.

The Ecological Constructivist Learning Theory emphasizes that an individual's knowledge is shaped by their environmental and cultural context, which aligns with the educational benefits of VFTs. Through VFTs, students immersed themselves in the cultural and ecological context of Bhutan, allowing them to engage with local leaders, monks, and experts. These experiences provided authentic cultural interactions and contextual insights that influence their understanding, beliefs, and learning processes. By exploring the origins and significance of Bhutan's sacred places, students constructed knowledge influenced by the cultural and environmental elements presented in the virtual environment, reflecting the principles of the theory.

In Bhutan, traditional lecture-based teaching methods continue to dominate, limiting students' opportunities for real-world experiences and outdoor learning (Rinzin, 2021). This limitation is due to various factors including safety concerns, financial constraints, geographical challenges, health issues, and the significant time required for field trips. A single field trip

occupies an entire day, disrupting the learning of other subjects and raising questions about its effectiveness. Rabgay (2015) highlights the importance of transitioning to student-centered pedagogies and integrating technology-based learning methods. However, the introduction of VFTs offers a promising alternative to enhance the quality of education in Bhutan by bridging existing gaps. VFTs provide an interactive experience, enabling students to explore and learn about diverse subjects and relevant locations without leaving the classroom.

Kenna and Potter (2019) highlighted that synchronous VFTs, facilitated by video conferencing platforms like Zoom, or Google Meet, enhance learning through instant communication and feedback. This approach was applied during the virtual trip to Dodeydrak Monastery and Samtengang Lake, where students explored these sacred places under the guidance of the principal, a monastery monk, and the local leader (Gup). Using Zoom enabled real-time engagement, strengthening students' understanding of cultural and spiritual heritage. These trips revealed the hidden stories and the origins of the lake, its cultural significance, and local beliefs,

encouraging emotional connections, curiosity, and a deeper appreciation for Bhutan's sacred places.

Asynchronous VFTs, as described by Kenna & Potter (2019), provided flexible, pre-recorded experiences, allowing students to learn at their own pace. This approach included expert insights alongside historical, cultural, and spiritual knowledge of Bhutan's sacred places. Recorded videos of significant sites made cultural exploration more accessible, encouraging curiosity, appreciation, and cross-cultural understanding. The blend of expert storytelling and selected recordings created an engaging and authentic learning experience, deepening students' understanding of Bhutan's heritage while promoting global harmony and respect for diverse cultures. The VFTs consist of three key phases (Kenna & Potter, 2019):

1. Pre-planning phase:

This phase is crucial for successful VFTs (Tshering & Chalermnirundorn, 2023). It involved introducing the topic, setting learning objectives, and providing background information on sacred places through handouts and videos. Pre-trip assignments and guidelines ensured active participation, while coordination with stakeholders like the principal, monastery monk, and local leader (Gup)

provided valuable insights. A detailed schedule aligned the talks with learning objectives, creating an immersive environment that deepened students' understanding of Bhutan's cultural heritage.

2. Implementation phase:

A stable internet connection and engaging media are crucial for effective VFTs, enabling digital learning (Sriarunrasmee et al., 2015). Educators set clear objectives and used interactive activities like live discussions, multimedia presentations, Q&A sessions, and polls to enhance collaboration and engagement (Tanoos, 2019; Chen & Zhang, 2023). This approach encouraged group activities where students shared perspectives through slides, stories, art, songs, and skits, while note-taking, worksheets, and live chats supported comprehension and creativity, leading to improved learning outcomes.

3. Assessment phase:

Post-trip discussions reinforce learning by allowing students to reflect on their experiences and deepen their understanding of VFTs. These sessions emphasized assessing learning outcomes (Bond et al., 2022) and linking virtual experiences to real-life contexts (Lan, 2020). Students shared challenges and lessons learned, promoting critical thinking, while feedback from teachers and peers encouraged

a growth mindset and continuous improvement for future projects.

Integrating VFTs into the curriculum required careful planning, but educators faced challenges such as technical difficulties, lack of support, and limited resources, which hindered the VFTs' effectiveness (Chiu, 2021). Maintaining student engagement was also difficult without the physical interaction and sensory experiences of real-world settings. Despite these obstacles, VFTs became popular for providing access to diverse resources like historical sites, museums, and cultural landmarks (Jones & Washko, 2021), encouraging curiosity and deeper engagement (Shahzad, 2023). Multimedia tools and simulated experiences created dynamic, immersive environments that supported active participation and knowledge retention.

VFTs were also recognized as cost-effective alternatives to traditional field trips, eliminating transportation and admission fees (Valtins & Muracova, 2019). They promoted safety and inclusiveness, allowing students with mobility challenges to participate. By incorporating auditory,

visual, and kinesthetic modalities, VFTs catered to diverse learning styles and enhanced comprehension (Harrington et al., 2021), highlighting their transformative impact in the post-pandemic era.

CONCEPTUAL FRAMEWORK

The study examined two variables: the independent variable, the virtual field trip (VFT) approach, and the dependent variables, students' learning achievement and students' learning satisfaction. It focused on using VFTs to enhance social studies achievement among Grade 6 Bhutanese students, addressing challenges such as the COVID-19 pandemic, natural disasters, physical disabilities, and health issues that often limit access to traditional field trips. Students' learning achievement was measured through pretest and posttest evaluations, while learning satisfaction was assessed through subjective feedback from semi-structured interviews. By analyzing both cognitive and emotional outcomes, the study demonstrated how VFTs serve as an innovative teaching method, overcoming traditional barriers and enriching students' educational experiences.

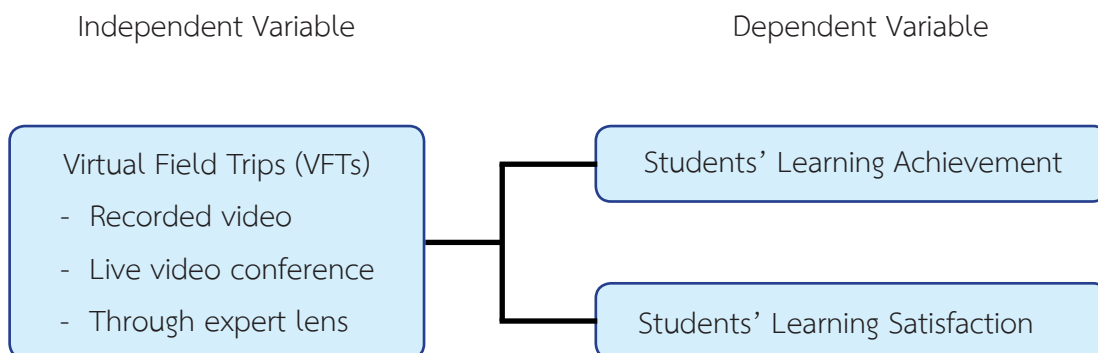


Figure 1 Illustration of the independent variable and dependent variable

RESEARCH METHODOLOGY

A quasi-experimental design was adopted in this study, which combines both quantitative and qualitative research methods. A pretest was conducted before the four-week teaching period, followed by a posttest to assess students' learning achievement both before and after implementing the VFTs approach

1. Population and Sample

The clustering process used for sampling aimed to ensure both representativeness and efficiency in selecting participants from a total of 210 Grade 6 students across 7 sections in the research school. Each section was assigned a unique identifier, and a random number generator selected one section, such as Section C

if the number “3” was generated. The selected section, with 30 students, formed the sample, maintaining natural group dynamics and minimizing disruption. The sections included students of mixed abilities, ensuring diversity. The random selection resulted in a balanced group of 15 males and 15 females, aged 13 to 14, ensuring generalizable findings and methodological rigor.

2. Research Instruments

2.1 Lesson plan

The researcher developed 4 lesson plans of 90-minutes and 1 lesson plan as 2-sessions to teach Social Studies to grade 6 Bhutanese students about “Sacred Places of Bhutan” using a VFTs strategy. The lessons were conducted

over 4 weeks with 8 sessions in total. The lesson incorporated pre-recorded videos, expertise of professionals, and live video conferencing to connect with the world, explore, and learn about cultures and historical places without leaving the classroom.

2.2 Learning Achievement Test (pretest and posttest)
The researcher designed a learning achievement test on the topic of Sacred Places of Bhutan, comprising 10 multiple-choice questions (10 marks), 5 true/false questions (5 marks), and 3

Table 1 Lesson outline with topic and methods

Week	Topic: Sacred Place	Methods
I	Virtual Trip to Dechenphug Lhakhang	Utilize a pre-recorded video for a virtual exploration to examine its historical context and spiritual significance followed by discussion and presentation.
II	Interactive Virtual trip to Dodeydrak Monastery	Conduct a live video conference (Zoom), followed by live Q&A session with the monk and the principal, and facilitate discussions.
III	Virtual Field Trip to Samtengang Lake	Implement a live virtual field trip, followed by live interview with the local leader (Gup), and organize team discussions and presentations based on it.
IV	Travel virtually through the lens of an experts.	Engage with an expert through a recorded video and Q&A session, followed by a discussion based on the expert’s experiences. Encourage students to present their findings and virtually showcase a selected sacred place.

short-answer questions (5 marks), aligned with the Bhutanese Education framework by REC and BCSE, and following Bloom's Taxonomy. The test was administered to research participants before and after the VFT intervention to assess its effectiveness on their learning achievement. To ensure consistency, the same test was used for both the pretest and posttest.

2.3 Semi-Structured Interview

A semi-structured interview is a qualitative research method used to gain in-depth insight into a respondent's feelings and perspectives on a particular issue (Kurkowska-Budzan et.al., 2021). The researcher employed semi-structured interviews to collect data from participants after the VFT intervention. The interviews included five open-ended questions and were conducted in groups of five or six, lasting 5-6 minutes. Participants had the option to respond in either Dzongkha or English, and responses were audio-recorded, translated, and transcribed. Thematic analysis was applied, with significant phrases coded and categorized into five main themes: 1) Reform in Learning, 2) Deepening Historical and Cultural Insights, 3) Memorable Learning Experiences, 4) Virtual Adventures, and 5) Finding New Passions. Expert validation ensured the credibility of the findings, providing

valuable insights into the impact of VFTs on education in Bhutan.

3. Validity and Reliability

3.1 Validity

According to Piemontese et al. (2022), described the term "validity" as how well an assessment tool captures the relevant aspects of the subject it is intended to assess. In this study, three experts—a professor from Rangsit University and two experienced social studies teachers from Bhutan—validated the study tools, including lesson plans, test items, and interview questions, using the Item Objective Congruence Index (IOC). The IOC score ranges from -1 to +1, with +1 indicating full alignment with the research objectives, 0 representing no alignment, and -1 suggesting irrelevance. All instruments received scores between 0.67 and +1, considered acceptable by the experts.

3.2 Reliability

Middleton (2023) stated that a measurement is reliable if consistent outcomes are achieved under the same circumstances. In this study, the Kuder-Richardson formula (KR-20) was used to assess the reliability of the test's learning outcomes, utilizing the Statistical Package for Social Sciences (SPSS) software. The KR-20 formula is designed to measure internal consistency for tests with binary

results (Bobbitt, 2022). A pilot test with 30 grade 7 students achieved a KR-20 coefficient of 0.76, indicating the test items were reliable and consistent for measuring learning outcomes.

4. Ethical Considerations

The researcher followed strict ethical standards throughout the study, obtaining all necessary approvals before proceeding. An approval letter from the Research and Development Institute of Rangsit University, dated April 12, 2024, was submitted to Ministry of Education and Skill Development, Bhutan (reference number DSE/SLCD (05)2024/508). Additional approvals were secured from the school principal, the Head of the Humanities Department, and the relevant subject teacher (reference number DHSS (2024) 306). Parental consent was obtained for participants under 18 after providing detailed study information. All students were briefed on research procedures, and their data, anonymized using a coding

system (e.g., Student 1, Student 2), was used solely for research purposes, ensuring participants' rights were safeguarded.

RESEARCH RESULTS

Analysis of achievement test scores

The study used a paired sample t-test to assess the impact of VFTs on the learning achievement of grade 6 Bhutanese students. The mean scores increased from 11.35 (pretest) to 15.02 (posttest), with a mean difference of 3.67. The p-value of .01, which is below the significance value of .05, confirmed statistically significance increase in posttest scores. The results indicated the success of VFTs in enhancing the social studies performance of grade 6 Bhutanese students, supporting the first research objective and hypothesis. The table presents the findings of the statistical analysis for the achievement test results for the targeted group.

Table 2 Sample T-test Analysis

Group	Pretest		Posttest		Mean Difference	t	P-Value
	\bar{X}	SD	\bar{X}	SD			
Sample Group	11.35	2.77	15.02	1.90	3.67	-8.546	.01

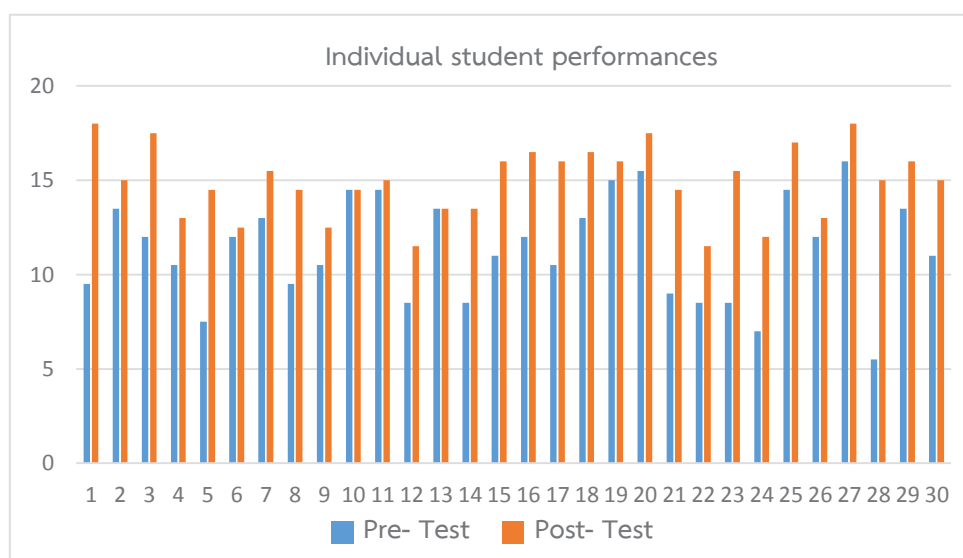


Figure 2 Comparative graphical representation of individual student learning

Figure 2, showed individual learning achievement scores in the pretest and posttest, with the blue line representing the pretest scores and the orange line for posttest scores. The graph indicated that 28 participants improved, while 2 (Students 10 and 13) maintained the same scores. Although VFTs enhanced engagement and enthusiasm, they did not always improve test performance, possibly due

to learning styles, adaptation speed, test anxiety, or personal circumstances.

Qualitative Analysis: Students' Learning Satisfaction

The second objective of the study was to determine whether using VFTs in social studies would lead to learning satisfaction of the student. After the instructional sessions, face-to-face interviews were conducted in 6 groups, each lasting 5-6 minutes,

with student identities kept confidential using codes. The data were organized into 5 themes based on students' experiences: 1) Virtual Adventures, 2) Memorable Learning Experiences, 3) Deepening Historical and Cultural Insights, 4) Discovering New Passions, and 5) Reform in Learning. Thematic analysis showed that most students gave positive feedback, indicating that VFTs significantly improved their learning experiences and learning satisfaction in social studies.

1. Virtual Adventures

Incorporating VFTs in social studies provided an engaging, immersive experience for students, who compared it to being in a movie while exploring historical sites. It offered a sense of adventure, especially when physical travel was not possible, significantly enhancing their engagement and excitement by combining education with virtual exploration. "It felt like an adventure and movie, where we were learning history while exploring places in Bhutan. It was like going on a journey I couldn't physically go." (Student 5, Group 3)

2. Memorable Learning Experiences

Integrating VFTs in social studies enriched students' learning through interactive activities, leaving a lasting impact. Using technology to explore sacred

place via recorded videos, live conferences, and expert insights enhanced their cultural understanding, offering a more engaging and dynamic educational experience.

"It was our first time doing research, preparing a presentation, and presenting virtually. I'm grateful for the opportunity to work in team." (Student 29, Group 2).

3. Deepening Historical and Cultural Insights

Exploring VFTs enhanced students' understanding of cultural traditions, historical aspects, and the significance of sacred sites. These virtual trips deepened their appreciation of cultural landmarks by providing captivating stories and insights into their origins and importance. "We gained new knowledge about sacred places, traditions, and culture, especially the stories behind their names and the meaningful beliefs and values." (Student 14, Group 6)

4. Discovering New Passions

Incorporating VFTs motivated students' interest in history and social studies by exploring Bhutan's sacred sites and interacting with locals and guest speakers. This enriched their learning and encouraged curiosity in subjects like geography and cultural studies. Creating vlogs also helped develop skills in technology, storytelling, and media production,

positively influencing their academic and career aspirations. “I discovered a new interest in learning. I plan to record videos of sacred places, sharing their stories and values, especially for those who can’t visit.” (Student 12, Group 5)

5. Reform in Learning

Incorporating VFTs into social studies offered an innovative and engaging learning experience, allowing students to explore culturally significant locations virtually. This approach was both interesting and enriching, encouraging virtual adventures and embracing new changes in teaching and learning. “we only learned from textbooks and never experienced the different sacred places, but now we can travel the world and learn anytime, anywhere.” (Student number 20, Group 4)

RESULTS CONCLUSION AND DISCUSSION

1. Results Conclusion

This study found that VFTs significantly enhanced the learning achievement of Grade 6 Bhutanese students in social studies, as indicated by a mean score increase of 3.67 between the pretest (11.35) and posttest (15.02) with a statistically significant p-value of .01. These results align with prior research (Ofianto et al., 2023; Kweku et al., 2022), demonstrating that VFTs

enhance academic performance by providing meaningful, real-world learning experiences. The study further supports the effectiveness of VFTs in social studies by bridging classroom learning with immersive experiences.

The findings are consistent with established learning theories. Kolb’s (1984) experiential learning theory underscores the value of active participation and real-life engagement, which VFTs facilitate through interactive elements like live video conferencing. By allowing students to explore Bhutan’s sacred sites, VFTs also reflect Bronfenbrenner’s Ecological Constructivist Learning Theory, which emphasizes the influence of cultural and environmental contexts on learning. Overall, this study reinforces the effectiveness of VFTs in improving academic achievement while promoting deeper educational and personal development.

The study found that VFTs significantly enhanced students’ learning satisfaction and motivation by creating an engaging, immersive environment through high-quality visuals, interactive features, and storytelling. This approach, which aligns with findings by Mead et al. (2019) and Ariesta et al. (2024), improved students’ attention and cultural appreciation. Additionally, VFTs developed

students' digital literacy and technical skills, such as video recording and editing, while increasing confidence and creative expression. By becoming content creators, students took ownership of their learning and promoted cultural awareness. The experience also reflected Bronfenbrenner's Ecological Constructivist Learning Theory, highlighting the impact of environment and culture on learning. Overall, VFTs enriched education by enhancing engagement, digital skills, and cultural understanding, preparing students for future academic and career opportunities.

2. Discussion

The study highlighted the value of integrating VFTs into social studies to bridge textbook learning with real-world experiences. Recorded videos, live video conferences, and expert interactions contributed to enhanced learning achievement and learning satisfaction, with VFTs leading to higher test scores and increased student engagement. Although VFTs improved motivation, they did not always result in immediate improvements in test scores.

Educators use Kahoot to assess students' understanding and engage them in a relaxed, interactive manner (Abebe,

2021). The study suggests combining VFTs with Kahoot quizzes to alleviate test anxiety and enhance learning outcomes. Kahoot's game-like format allows students to demonstrate their knowledge in a low-pressure environment, reinforcing key concepts and providing immediate feedback. This integration promotes collaboration, active participation, and deeper student engagement, ultimately improving comprehension and retention.

The findings of the study demonstrated promising results regarding VFTs in education. However, several limitations must be addressed to contextualize these results and effectively guide future research. Firstly, the study was conducted with a small sample size ($n = 30$) in one higher secondary school in Thimphu, Bhutan, which limits the generalizability of the findings. Future studies with larger, more diverse samples would improve the external validity of the results.

Secondly, the one-month duration of the study was insufficient to assess the long-term effects of VFTs on educational outcomes. It is recommended that future studies extend their duration to at least three months to provide more reliable data on the sustained impact

of VFTs. The short timeframe was due to the school's academic schedule, highlighting the need to coordinate extended studies with the institutional calendars.

Thirdly, the research was limited to a single chapter and three types of VFTs, which does not offer a comprehensive view of the diverse formats and subject areas that VFTs can cover. Future research should explore various types of VFTs and subjects to capture the full range of their educational benefits.

Additionally, restrictions on photographing sacred sites in Bhutan posed challenges in fully showcasing the cultural and architectural details of these locations. This limitation highlights the need for innovative solutions to enhance

content authenticity while respecting cultural sensitivity.

Lastly, the lack of empirical studies on VFTs in Bhutan presents both a challenge and an opportunity. Future research should involve a broader demographic, multiple grade levels, and diverse methodologies, such as longitudinal or comparative studies, to strengthen the evidence base for VFTs in Bhutan.

Addressing these limitations will allow future research to strengthen the evidence for integrating VFTs into education, promoting immersive and independent learning, and advancing education in Bhutan.

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