

Extent of Use of Virtual Field Trips in Instruction of History and Government Among Secondary Schools in Murang'a County, Kenya

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Abstract

The use of field trips for instruction has been limited by the cost of trips, logistical planning, time taken in traveling, and learners' safety concerns. This has led to the adoption of Virtual Field Trips (VFTs) that offer opportunities for learners to virtually visit historical sites for learning. However, the utilization of VFTs in teaching and learning History and Government in secondary schools has not been sufficiently researched and documented in Kenya thus the essence of the study. The study was guided by Technological, Pedagogical, and Content Knowledge Theory (TPACK) and adopted a Quasi-Experimental Design targeting thirty-five public sub-county secondary schools. Schools and teachers were purposively sampled while learners were randomly selected. A sample size of 372 respondents took part in the study. Learners' questionnaires, interview schedules for teachers, and classroom observation schedules were used to collect data. The study found that majority of teachers and learners were not aware of the use of VFTs for teaching and learning. Further, even after training, teachers were not able to effectively use VFTs in instruction. Against these findings, this study recommended that the Ministry of Education and Teachers Service Commission should team up and organize training for teachers to equip them with ICT skills for preparation and use of VFTs for teaching and learning. Also, teacher training institutions should endeavor to equip teacher trainees with ICT skills to exploit VFTs in their specific teaching-learning areas.

Keywords: *Virtual Field Trips (VFTs), Information Communication Technology (ICT), Instruction, History and Government, Learning*

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1.0 Introduction

The teachers of History use several teaching methods to deliver content to learners. They can use teaching methods such as lecturing, role-playing, discussions, explanations, field trips, presentations, and projects among others (Abdallah et. Al., 2023). While all these methods can easily be used in teaching, teachers of History have frequently used the lecture method although it is non-interactive. This continued use of the lecture method in teaching History has limited the development of learners' critical thinking and analytical skills that are necessary for a historian (Achieng, 2021). As such, the art of teaching and learning History and Government has not been motivating and engaging learners in understanding the content taught but rather, it has promoted rote learning. Similarly, Mwathwana et. al, (2014) observed that teaching and learning of History and Government was dull and unexciting. This calls for utilization of Virtual Field Trips (VFTs) in teaching, which is an appropriate technique that has been noted to enhance learning.

The development of programmes such as Computers for Schools Kenya, establishment of the National ICT Innovation and Integration Centre, and Centre for Mathematics, Science and Technology Education in Africa was intended to improve the quality of teaching and learning (Kipkoech, 2021). However, studies in Kenya indicated that utilization of ICT was more emphasized in teaching and learning mathematics and sciences (Kisirkoi, 2015; Mavu, 2021). This has underscored the use of technology in teaching and learning other subjects such as History and Government. Such preferences have made teaching History and Government to be regarded as boring, and not able to raise learners' interest and enthusiasm or motivate learners to learn (Talin, 2014). The use of VFTs in some countries has been observed to motivate and engage learners during the teaching and learning process. Therefore, since little was known about the use of VFTs, it was necessary to carry out a study to establish the extent of their utilization in instruction of History and Government in secondary schools in Murang'a County in Kenya.

2.0 Literature Review

The use of VFTs in teaching and learning History provides teachers and learners with ease of access to a variety of historical resource materials. Such resource materials may be used to evoke and develop learners' historical inquiry skills as they learn as well as meet their individual needs (Han, 2021). Also, the use of resource-based VFT materials for instruction can bring out historical issues in engaging sessions that foster collaboration among learners as well as develop historical thinkers, (Amengor, 2017). Further, through the use of VFTs, modern teachers of history can adopt learner-centered teaching approaches that enable learners to develop and understand the taught concepts. However, even though VFTs can make instruction lively and interesting, Mwachana et. al, (2014) and Veeraragoo (2018) noted that to some extent, the teaching of History has sometimes been dull, boring, and unexciting as a majority of teachers of History are yet to embrace ICT in teaching.

VFTs can be presented asynchronously or synchronously using ICT devices (Cheng & Tsai, 2019). Their utilization in instruction has been noted to concretize learning of abstract concepts and bring reality to the learners in the classroom. VFTs for teaching have been deemed appropriate as teachers can save on time spent on traveling for actual field trips, planning logistics, and financial burdens as well as ensure learners' safety. Through VFTs, teachers of History have been able to design lessons that are interactive, entertaining, and engaging (Cheng, 2022). Such lessons enable learners to develop critical thinking skills that act as a foundational base for conceptualizing historical concepts rather than practicing rote learning (Kipkoech, 2021). Consequently, use of VFTs in teaching and learning History allows learners to hold discussions with each other and identify connections in historical issues to analyze historical situations for clearer understanding by using technology (Rahman, 2014). Thus, usage of VFTs in teaching and learning can enhance learners' understanding of the content being taught.

Nevertheless, in as much as teachers in some countries have embraced use of VFTs in instruction of History, the biggest challenge has been in preparation and use during classroom teaching (Amengor, 2017). Research indicates that effective use of VFTs in teaching and learning in the USA, Australia, the Czech Republic, France, Britain, Hong Kong, China, Malaysia, and Hungary has been achieved through the government's ability to train teachers to use ICT and, supplying and maintaining the required infrastructure and tools, (Kenna & Potter 2018). On the contrary, studies done in Brazil, Sri Lanka, the Philippines, and India have indicated that there is limited use of VFTs in teaching and learning in schools due to inadequate ICT infrastructure, planning, and lack of skills by both teachers and learners, (Mead

et al., 2019). As such, effective utilization of VFTs depends on teachers’ ability to exploit technology meaningfully to organize teaching and learning resources.

In Africa, studies indicate that for a long time, teachers of History have taught through lectures, presentations, and tutorials to enable learners to rehearse the content taught (Achieng, 2021). However, the use of VFTs for instructional purposes has brought in a new paradigm shift in pedagogical approaches such that few teachers of History in Nigeria, Rwanda, and South Africa have been able to use multimedia formats such as videos and animations to prepare asynchronous VFTs that make learning authentic to enhance learners’ performance (Ayeni & Afolabi, 2012; Nsekandizi, Karanganwa & Andala, 2020). However, in Tanzania and Kenya, technology in teaching has been more focused on the teaching of mathematics and science-oriented subjects (Amengor, 2017; Kelfine, Maiyo & Okere, 2018). This pushed other subjects such as History into the periphery yet this subject can benefit more learners by utilizing VFTs bearing in mind that historical sites may be located in remote and inaccessible places and parents may not afford to pay for actual field trips.

3.0 Methodology

The study used a Quasi-Experimental Design to collect qualitative and quantitative data from learners' questionnaires and interview schedules for teachers where respondents gave their opinions which were reported as they were (O’Leary, 2014) and triangulated using data from classroom observation schedules to support the study conclusions. The study had experimental and control groups. The experimental group was exposed to the treatment of teaching through a Virtual Field Trip (VFT) while the control group was not exposed to treatment. Through this design, the study was able to investigate the extent to which teachers utilized a VFT in teaching and learning.

3.1 Target Population and Sample Size

The target population of the study was the total number of sub-county public secondary schools that were within Murang’a County and were supplied with ICT infrastructure and tools for teaching and learning by 2012. This population was made up of teachers of History and Government and form one learner. A sample size was derived to assist in generalizing the study's findings to the entire population (Kumar, 2018). The sample size should be as big as possible to ensure research findings from the sample are as similar as possible to the entire population's findings (Cohen, Manion & Morrison, 2013). According to Mugenda & Mugenda (2012), a sample size of 10% and above of the target population is adequate for data analysis. Thus Table 1 gives a comparison of the target population to the samples of the study.

Table 1: Target Population to Sample

S/No	Description	Number of Schools	Sample size	Percentage sampled
1	Schools	35	4	11.4%
2	Teachers	89	12	13.5%
3	Form one learners	3,240	4 schools x 2 classes of approximately 45 learners = 360	11.1%
4	Total population	3,329	372	11.2%

Table 1 indicates that four (4) schools were derived from the entire Murang’a County to be used in the study. Two (2) schools were involved in the study as the control group while the other two (2) were in the treatment group. One (1) History and Government subject head from

each school under study and two (2) teachers from each identified school were involved in the study thus, twelve (12) teachers of History and Government. Also, two (2) classes of approximately forty-five (45) form-one learners in each of the identified schools participated in the study either as a control or treatment group giving a total of three hundred and sixty (360) learners. Therefore, the total sample size was three hundred and seventy-two (372) respondents.

3.2 Research Instruments

These are tools that a researcher uses to collect, measure, and analyze relevant, suitable, and necessary data for the study to safeguard the integrity and sustenance of research questions (Kumar, 2018). They also minimize errors likely to affect the results and ensure accuracy and informed decision-making (Cohen, Manion & Morrison, 2013). In this study, three research instruments were used. There were questionnaires for learners of History and Government, interview schedules for teachers of History and Government, and, classroom observation schedules. The varied instruments were for triangulation and to complement research findings to make valid conclusions and compensate for insufficient data. The questionnaires for learners were appropriate for this study since they are good at collecting huge amounts of qualitative and quantitative data free of bias from respondents, ensure the anonymity of respondents, and are very reliable when dealing with literate people (O'Leary, 2014). Teachers' interview schedules largely used structured questions and were conducted face-to-face and involved History and Government subject heads and teachers of History and Government, the classroom Observation Schedule was used to collect purposeful and systematic data by observing participants of the study as the activity was going on (Plowright, 2011) to ensure objective keying of observable activities of the teaching and learning process. The research instruments were piloted to establish the suitability and adequacy of the research instruments used in the study (Mugenda & Mugenda, 2012). The study was validated to ensure that data collected from the sampled respondents represented the actual findings of all the members of the target population (Kumar, 2018). Reliability of the study was actualized through Test-retest method. The reliability of the study was accepted at $r=0.657$. Data was collected and analyzed after observing logistical and ethical considerations. All the required offices were informed of the study and the research was authorized by the required agencies. The respondents were assured of confidentiality of information given and participation in the study was voluntary. Ethics were observed by acknowledging the sources of information and giving citations where necessary. Ethics was also observed during data collection, analysis, and reporting of the study findings. Data interpretations were done as per the data collected from the field and studies conducted by other scholars.

4.0 Results and Discussion

The data collected from the study was interpreted and analyzed to establish the extent of utilization of VFTs in teaching and learning History and Government. The data was presented in tables, graphs, and narrations. The study sought information on the availability of ICT devices, their adequacy, and present conditions for utilization of VFTs in teaching and learning.

4.1 Availability of ICT Devices for Teaching and Learning History and Government

The study intended to establish the ICT devices that were available for teachers and learners to use in secondary schools. The learners' responses were as indicated in Table 2.

Table 2: Learners Views on Availability of ICT Devices in Schools

S/No	ICT Devices	Available (%)	Not sure (%)	Not available (%)
1	Desktop Computers	308 (91.9%)	23 (6.9%)	4 (1.2%)
2	Laptop Computers	321 (95.8%)	7 (2.1%)	7 (2.1%)
3	Internet Connectivity	297 (88.7%)	25 (7.5%)	13 (3.8%)
4	LCD Projectors	324 (96.7%)	8 (2.4%)	3 (0.9%)
5	SMART boards	2 (0.6%)	327 (97.7%)	6 (1.7%)

The results from Table 2 indicate that learners of History and Government were aware of the ICT devices in their schools. The majority of learners (91.9%) indicated there were desktop computers, 95.8% noted there were laptops, 88.7% observed there was internet connectivity and 96.7% indicated there were LCD projectors. Also, majority of learners (97.7%) indicated they were not sure if smart boards were available in their schools. This indicates that during the period when ICT devices were being supplied to schools, smartboards were not among them. This points to dependence on government support since no school that was involved in the study had managed to buy a smartboard. However, from the findings, it was evident that schools had devices that could be used to prepare and utilize VFTs for teaching and learning History and Government.

The teachers of History and Government also gave their views on the ICT devices available in their schools. Their responses were as indicated in Table 3.

Table 3: Teachers views on Availability of ICT Devices in Schools (N = 12)

S/No	ICT Devices	Available (%)	Not sure (%)	Not available (%)
1	Desktop Computers	12	0	0
2	Laptop Computers	10	1	1
3	Internet Connectivity	12	0	0
4	LCD Projectors	11	0	1
5	SMART boards	0	0	12

From Table 3, it was clear that most of the ICT devices supplied by the MoE were available in schools. From teachers' interviews, all the teachers involved in the study indicated that there were desktop computers and internet connectivity. Consequently, only one (1) teacher said LCD projectors were not available in their school. Further, one (1) teacher was not sure of availability of laptop computers while another (1) teacher said laptops were not available. Lastly, all teachers said there were no Smartboards in schools. These views agree with those of the learners indicating there were ICT devices for use in schools. Therefore, using VFTs in the selected schools for teaching and learning was possible.

The availability or lack of ICT devices in schools would highly affect their use by teachers and learners in secondary schools (Marshall & Higley, 2021). The ICT devices in schools would form a basis for understanding the extent of utilization of VFTs in teaching and learning. Additionally, according to Man & Olchawa (2018) and Mead et al. (2019), the presence of ICT in schools would make learners appreciate the use of VFTs in learning. As such, schools under study had ICT devices that would be used by teachers for teaching and learning save for Smart

Boards. Therefore, ICT devices were available in schools for students to use in learning History and Government.

The agreement of teachers and learners on the availability of ICT devices in schools for teaching and learning is a good indicator that schools were equipped with facilities that could support the use of VFTs for teaching and learning. This was also a pointer towards equity in distribution of educational teaching and learning resources in schools. Accordingly, (Kenna & Potter, 2018) observed that those devices form the basic framework of preparation and utilization of VFTs for teaching and learning. The presence of such ICT devices was noted to be instrumental in teaching and learning in other countries. For instance, Mavellas, Wellington & Samuel (2015), noted that schools in Zimbabwe had ICT devices such as computers, projectors, radios, and televisions for teaching and learning.

Consequently, the presence of ICT devices in schools is necessary for creating and disseminating information for teaching and learning (Ali, Ahmad & Seman, 2017). Instructional resources such as computers and projectors are core in preparation and use of ICT for teaching. Accordingly, Kenna & Potter (2018) observed that the availability and access of ICT devices for teaching and learning determines their use in the classroom. Thus, the lack of these devices has been the key challenge to the use of ICT in the developing world. However, research findings in countries like South Africa and Ghana have indicated that scarcity of ICT devices has led to limited use of ICT in teaching and learning Man & Olchawa (2018) and Marshall & Higley (2021). These findings are supported by other studies from Nigeria that indicated a lack of ICT facilities in schools and power failure led to teachers' failure to use ICT in teaching and learning (Harron, Petrosino & Jenevein (2019). However, where ICT devices are available, teachers have attempted to use them for lesson preparation, delivery as well as giving assignments.

The presence of ICT devices in schools indicates that teachers can access and use them for teaching and learning. This could be a result of study findings that indicated that the use of ICT in teaching would enhance the learning process. Thus, it would be possible for teachers using ICT to easily adopt the use of VFTs for teaching and learning. However, the success of usage of VFTs can only be realized if there are ICT devices that are at the disposal of teachers for instruction purposes. The findings from this study established that there were basic ICT devices in secondary schools that could be used for teaching and learning. Therefore, lack of use of VFTs in teaching and learning History and Government in schools under study may not be a result of unavailability of ICT devices.

4.2 Adequacy of ICT devices for teaching History and Government

The effective utilization of VFTs in teaching and learning relies heavily on the availability of sufficient and suitable ICT devices for both teachers and learners within a school environment. Teachers and learners gave their views on adequacy of devices available in schools for teaching and learning. The learners' observations were as in Table 4.

Table 4: Adequacy of ICT Devices for Teaching and Learning of History and Government

S/No	Adequacy of ICT	No of Learners	Percentage
1	Yes	93	27.8 %
2	No	242	72.2 %
3	Total	335	100.0 %

From Table 4, it is notable that 93 (27.8%) of the learners felt that the ICT devices in their schools were adequate for use in teaching and learning. However, 242 (72.2%) of the learners indicated that the devices in their schools were not adequate for teaching. From the study, majority of the learners were of the view that in as much as ICT devices were available in their schools, they were not enough for use in learning. Learners indicated that there were few computers in the schools and the computer rooms were often congested. This observation points to the limited time that learners could have to interact with ICT devices. However, since learners process information differently, exposing them to ICT during lesson time only may not have the much-needed time to enhance understanding. As such, there is a need to have more ICT devices that would allow learners to access and interact with teaching and learning materials quite often for a deeper understanding of the taught content.

Teachers of history and Government were also asked about the adequacy of ICT devices in their schools for use in teaching and learning. Their responses were as in Figure 1.

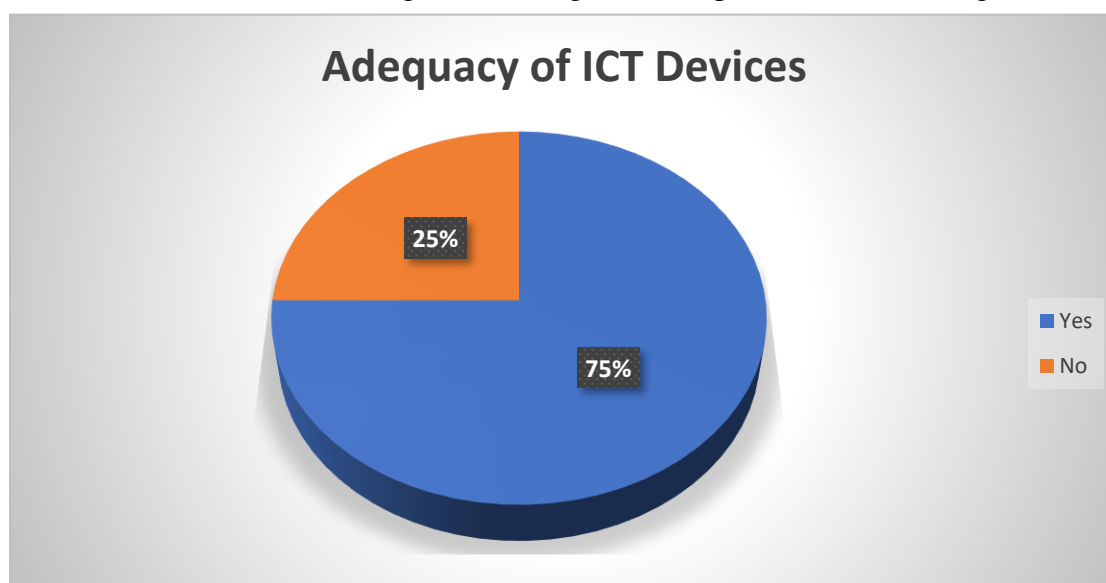


Figure 1: Teachers views on adequacy of ICT devices (N = 12)

Figure 1 shows that nine (9) teachers agreed that the ICT devices in schools were not adequate for use in teaching and learning while three teachers (3) felt the ICT devices in their schools were enough for use by teachers and learners. However, teachers stated that as long as they had access to a laptop and a projector, they could conveniently use them for teaching. Since all the schools under study had a laptop and a projector, then every teacher had an opportunity to use ICT in teaching and therefore, the available ICT devices in schools were adequate for teaching and learning. Consequently, some teachers observed that the use of ICT would be more effective for teaching and learning if learners were allowed to interact with the teaching media as many times as possible. Thus, this calls for teachers and school administrators to allow learners to access and use ICT devices whenever possible for better understanding.

Also, teachers stated that learners could be allowed to have unrestricted access to the ICT room to make use of the available devices. They opined that adequacy of ICT devices does not mean every learner has a computer for learning. They considered that learners could share resources and still learn. In any case, once a VFT has been prepared, learners can be able to share and view it on various platforms. Besides, from the findings of this study, it was established that teachers hardly used the available ICT devices for teaching and learning. This means that the

available ICT devices were underutilized and therefore the aspect of inadequacy should not arise.

However, although some teachers noted that ICT devices were not adequate for teaching and learning, they were concerned that a number of those devices were not functional. The teachers involved in the study stated that more than half of the computers were moved from the ICT integration room to offices. On further probing, in one of the sampled schools, it was established that there were only three computers in the room and only one was functional. In another school, there were several computers in the integration room but were not functional. On closer scrutiny, it was established that all the nonfunctional computers were not of the same model as those supplied by the government. Further probing indicated that whenever an office computer broke down, it would be taken to the integration centre and exchanged with a functional one from the room. All this notwithstanding, some schools have gone ahead and added more ICT devices to assist in teaching and learning. Thus, the issue of having ICT devices that were functional and good for use in teaching and learning entirely depended on the school management.

The adequacy of ICT devices for teaching and learning has had its fair challenges in schools (Petersen et al., 2020). Studies have revealed that the ICT devices for instructional purposes have not been adequate in many educational institutions (Friess, Oliver, Quak, & Lau, 2016) and Lukes (2014). According to Nsekandizi, Karanganwa & Andala (2020) a study in Nigeria established that ICT devices were not available in many secondary schools. The few devices available for teaching and learning were poorly maintained and, in most cases, not for teaching and learning. These studies were also observed in Zimbabwe whereby, several secondary schools did not have ICT devices and the few available were inadequate for effective use (Mavellas, Wellington & Samuel, 2015) while the ICT devices in other schools were not easily accessible for teaching and learning. Besides, inadequacy of ICT devices and poor physical infrastructure led to low usage of ICT in teaching (Masingila et al., 2019 Mead et al, 2019). However, it is noteworthy that the presence of ICT devices in schools are motivators that raise and build learners' interest in learning. These devices have become part of teaching and become indispensable in the classroom teaching.

The use of VFTs in teaching may not be different in any way from the use of ICT in learning. From the study, the teachers stated that there are adequate ICT devices for teaching and learning. Notably, the same ICT devices would be used in preparation and use of VFTs in teaching and learning. As such, since teachers are the main drivers of using or not using ICT in teaching, it is their responsibility to purposefully use VFTs for effective teaching. From this study, it can be concluded that schools had ICT devices that were adequate for preparation and usage of VFTs for teaching and learning of History and Government in the secondary schools identified for this study. However, this could only be achieved if teachers were able to use ICT in teaching since the ability to use VFTs is dependent on integrating ICT in classroom teaching.

4.3 Utilization of VFTs in Teaching and Learning History and Government

The essence of the study was to establish how teachers utilized VFTs in teaching and learning. The use of VFTs in teaching and learning is anchored on teachers' knowledge of VFTs. Still, teachers may not be able to use that which they are not aware of. Thus, it was necessary to establish learners' and teachers' awareness of the existence of VFTs for teaching. The study findings of learners' awareness were as in Table 5.

Table 5: Learners' awareness of VFTs for learning

Learners Awareness of VFTs in Learning			
S/No	Used VFTs in learning	No of Learners	Percentage
1	Yes	156	46.6%
2	No	179	53.4%
3	Total	335	100.0%

From Table 5, it was clear that 156 (46.6%) of the learners had used a VFT in learning while 179 (53.4%) had not used a VFT in learning. This percentage resonates well with learners who had been exposed to a VFT by taking part in the study. Similarly, a big percentage of learners had no idea of a VFT. These findings indicated that the idea of use of VFTs in teaching and learning has not been widely used in schools and therefore the lack of information to the learners on its existence as well as use in teaching and learning.

Similarly, it was necessary to establish whether teachers were aware of VFTs for teaching and learning. Their responses were as in Table 6.

Table 6: Teachers' Awareness of VFTs for Teaching (N = 12)

S/No	Used VFTs in Teaching	No of Teachers
1	Yes	6
2	No	6
3	Total	12

From the study findings, six (6) teachers involved in the study were not aware of VFTs and six (6) teachers were aware of VFTs for teaching and learning. These were teachers in schools that were exposed to VFTs as a treatment group during the research. The concurrence of lack of information on VFTs by teachers and learners in schools involved in the study as the control group was a pointer that the idea of VFTs could be a new concept necessitating educationists to adopt it to enhance teaching and learning in schools. It is upon teachers to innovatively use VFTs in class to make teaching and learning of History and Government enjoyable and interesting thus adding value to learners. These findings are supported by Makransky & Mayer (2022) who reiterated the advent and evolution of technology has been phenomenal. Access to information is not a privilege to a few but rather to many people who are in constant use of technology. As such, becoming aware of the existence of VFTs is an insight that teachers are abreast of the new technologies in teaching and learning. Besides, according to Zhao et al., (2022) the current use of immersive technologies is the game changer that makes the process look new. In any case, VFTs have been in existence in the form of using simple PowerPoint presentations with scanned pictures, downloaded graphics animations, and sharing hyperlinks to give learners additional information (Peterson et al., 2020).

4.4 Teachers' Ability to Prepare VTFs for Teaching and Learning

Consequently, having established teachers' awareness of existence of VFTs for teaching, there was a need to find out if they were in a position to create their own which they could use in their classrooms. From the findings, their responses were as in Table 7.

Table 7: Teachers Ability to Prepare VFTs (N = 12)

S/No	Ability to Prepare VFTs for Teaching	No of Teachers
1	Yes	2
2	No	10
3	Total	12

From the study, the findings indicated that ten (10) teachers stated that they were not able to prepare VFTs while two (2) felt they could prepare their VFTs for teaching and learning. This means many teachers of History and Government do not have the skills to prepare VFTs thereby raising concerns about how teachers can be supported to enable them to prepare VFTs for use during classroom instruction. Teachers' inability to prepare VFTs emanates from their lack of skills. The challenge of inadequate skills has been observed in other studies. Accordingly, studies by Kenna & Potter (2018) observed teacher training was essential to equip teachers and learners with the necessary skills to handle and operate ICT infrastructure and tools during teaching and learning. Secondly, training was necessary to equip teachers with knowledge and skills to prepare and use VFTs for effective teaching and learning (Mavu, 2021; Mogeni, 2020).

The teachers' inability to prepare VFTs for teaching and learning was not a challenge domiciled to teachers within the locale of study. Obadiora (2016) noted that the use of VFTs in teaching and learning History and Government has been limited in Ghana and South Africa by the inadequacy of ICT infrastructure and tools, and technical skills of teachers. Also, studies in Hungary show that only 43% of teachers of History can use VFTs in their classes due to limited ICT skills (Kenna & Potter 2018) and Çapuk (2015). Further, Fraillon et al., (2014) observed in Denmark and Britain that teachers of History have challenges in ICT skills for teaching and learning in specific subject areas.

4.5 Lesson Presentation Using ICT Resource

The use of VFTs in teaching and learning is one of the ways to apply experiential learning in History and Government. According to Das (2021), the choice of a VFT for teaching requires prior planning for effective content delivery during instruction. All prepared VFTs for teaching and learning must be grounded on expected lesson objectives (Dutta, 2018; Haris & Osman, 2015). The lesson or topic objectives must be well articulated to the learners to enable them to focus on the teaching content. To achieve the expected learning objectives, the identified teaching resource ought to be well presented to offer learners with engaging learning experience for effective learning. This was achieved by presenting a prepared ICT-based resource during the lesson observation. In this study, a lesson observation was done when teachers in the treatment group were using the prepared VFT for teaching while observations for the control group were done later. The observations made were as in Figure 2.

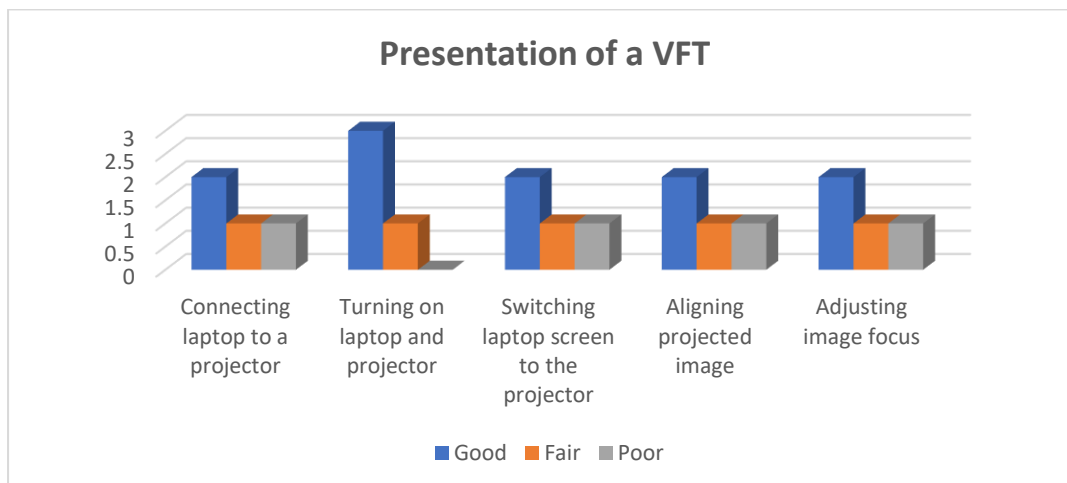


Figure 2: Lesson Presentation Using ICT Resource (N = 12)

From classroom observations, it was clear teachers were not able to easily handle ICT devices. From the study, a classroom lesson observation was done to establish teachers' ability to use ICT during teaching and learning. During the lesson presentation, teachers were expected to be able to connect a laptop to a projector. From the observation, two (2) teachers were able to connect laptops to projectors while one (1) fairly tried to connect and another (1) was not able to connect a laptop to a projector. Also, three (3) teachers were able to turn on laptops and projectors and one (1) tried to turn them on. Further, only two (2) teachers managed to switch laptop screens to the projector and project the designed resource, one (1) other fairly tried, and one (1) was poor at the activity. Consequently, two (2) teachers were able to align the projected image onto a projection area as one (1) fairly did it and one (1) did not manage to align projection. Lastly, two (2) teachers managed to adjust and focus the image well on the projection area while for the remaining two, one (1) was fairly managed and one (1) was not able to focus clearly. The findings from the presentation exposed the challenges teachers were facing in utilizing ICT.

The utilization of ICT-based resources in teaching is grounded on teachers' expertise. Lack of or limited ICT skills has been the biggest handle in using ICT in learning. From the study, it was noted that teachers hardly utilized ICT and this could also have an effect in using VFTs in teaching. For instance, a subject head stated that;

“... although ICT devices have been in this school for over a decade, I hardly use them for teaching and learning. The only time I use them is to teach the topic of World Wars in form four only. I am also aware of CDs that have teaching materials from KICD but I do not use them. Sometimes I feel it would be better if I used them but I don't want to bother people to connect the machines for me” (Teacher A, School B, Female).

This shows that such a teacher may not use ICT devices for a whole year in case she does not have a form four class. Also, majority of teachers agreed they seldom used ICT in teaching. This shows teachers' lack of initiative to embrace the use of ICT regardless of its immense benefits. However, several teachers stated that ICT devices were necessary for teaching and learning and could be used in almost every topic of History and Government. This is an indicator that teachers were aware of the benefits of using ICT and its importance yet they rarely used the devices during the instructional processes. The inability to frequently use ICT devices may affect the use of VFTs in teaching and learning.

These observations concur with those of Djonko-Moore & Joseph (2016) and Ghavifekr et al., (2014) who noted that teachers were handicapped in handling ICT devices especially those that required some manipulations and adjustments. Consequently, Francom (2020) and Masingila et al., (2019) stated that teacher training ensures teachers are competent and can easily use and manipulate technology to enhance content delivery as well as continuous capacity building to equip teachers with the skills necessary to embrace and use VFTs for effective teaching and learning of History and Government. Also, Çaliskan (2011), Lukes (2014) and Mwathwana et al., (2014) opined that teacher training prepares teachers to design their customized resources for utilization in the classroom. Consequently, Veeraragoo (2018) and Wasilwa (2016) observed that teachers could also apply different pedagogical criteria in designing learning content by critically analyzing the merits and demerits of various teaching resources following the general guidelines for the use of teaching media.

Therefore, equipping teachers with VFTs skills would assist them to utilize ICT infrastructure and tools during teaching and learning. It was also necessary to ensure teachers were trained in basic ICT skills while being guided on how to use the skills to infuse and apply teaching methodologies in specific subject areas (Dutta, 2018). This would ensure training was not focused on the acquisition of basic ICT skills while negating the development of pedagogical aspects of ICT but rather infusing technology in teaching and learning to prepare and use VFTs effectively (Capuk, 2015). Subsequently, the utilization of VFTs for teaching and learning requires teachers to guide learners on what they are expected to learn as well as areas of focus (Harron, Petrosino & Jenevein, 2019).

4.6 Infusing Resource in Teaching

The presentation of teaching resources is not about connecting and running devices (Goldhaber, Khuan, & Allysa, 2021). It requires proper planning to achieve the set objectives. The teaching resource should enhance teaching for effective learning (Francom, 2020). From the study, observations were made on how the resources were infused during the teaching and learning process. The findings are as in Figure 3.

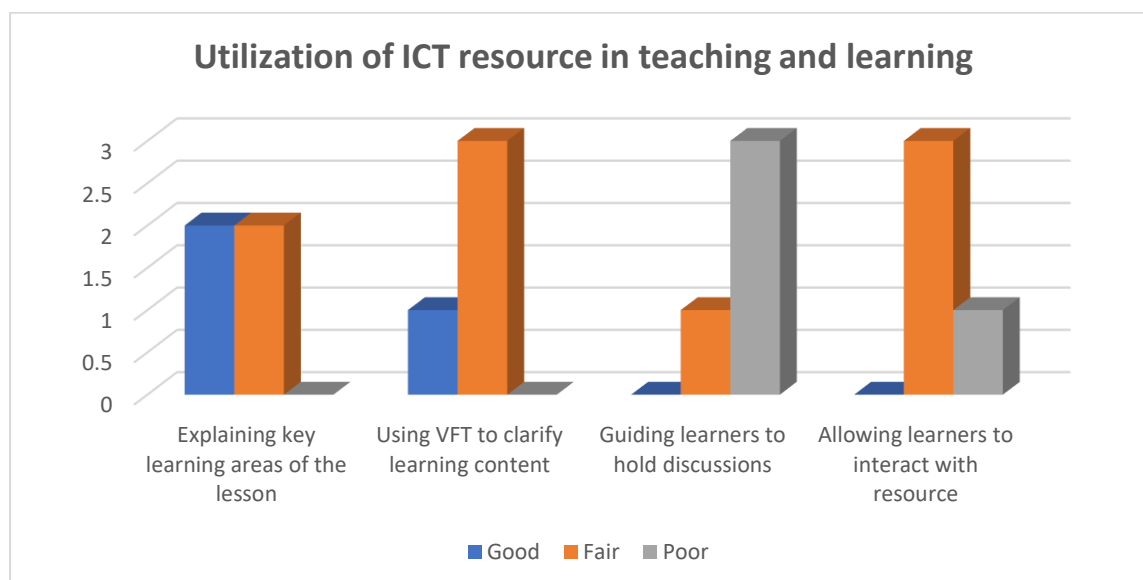


Figure 3: Infusing Resource During Teaching and Learning (N = 12)

According to the study, teachers were not able to utilize the ICT resources effectively for teaching and learning. During the lesson, it was noted two (2) teachers were good at explaining

the key learning areas of the lesson and the other two (2) did it fairly. Also, one (1) teacher was good at using ICT resources to clarify the learning content well and three (3) fairly used the resource. Consequently, one (1) teacher was able to guide learners to hold discussions during the lesson as the other three (3) did not manage. Lastly, three (3) teachers allowed learners to interact with the teaching resource and one (1) did not allow them. The ability to use a teaching resource well enables teachers to effectively deliver the expected content to achieve the learning objective. Teachers are expected to inform learners of the objectives at the start of the lesson to enable them to focus on the expectations. Also, teachers' explanations when using any teaching resource are necessary as none is entirely complete without teachers' input. Lastly, allowing learners to hold discussions after using the resource gives learners room to reflect on the whole teaching-learning process. These strategies are intended to enhance teaching and learning.

The aforementioned teaching-learning strategies have been observed to support teachers in explaining key areas of concern and learning objectives. It has been established that learners who are exposed to a teaching resource ought to be guided by the teacher (Khattak & Jan 2015). Thereafter, the teacher is bound to clarify teaching content referring to the resource. Also, the teacher must give learners some tasks that must be done by referring to the use of teaching-learning resources (Kenna & Potter, 2018; Kihzoza et al., 2016). This allows a learner to interact and interrogate the resource for deeper understanding. Thus, from the lesson observations, it was noted teachers just connected the laptop and the projector and proceeded to show learners the teaching resource without an explanation. This was an indicator that in as much as teachers may use resources, learners may not derive maximum benefits during teaching and learning since teachers were not aware of how to infuse the resource in the lesson for use as a resource. Thus, it was necessary to guide teachers on the best way to utilize resources such as VFTs for effective teaching and learning.

Further, it was necessary to observe teachers' and learners' behaviour as the teaching resource was being used to enhance classroom instruction. From the study, the findings were as in Table 8.

Table 8: Teachers and learners' behaviour when using teaching resources (N = 4)

Observation	Teachers			Learners		
	Agree	Somehow agree	Disagree	Agree	Somehow agree	Disagree
Description						
Readiness to interact with resource	2	2	0	4	0	0
Excited to use resource	4	0	0	4	0	0
Appreciated use of resource	3	1	0	4	0	0

During the study, four (4) classroom observations were made. From the observations, it was noted that in all four observations made, the learners in the four classrooms were ready to interact with the teaching resource, excited, and appreciated the use of the resource in teaching and learning. Accordingly, teachers' behaviour was also observed and recorded. From the study, two (2) teachers were ready to interact with the resource while the other two (2) were somehow ready to interact with the resource. Consequently, four (4) teachers were excited to use the resource, and three (3) appreciated the use of the resource. Lastly, one (1) teacher somehow appreciated the use of resources in teaching and learning.

The utilization of any teaching resource in teaching and learning is dependent on the teacher (Nsekandizi, Karanganwa & Andala, 2020). Teachers are expected to plan and execute appropriate teaching methodologies depending on the content to be taught to make learning effective and meaningful to achieve the intended objectives within the set time frame. As such, according to (Nyaboke, Kereri, & Nyabwari, 2021) teachers must orderly choose the right procedures to guide learners through progressive actions to effectively deliver both general and specific learning outcomes. It is therefore the onus of a teacher to choose the best teaching strategy, identify the right style of teaching, and apply appropriate teaching skills taking into consideration the learners' interests and abilities and appreciating the role of the resource to be able to incite students to learn (Xie, Ryder & Chen, 2019). These strategies are dependent on the teaching facilities available in schools.

The availability of teaching materials and use of ICT devices supported by appropriate technologies or their lack in the institution affects the attainment of learning outcomes (Mead et al. 2019). Since the targeted schools have ICT facilities and devices, the use of such resources can highly affect learners' motivation, engagement, and academic performance (Petersen et al., 2020). Thus, the extent of use of VFTs in teaching and learning solely depends on the teachers' expertise, preferences, and comfort level to effectively deliver the learning content. This means the learners have no control over the teaching strategies used by teachers in the instructional process rather it is a teacher's prerogative to use or not use VFTs in teaching and learning.

The use of VFTs for teaching and learning in the last decade has become quite appropriate in areas that initially required field excursions (Abdallah, Dutt & Pijls-Hoekstra, 2023). Further, Cheng (2022) observed teachers can prepare VFTs for teaching and learning through the use of internet in the form of pictures, videos, and web pages to create scenarios that replicate reality to learners. From this study, some teachers also noted that they would appreciate and be willing to prepare and use VFTs for teaching and learning. It is also evident that the use of VFTs in learning has made teaching convenient, economical, and safe for learners. Consequently, the use of VFTs would enable a teacher to simulate and reconstruct the past that may not be possible to observe in the current times (Freiss et. Al., 2016). As such, Han (2021) noted that the creation of such past experiences and scenarios would make teaching and learning real, exciting, and experiential for ease of understanding. Therefore, teachers must embrace the use of VFTs in teaching since it is possible for a teacher to take learners to many historical places in far flung areas and as many times as possible while it is not easy to undertake actual field trips as often due to planning logistics and cost implications.

5.0 Conclusion

From the study findings, it was clear that there were ICT resources in the identified schools though teachers were not utilizing them for teaching and learning. Also, teachers were not aware of the use of VFTs in teaching and learning of History and Government. Still, in as much as some teachers were introduced to the use of VFTs in teaching, they did not use them appropriately. Further, teachers admitted they could not be able to prepare VFTs for teaching.

6.0 Recommendations

The study recommended the stakeholders in education consider VFTs since they enhance teaching and learning. Also, the study recommends that teacher training institutions should equip trainees with the requisite skills to access and operate ICT devices necessary for instruction. The training should include basic ICT skills to enable teachers to handle and operate various ICT devices to display teaching content to the learners. Also, training should

equip teachers with skills to access online educational materials and prepare and present VFTs for teaching and learning.

References

- Abdallah, A., Dutt, C. S., & Pijls-Hoekstra, R. (2023). Sustaining the experience: students' perceptions of online field trips. *Journal of Teaching in Travel & Tourism*, 1-26.
- Achieng, L. (2021). Perceived Influence of Methods on Effectiveness of Teaching History and Government in Secondary Schools in Rachuonyo North Sub-County, Kenya. (Unpublished Med Thesis, Maseno University).
- Ali, M. F. B., Ahmad, A. R., & Seman, A. A. (2017). Teachers' competencies in teaching and learning history. *Open Journal of Social Sciences*, 5(08), 220.
- Amengor J. (2017). The Paradigm of Technology in Teaching Senior High School History: Teachers' Perception on Integration, Usage and Self Efficacy. *Online International Interdisciplinary Research Journal*, 7(6), 28-47
- Ayeni, A., & Afolabi, E. (2012). Teachers' instructional task performance and quality assurance of students' learning outcomes in Nigerian secondary schools. *International journal of research studies in educational technology*, 1(1), 33-42.
- Çaliskan, O. (2011). Virtual field trips in education of earth and environmental sciences. *Procedia-Social and Behavioral Sciences*, 15, 3239-3243.
- Çapuk, S. (2015). ICT Integration models into middle and high school curriculum in the USA. *Procedia-Social and Behavioral Sciences*, 191, 1218-1224.
- Cheng, K. H. (2022). Teachers' perceptions of exploiting immersive virtual field trips for learning in primary education. *Journal of Research on Technology in Education*, 54(3), 438-455.
- Cheng, K. H., & Tsai, C. C. (2019). A case study of immersive virtual field trips in an elementary classroom: Students' learning experience and teacher-student interaction behaviors. *Computers & Education*, 140, 103600
- Cohen, L., Manion, L., & Morrison, K. (2013). *Research Methods in Education* (7th ed.). London: Routledge.
- Das, A. (2021). Virtual Field Trips and Impact on Learning. *Innovate Learning Summit*, 85-89.
- Djonko-Moore, C. M., & Joseph, N. M. (2016). Out of the classroom and into the city: The use of field trips as an experiential learning tool in teacher education. *Sage Open*, 6(2), 2158244016649648.
- Dutta, S. (2018) The Effectiveness of Virtual Field Trips on Authentic Learning of Students for Teaching Forest Resources at Higher Secondary Level Of Wbchse. *International Journal of Research and Analytical Reviews*, 5(7)
- Fraillon, J., Ainley, J., Schulz, W., Friedman, T., & Gebhardt, E. (2014). *Preparing for life in a digital age: The IEA International Computer and Information Literacy Study international report* (p. 308). Springer Nature.
- Francom, G. M. (2020). Barriers to technology integration: A time-series survey study. *Journal of Research on Technology in Education*, 52(1), 1-16.
- Friess, D. A., Oliver, G. J., Quak, M. S., & Lau, A. Y. (2016). Incorporating "virtual" and "real world" field trips into introductory geography modules. *Journal of Geography in Higher Education*, 40(4), 546-564.

- Ghavifekr, S., Razak, A. Z. A., Ghani, M. F. A., Ran, N. Y., Meixi, Y., & Tengyue, Z. (2014). ICT integration in education: Incorporation for teaching & learning improvement. *Malaysian Online Journal of Educational Technology*, 2(2), 24-45
- Han, I. (2021). Immersive virtual field trips and elementary students' perceptions. *British Journal of Educational Technology*, 52(1), 179-195.
- Haris, N., & Osman, K. (2015). The effectiveness of a virtual field trip (VFT) module in learning biology. *Turkish Online Journal of Distance Education*, 16(3), 102-117.
- Harron, J. R., Petrosino, A. J., & Jenevein, S. (2019). Using virtual reality to augment museum-based field trips in a preservice elementary science methods course. *Contemporary Issues in Technology and Teacher Education*, 19(4), 687-707.
- Kelfine, N. W., Maiyo, A., & Okere, J. (2018). Effects Of Field Study On Students' learning Geography In Selected Secondary Schools In KENYA. *International Journal of Education and Research*, 6(3), 133-146.
- Kenna, J. L., & Potter, S. (2018). Experiencing the world from inside the classroom: Using virtual field trips to enhance social studies instruction. *The Social Studies*, 109(5), 265-275.
- Khattak, R., & Jan, R. (2015). The impacts of ICT on the students' Performance: A Review of Access to Information. *Res Human Soci Sci*, 5(1), 85-94.
- Kihoza, P., Zlotnikova, I., Bada, J., & Kalegele, K. (2016). Classroom ICT integration in Tanzania: Opportunities and challenges from the perspectives of TPACK and SAMR models. *International Journal of Education and Development using ICT*, 12(1).
- Kipkoech, L. A. (2021). Use of Field Trip Method in History and Government Instruction in Secondary Schools. *East African Journal of Education Studies*, 3(1), 70-76.
- Kisirkoi, F. K. (2015). Integration of ICT in education in a secondary school in Kenya: A case study, 6(2), 1904-1909.
- Kumar, R. (2018). *Research methodology: A step-by-step guide for beginners*. Sage Publishers: London.
- Lukes, L. (2014). A new take on the field trip. *The Science Teacher*, 81(1), 24.
- Makransky, G., & Mayer, R. E. (2022). Benefits of taking a virtual field trip in immersive virtual reality: Evidence for the immersion principle in multimedia learning. *Educational Psychology Review*, 34(3), 1771-1798.
- Man & Olchawa (2018). The Possibilities of Using BCI Technology in Biomedical Engineering. 10.1007/978-3-319-75025-5_4.
- Marshall, M. S., & Higley, M. C. (2021). Multi-scale virtual field experience: sedimentology and stratigraphy of Grand Ledge, Michigan, USA. *Geoscience Communication*, 4(4), 461-474.
- Masingila, J. O., Khatete, D. W., Maundu, J. N., Foley, A. R., Ndethiu, S. M., & Twoli, N. W. (2019). From implementation to efficacy: Factors affecting Kenyan secondary teachers' technology integration. *Africa Education Review*, 16(1), 58-87.
- Mavellas, S., Wellington, M., & Samuel, F. (2015). Assessment of the availability and utilization of ICTs for teaching and learning in secondary schools of a high school in Kwekwe, Zimbabwe. *International Journal of Scientific & Technology Research*, 4(8), 282-288.

- Mavu, M. C. (2021). ICT Integration in Secondary School Physics and Its Effect on Students' Physics Academic Performance in Mombasa County, Kenya (Doctoral Dissertation, Pwani University).
- Mead, C., Buxner, S., Bruce, G., Taylor, W., Semken, S., & Anbar, A. D. (2019). Immersive, interactive virtual field trips promote science learning. *Journal of Geoscience Education*, 67(2), 131-142.
- Mugenda, O. & Mugenda, A. (2012). *Research Methods; Quantitative and Qualitative Approaches*, Acts Press: Nairobi.
- Mwathwana, M. I., Mungai, C., Gathumbi, A. W., Gongera, E. G., (2014). An analysis of History teaching methodology in High schools: A case of Tigania and Igembe district, Meru County, Kenya. *Journal of Education and Practice*, 5 (2), 83-88.
- Nsekandizi, M., Karanganwa, R., & Andala, H. O. (2020), The Use of ICT Resources and Teachers' Performance in Government Aided Secondary Schools in Rwanda, *Journal of Education*. Vol 3(4) pp. 48-66.
- Nyaboke, R., Kereri, D., & Nyabwari, L. (2021). Competence-based curriculum (CBC) in Kenya and the challenge of Vision 2030. *International Journal of Education, Technology and Science*, 1(4), 155-169.
- Obadiora, A. J. (2016). Comparative effectiveness of virtual field trip and real field trip on students' academic performance in social studies in Osun State Secondary Schools. *Mediterranean Journal of Social Sciences*, 7(1), 467-474.
- O'Leary, Z. (2014). *The essential guide to doing your research project* (2nd ed.). SAGE: London.
- Petersen, G. B., Klingenberg, S., Mayer, R. E., & Makransky, G. (2020). The virtual field trip: Investigating how to optimize immersive virtual learning in climate change education. *British Journal of Educational Technology*, 51(6), 2099-2115.
- Plowright, D. (2011). *Using mixed methods: Frameworks for an integrated methodology*. Sage publications. London
- Rahman, H. (2014). The role of ICT in open and distance education. *Turkish Online Journal of Distance Education*, 15(4), 162-169.
- Talin, R. (2014). The teaching of history in secondary schools. *International Journal of Social Science and Humanities Research*, 2(3)
- Veeraragoo, V. R. (2018). ICT Integration in Secondary School Teaching and Learning: An Analysis of the Mauritian Context (*Unpublished PhD Thesis, Asia e University*).
- Wasilwa, M. (2016). *Teacher Factors Influencing Application of Information Communication Technology in Learning of History and Government in Secondary Schools in Bungoma South Sub-County, Kenya* (Doctoral dissertation, University of Nairobi).
- Xie, Y., Ryder, L., & Chen, Y. (2019). Using interactive virtual reality tools in an advanced Chinese language class: A case study. *TechTrends*, 63, 251-259.
- Zhao, J., Wallgrün, J. O., Sajjadi, P., LaFemina, P., Lim, K. Y., Springer, J. P., & Klippel, A. (2022). Longitudinal effects in the effectiveness of educational virtual field trips. *Journal of Educational Computing Research*, 60(4), 1008-1034.