EFFECTS OF ICT INTEGRATION ON STUDENT ENGAGEMENT AND LEARNING IN HISTORY AND GOVERNMENT IN SECONDARY SCHOOLS IN AINABKOI SUB-COUNTY, UASIN GISHU COUNTY, KENYA

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DECLARATION

Declaration by the Student

This thesis is my original work and has not been presented for master degree or any other award in any other university. No part of this thesis may be produced without permission of author and/or University of Eldoret

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DEDICATION

To my beloved parents, Mr. Francis Boinett and Mrs. Grace Boinett, whose unwavering love, sacrifice and encouragement have been the foundation of my journey. I also extend my heartfelt gratitude to Brigadier (Rtd.) Wilson A. Boinett for your steadfast support and encouragement throughout this process.

I also devote this work to all individuals who are driven to seek information and further education. May this study motivate people to keep aiming for academic excellence and positive change in society, and help in some capacity to support the continuous efforts to improve teaching and learning in our schools.

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ABSTRACT

This research sought to investigate integrating information and communication technology (ICT) in history and government instruction in selected secondary schools in Ainabkoi sub-county, Uasin Gishu County, Kenya. The study aimed at assessing the level of adoption of ICT by secondary school teachers, examining factors that hinder effective integration of ICT in instruction, and interrogating strategies used by teachers to improve the usage of ICT in the teaching of history and government. Theoretically, it employed the Technology Acceptance Model (TAM). A mixed-method research approach that aimed at collecting both qualitative and quantitative data in understanding the phenomenon appropriately was used. The study targeted principals, teachers and history and government students in the selected schools. The sample size was 9 principals, 9 teachers and 180 students. The validity of the instruments was ascertained by the research supervisors. The pilot study was undertaken in three schools in Kesses sub county, Uasin Gishu County. By use of A Cronbach's alpha reliability of 0.7 coefficient was obtained from pilot test, which meant that the questionnaire was acceptable for the study. Stratified random sampling was used to select schools, purposive sampling technique to sample a representative sample of teachers, principals, and simple sampling technique to sample history and government students. This study employed questionnaires and interview as tools for data collection. The pilot test results indicated viable and reliable instruments for the study. Data analysis was done using Statistical Package for the Social Sciences version 29 (SPSS) for quantitative data and thematic analysis for qualitative data. The study revealed that ICT integration in teaching History and Government in public secondary schools in Ainabkoi Sub-County is minimal and irregular. Most teachers occasionally use basic tools like projectors and computers, while more interactive technologies such as tablets and mobile apps are rarely utilized. Key barriers identified include lack of formal training, poor infrastructure, limited technical support and time constraints. Although some teachers made individual efforts such as collaborating with peers and self-learning through online platforms, these efforts were not reinforced by structured institutional support. The study concludes that without targeted professional development and systemic support, ICT integration in learning of History and Government will remain limited. It recommends that the Ministry of Education, together with school administrators and teacher training institutions, invest in continuous, subject-specific ICT integration training programs. These findings are significant for informing educational theory, policy and practice to enhance student engagement and experiences, improve learning outcomes and prepare learners for a technology-driven world.

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LIST OF ABBREVIATIONS AND ACRONYMS

ICT	Information and communication technology
MOE	Ministry of Education
NACOSTI	National Commission for Science, Technology and Innovation
TAM	Technology Acceptance Model
TPACK	Technological Pedagogical Content Knowledge.
TSC	Teachers Service Commission

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter offered crucial background information related to the topic, alongside the following elements: background of the study, problem of the statement, purpose of the study, research objectives, research questions, justification of the study, an explanation of the research's significance, research scope and limitations, establishment of underlying assumptions, presentation of the theoretical framework, construction of the conceptual framework, clarification of operational definitions for key terms, and concluded with a summary of the chapter.

1.2 Background of the study

Information and communication technology (ICT) era has made significant changes in our work and lives in general, affecting both the private and public sectors. ICT integration in teaching is the inclusion of information and communication technology tools and resources into the educational process to promote learning and teaching. The introduction of modern ICT technologies has revolutionized how information s captured, managed and communicated in the teaching and learning of History and Government. This move of technology advancement is now common having several benefits such as arranging; upgrading among others now encompassing a range of digital talk (Kennedy, 2023). Integrating ICT into teaching involves combining traditional methods with digital tools such as tablets, laptops, computers and projectors. This enhances students' digital skills and makes learning more engaging, accessible and supportive critical thinking.

Amidst the global shift towards integrating ICT into education, subjects like History and Government hold tremendous potential for leveraging technological tools to

enhance teaching and learning. ICT can transform traditional classroom methods into dynamic, interactive and engaging experiences for students, making complex historical events and governmental structures more accessible and comprehensible. According to Wasilwa (2016), various models ICT integration has been adopted globally as standalone subject to embedding it across the curriculum. In history and government, integration involves such tools as online archives, videos, projectors and interactive maps to enhance instruction. Teachers and learners may engage in digital research, virtual tours and multimedia presentations the extent of integration can be measured by frequency and variety of ICT use and the extent to which it transforms teaching and learning practices.

In Yemen, for instance, Al-Mamary (2022) found that ICT integration in schools is hindered by limited access to infrastructure, inadequate training, lack of technical support and time constraints. A model developed in the study identified these as key inhibitors to effective use of ICT in classrooms. Despite the difficulties, the study offered practical insights into how government support and targeted interventions could foster ICT integration in teaching, including in subjects like History and Government, where visual timelines, documentaries and interactive maps can make abstract political and historical content more accessible.

In Nepal, Rana and Rana (2020) reported similar challenges in the higher education sector, where despite a clear government policy advocating for ICT in teacher education, actual implementation lagged due to funding and strategy gaps. ICT infrastructure and training were largely donor-funded rather than government-driven, pointing to unsustainable support structures. This is significant for subjects like History and Government, where educators need consistent access to digital tools and

pedagogical training to transition from lecture-based approaches to student-centered learning using ICT.

In Ukraine, Dzhurylo and Shparyk (2019) explored the global and national trends in ICT competence among teachers and students. Their findings underscored that most European Union countries have institutionalized ICT competency frameworks, accompanied by rigorous assessment and monitoring mechanisms. These standards are integrated across the curriculum and are not restricted to technical subjects like Informatics. Conversely, in Ukraine, ICT competency remains narrowly defined within formal computer classes, with minimal integration into humanities subjects such as History. This highlights the need for cross-curricular ICT integration and for teachers of History and Government to be trained in the pedagogical use of digital tools—moving beyond technical skills to instructional integration.

In India ICT tools are the most important teaching aids. E-learning platforms and virtual classroom environments seek to make learning dynamic. They are also apt for students who want to study government-related data and historical documents while sitting in remote locations (Kumar, 2018). However, their use is still faced with some constraints like- having poor internet infrastructure and lack of teacher training programs (Sharma & Gupta, 2020).

Regionally, the integration of ICT in education remains a persistent challenge, particularly in the humanities, due to infrastructural deficiencies, inadequate policy frameworks and limited pedagogical capacity. Ansongu and Odhiambo (2019) explored nexus between ICT and education quality in 49 Sub-Saharan African countries and established that increased internet connectivity and mobile phone penetration play a significant role in enhancing the quality of education. Interestingly, the greatest benefits

were observed in countries with already high levels of poor education quality, suggesting that ICT interventions are more urgently needed and more effective in such contexts. This insight is particularly relevant to History and Government instruction, which often suffers from outdated content delivery methods in rural and under-resourced schools. Increased internet access can enhance learners' engagement through digital documentaries, e-governance simulations, and political news analysis tools.

Odunga (2024) conducted a systematic review of ICT interventions in rural Sub-Saharan Africa and found that ICT has the potential to enhance access to education, but efforts have been uneven, with a concentration of studies and investments in countries like South Africa, leaving many other regions under-explored and under-served. Among the findings was a clear need for scalable, sustainable ICT models that support instructional integration, teacher training and localized content factors critical for effectively teaching subjects like History and Government that rely on contextually rich content.

Similarly, Selmi (2023) discussed how Sub-Saharan Africa faces a dual literacy crisis traditional illiteracy and digital illiteracy. The study emphasized that ICT, particularly mobile and internet technologies, can be harnessed not just for basic literacy but also for civic and historical literacy essential domains of History and Government education. However, the effectiveness of ICT is not solely dependent on technological advancements, but on the practical implementation and pedagogical use of these tools to improve learners' real-world understanding and critical thinking.

Moreover, incorporating ICT into the classroom is essential to ensuring that students are ready to succeed and adapt in this digital age. Nevertheless, there are a number of obstacles to successfully integrating ICT into instructional strategies. For instance,

Kennedy (2023) in his case study on the University of Liberia, College of Education, says some big obstructions toward the successful use of ICT in classrooms encompass lack of funding, poor training and no technical assistance.

Nonetheless, despite such enormous prospects, ICT integration within education in East Africa faces serious challenges, especially when considering its transformative power. Institutions grapple with inadequate initial training, resources and often low confidence among educators to use such resources. According to Okoed (2023), there are much of the same challenges in pre-service teacher education in Uganda, with pre-service students expressing dissatisfaction with the extent to which their educators are integrating ICT in teaching. Their calls are for more support to own ICT devices, while educators argue that free ICT resources should be availed to enable them teach. Okoed recommends focused in-service training and e-learning content creation toward increasing ICT use in teacher education programs in Uganda.

The Government of Kenya has been empowering ICT in education to all levels, including teaching and learning at all levels. Its partnership with international agencies has also borne fruits towards initiatives such as the revised National ICT Policy of 2006. This policy was revised in 2019 to realize a knowledge-based society while ensuring access to affordable and quality ICT services. The other initiative includes the Digital Literacy Programme launched in 2016, under which digital devices are given out to primary school children, with an additional 81,000 teachers expected to be trained in the digital content delivery. Also, the Ministry of Education (MOE) and the Teachers Service Commission (TSC) have been focused on empowering teachers to occupy the forefront of ICT competency training (Barasa, 2021). Nonetheless, challenges still persist, including inadequate infrastructure, limited continuous, professional

development (CPD) opportunities on digital pedagogy, high costs of digital devices, delays in funding and a digital divide that continues to aggravate rural-urban educational inequalities (Barasa, 2021).

The Economic Stimulus Programme has facilitated the integration of holistic ICT infrastructure in secondary schools. This investment has been pivotal in empowering teachers and fostering a positive reception towards innovative educational approaches (Ongwenyi, Mumo, & Mueni, 2023). The Sessional Paper No. 1 of 2019 also emphasizes the integration of ICT in education, training, and research to enhance teaching and learning across all levels. It underscores the transformative potential of ICT in education (Ministry of Education, Policy on Information and Communication Technology in Education and Training, 2021). According to Njoka, Githui, and Ndegwa (2020), the inconsistent and often inadequate implementation of ICT in schools in Kenya has prompted a compelling need for studies to unravel the barriers hindering this crucial venture.

In Ainabkoi sub county, Uasin Gishu County, the integration of ICT in teaching and learning faces a number of obstacles including lacking facilities, insufficient training of teachers, and non-availability of digital resources (Onyancha, Kafu, & Cheruiyot, 2023). The government has various programming; one of those is the Digital Literacy Programme, which intends to avail digital devices and training. Teachers in Ainabkoi, however, are still the least effective in implementing ICT in their classrooms, especially in the teaching and learning. All of these point out the need for continued support and professional development for educators in these areas.

History and government is an optional subject offered in the Kenyan system of education. Students may learn from these subjects about the historical and political development of both Kenya and the world. History and Government thus serve as tools for shaping critical citizens who would analyze governance, societal structures and global relations (Barasa, 2021). Learning therefore involves the doing of factual historical events but also develops skills in critical thinking, analysis, and interpretation. With ICT, there have been efforts to extend the learning of History and Government through digital tools and resources. The underling promise is that such tools transform learning from teacher centered and often monotonous experience to more engaging process enriched with digital archives and educational videos thereby moving beyond convectional lecturing. The challenges point out limitations in access to ICT resources, a lack of specialized training of teachers, and uninterrupted professional development to teach the content well and apply these in the classroom (Barasa, 2021). If such hurdles were countered, they could significantly raise the teaching and learning engagement in the history and government classroom, thus creating a generation of students with historical and technological competence.

This research therefore explored integrating ICT tools in history and government instruction in selected secondary schools, focusing on the availability of resources, teacher's ICT literacy, and teachers' and learners' attitudes. By examining these aspects, this study sought to provide insights that can inform policy-making, teacher training programs, and support systems to improve the effectiveness of ICT in education especially in Ainabkoi Sub County.

1.3 Statement of Problem

In Kenya, while subjects such as Mathematics and Sciences have embraced ICT integration, History and Government continue to lag behind (KNEC, 2019). Many secondary schools still exhibit low learner engagement, limited critical thinking, and passive learning environments that hinder achievement and interest in the subject (Wachira, 2021).

Ideally, ICT integration should make History and Government lessons more interactive and learner-centered through tools such as multimedia presentations, online archives, and virtual field trips (Heine, 2024). Despite government efforts like the Digital Literacy Programme and teacher training, practical ICT use in humanities remains low due to limited teacher preparedness, inadequate curriculum alignment, and infrastructural challenges.

Existing studies emphasize ICT benefits but focus mainly on STEM subjects, neglecting humanities (König et al., 2024; Abel et al., 2022; Sha, 2022). Locally, few studies have examined ICT integration in History and Government, particularly in Ainabkoi Sub-County, Uasin Gishu County. Therefore, this study sought to investigate the extent of ICT integration in the teaching and learning of History and Government in selected secondary schools in Ainabkoi Sub-County, addressing a significant gap in the body of knowledge.

1.4 Purpose of the Study

The purpose of this study was to examine the extent of ICT integration, eplore the challenges impeding effective integration and interrogate strategies used to overcome the challenges in History and government in secondary schools in Ainabkoi. The

findings are intended to inform policy, teacher training programs and support systems for more effective ICT integration in History and Government Education.

1.5 Main Objective

The main objective of this study was to examine the effects of ICT integration on students' engagement and learning n History and Government in secondary schools in Ainabkoi Sub-County, Uasin Gishu County, Kenya.

1.5.1 Specific objectives

The study was guided by the following objectives:

i. Examine the extent of ICT integration in teaching and learning History and Government in selected secondary schools in Ainabkoi Sub-County, Uasin Gishu County, Kenya.
ii. Explore the challenges impeding effective ICT integration in teaching of history and government in selected secondary schools in Ainabkoi Sub-County, Uasin Gishu County, Kenya.
iii. Interrogate strategies used by teachers and students to overcome challenges in use of ICT in teaching of History and Government in selected secondary schools in Ainabkoi Sub-County, Uasin Gishu County, Kenya.

1.6 Research Questions

The study was guided by the following questions:

i. To what extent have ICT been integrated in teaching and learning History and Government in secondary school in Ainabkoi Sub-County, Uasin Gishu County, Kenya?

ii. What challenges stand in the way of effective integration of ICT in the teaching of History and Government in secondary schools in the Ainabkoi Sub-County, Uasin Gishu County, Kenya?

iii. What are strategies used by teachers and students to overcome challenges in use of ICT in teaching of History and Government in public secondary schools in Ainabkoi Sub County, Uasin Gishu County, Kenya?

1.7 Justification of the study

The integration of ICT in History and Government instruction is vital for enhancing student engagement and improving learning outcomes. Despite the government's efforts to equip schools with ICT infrastructure, many teachers and students still struggle with effective integration (Gesare, 2023). Addressing these barriers is essential to ensuring ICT becomes a transformative tool in history and Government education rather than an underutilized resource.

A strong justification highlights the need for research by presenting a clear problem and supporting it with evidence (McKee, 2024). While ICT is widely studied in STEM subjects, its application in humanities, particularly History and Government, remains underexplored. This study aims to fill that gap by examining the extent of ICT integration, identifying key challenges, and proposing viable solutions to enhance digital learning in history and Government classrooms. The largely unsuccessful attempts by Government of Kenya to supply laptops for lower primary classes a decade ago demonstrates that there are several underlying reasons for failure of ICT integration in classrooms that warrants more research even at the secondary school level.

Beyond theoretical contributions, this research has significant practical implications. It will provide data-driven insights to inform policy adjustments and guide educators in effectively using ICT tools to make history and Government lessons more interactive. By addressing infrastructural, technical, and pedagogical challenges, the study will help bridge the gap between available ICT resources and their meaningful application in history and government instruction.

Ultimately, this research sought to explore teacher and students' experiences, and shape debates on policies that ensure ICT is maximized in the teaching History and Government. By creating an education system where technology enhances both teaching and learning, the study may contribute to improving students' academic experiences and historical understanding, fostering a more engaging and effective learning environment.

1.8 Significance of the Study

The study is significant as it seeks to enhance the effective integration of ICT in teaching and learning of History and Government in secondary schools in Ainabkoi Sub-County. Suggestions may be put into practice to enhance teaching techniques can be gleaned from the research. This may result in more dynamic and successful teaching methods and it may also make policy makers aware of the particular requirements and challenges associated with ICT integration. It can direct the creation of focused policies and support networks that enable the efficient application of technology in classrooms, guaranteeing that financial investments in ICT infrastructure result in significant gains in the quality of education and learner experiences. It adds to the body of knowledge already available on the topic and offers insightful information that can be used to direct future studies, practices and policies in this field.

1.9 Scope of the Study

Muia (2021) defines the study's scope as the geographic and methodological parameters that it works inside. This study investigated the ways in which history and government instructors in secondary schools in Ainabkoi sub county, Uasin Gishu, Kenya, incorporate ICT into their instruction. The study provides detailed insights into how ICT is utilized in the educational process, with its scope limited to secondary schools in Ainabkoi Sub-County. Willing respondents were selected principals, teachers of History and government and History and government students from secondary schools in the region. Therefore, the aim of the study was to investigate and gain knowledge from these experiences in order to guide future research, policy decisions and practices on the use of ICT in history and government education in the Ainabkoi sub-county.

1.10 Limitation of the Study

Limitations are potential weaknesses or unforeseen factors that might impact the study and are outside the researcher's control. They limit the extent of a study and might have an impact on its final findings (Muia, 2021). The following limitations applied to the research:

i. The study relied on self-reported data from teachers and students, which may be subjected to response bias. To reduce this, participants were assured of confidentiality and clarity of questions were assured.
ii. ICT integration and literacy levels were assessed in secondary schools within one sub county, limiting the generalizability of findings to other regions. To address this, diverse schools were included to enhance representativeness.

iii. Rapid technological changes and variations in school ICT infrastructure may affect the applicability of findings over time. To minimize this, the researcher focused on current ICT practices to ensure relevance of findings.

1.11 Delimitations

i. The study was confined to secondary schools n Ainabkoi Sub-County, focusing specifically on History and Government teaching and learning,

ii. The study deliberately excluded other subjects and broader school-level factors to maintain focus.

iii. Only Principals, teachers of History and Government and their students were included in the sample, excluding other stakeholders such as parents and education officers.

1.12 Assumption of the study

Gesare (2023) defines assumptions as opinions that are accepted as true in the absence of proof or that have not been tested scientifically but are backed up by logic or reasoning. The following assumptions formed the basis of the study:

i. That every respondent can read and comprehend the questions or items on the data collecting tools

ii. That the respondents' responses to the questions in the questionnaire and interview schedule was valid, truthful, honest and unbiased

1.12 Theoretical framework

This study employed the Technology Acceptance Model (TAM) to examine ICT integration in History and Government instruction. TAM focuses on perceived usefulness and ease of use, shaping technology integration in educational settings.

1.12.1 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) developed by Davis (1989). Davies emphasizes the TAM as a framework that describes technology adoption, emphasizing perceived usefulness and perceived ease of use as key determinants of TAM holds that two main factors affect the likelihood of technology adoption: perceived usefulness and perceived ease of use. Perceived usefulness is the extent to which an individual believes that using a particular technology will increase his or her career or productivity. In education, this affects how teachers perceive ICT tools for teaching subjects such as history and government. Perceived ease of use is the extent to which one believes that using the technology will be effortless, meaning that if teachers find it easy to learn and integrate into their existing teaching practices equipment will likely be added.

Besides, TAM shows that those factors are activated by means of the use of external variables besides the presence of good enough ICT infrastructure, training of trainers, and support. Such external factors can influence teachers' perceptions of the usefulness and ease of use of the ICT equipment either definitely or negatively. In this view, TAM enabled the researcher to learn how teachers in Ainabkoi Sub-County perceive the cost of integrating ICT in teaching History and Government, as well as how factors such as education, resources, and technical support influence their perceptions with ICT adoption. According to Gesare (2023), TAM is instrumental in knowing how attitudes toward ICT stand among teachers and beginners. Testing these perceptions will make the researchers aware of the aspects of ICT that significantly have an impact on consumer acceptance; this leads to more effective plans for increasing ICT integrations into education that may eventually lead to enhanced learning outcomes across diverse subjects.

1.13 Conceptual framework

The study on integrating information and communication technology tools in history and government instruction in selected secondary schools in Ainabkoi sub-county, Uasin Gishu county, Kenya, focused on form three history and government class. This helped in determining the extent of ICT integration, what barriers that hinder effective integration, and strategies to address it. Independent variables include the Extent of ICT integration, challenges impeding effective ICT integration and the Strategies to overcome challenges in use of ICT. The extent of ICT integration into teaching and learning is the dependent variable. Intervening variables include funding and government policies. All these relate to the dependent variable, which is the extent of integration of ICT into teaching and learning. This study offered a comprehensive perspective of the ICT integration process since it is aware of the intervening factors that could influence these connections.

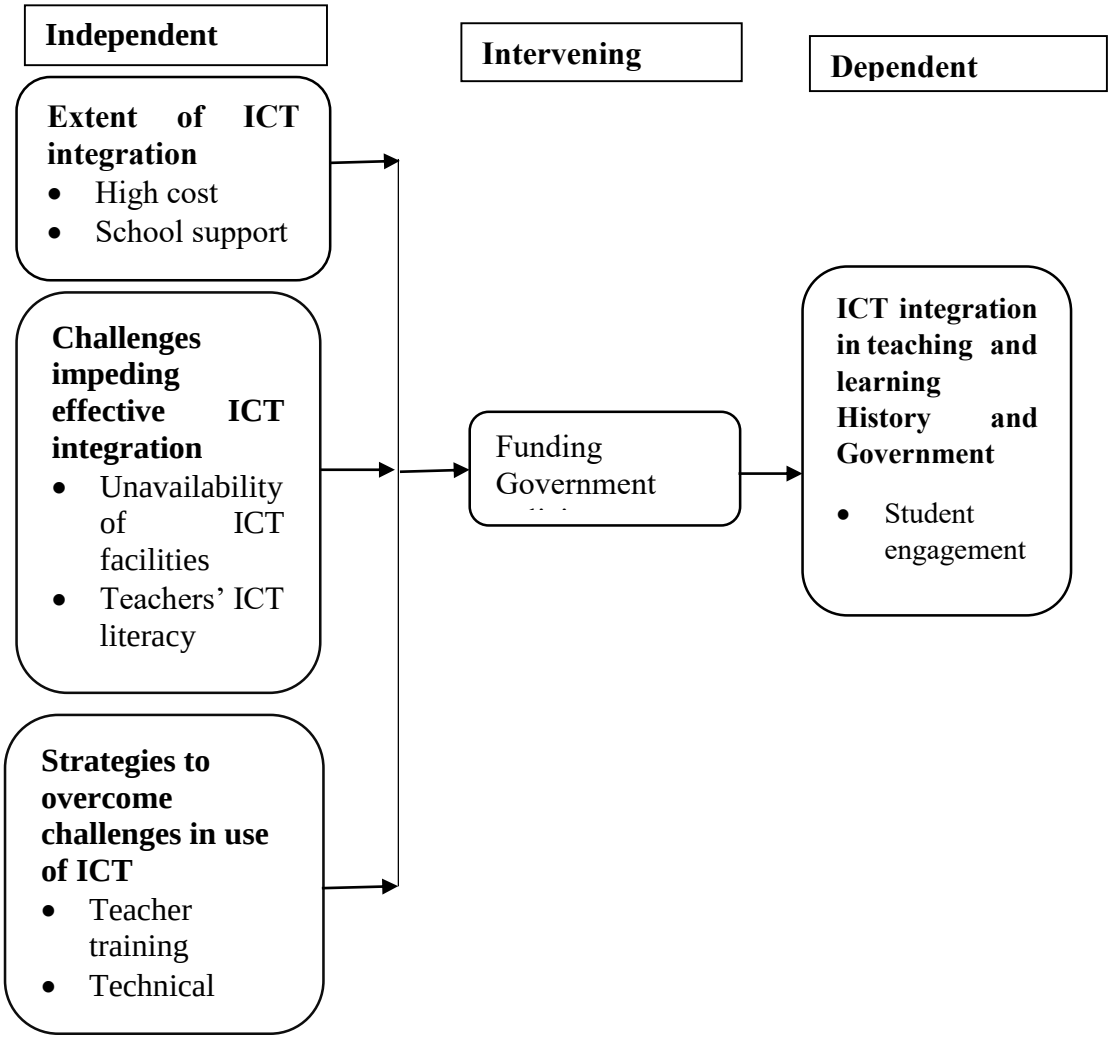


Figure 1.1 Conceptual Framework

Source: Author, (2025)

Conceptual framework organizes the variables influencing the use of ICT in Form Three History and Government instruction. While looking at the intervening variables, it highlights the areas that have a direct impact on ICT integration, including funding and government policies. Additionally, as the foundation for gaining an in-depth knowledge, it brings other factors to the forefront. Identifying current issues and establishing a foundation for the development of tangible ways that enhance the use of

ICT in education can be useful. Improving academic achievements through improved ICT integration into the teaching-learning process is its ultimate goal.

1.14 Operational Definitions of Key Terms.

Digital Literacy - The ability of teachers and students to effectively locate, evaluate, and use digital information and tools for educational purposes.

ICT Integration- This is how any ICT tool can be utilized to introduce, improve, and enhance skills.

Information and Communication Technology - The tools and resources used to communicate, create, store, and manage information, such as computers, projectors, interactive whiteboards, smartphones, and educational software

Instruction - The process of delivering educational content to History and Government students

Integrating - The process of incorporating or embedding ICT tools into the teaching and learning process.

Perceived Ease of Use -The extent to which teachers believe that learning and using ICT tools will be free of effort, making the adoption process easier for teaching practices.

Perceived Usefulness - The degree to which teachers believe that using ICT tools will enhance their teaching effectiveness or improve educational outcomes in History and Government instruction.

1.15 Chapter Summary

This chapter offers a thorough synopsis of the research, starting with background data on the use of ICT in education, specifically in the context of teaching history and

government. It presents the problem statement, emphasizing how ICT tools are underutilized in spite of their potential advantages. The study's specific objectives and purpose are outlined in depth, with an emphasis on evaluating the impact of teacher literacy, ICT resources, and attitudes toward ICT. In order to set the stage for investigating successful ICT integration strategies in education, the chapter additionally touches on the significance, scope, limitations, and underlying assumptions of the research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed the literature in connection with the study's objectives. First, a thorough explanation of ICT literacy was provided. Second, an empirical literature review pertinent to the proposed study was conducted. The study's goals are in line with the review of empirical literature. The chapter is concluded with an assessment of the research gaps and a summary of the evaluated literature.

2.2 ICT Integration in Teaching and Learning

ICT integration n teaching and learning involves the use of digital technologies to enhance instruction and improve student' engagement and achievement. It includes tools for sending, receiving, storing, and processing information. In History and government such tools enrich lessons through access to digital archives, interactive content and multimedia resources (Ohuruogu, Ikechukwu, Mong, & Chinyere, 2019).

Programs like the Education Informatization Action Plan, China has achieved notable progress in ICT integration into its educational system. Introduced by the Ministry of Education in 2018, this policy seeks to modernize education by means of expansion of digital learning materials, encouragement of innovation-driven development, and enhancement of information literacy among teachers and students (Yan & Yang, 2021). The strategy stresses the use of artificial intelligence and cloud computing to create new models for talent development, education services, and government (Yan & Yang, 2021). With this all-encompassing strategy, China's dedication to using ICT to improve educational equity and quality Zeng, 2022 is underlined with projects like the National Development Plan (Vision 2030) stressing the use of ICT in enhancing education quality and skill development, attempts to include ICT in education have been

continuous in South Africa (Smith, 2021). Notwithstanding these initiatives, obstacles still exist including poor infrastructure, limited access to ICT resources for students, and the need of more qualified ICT teachers (Johnson, 2022). With an eye on establishing an enabling environment for successful ICT integration, the government keeps working on improving ICT readiness in schools (Brown, 2023).

Uganda has been aggressively including Information and Communication Technology (ICT) into its educational framework. Developed by the Ministry of Education and Sports, the Education Digital Agenda Strategy 2021–2025 presents a whole strategy to include ICT into teaching, learning, evaluation, sports, and administration during a five-year period. Aiming to improve digital literacy and pedagogical abilities among teachers, this approach relies on earlier strategies such the National Educational Sector ICT Policy of 2005. Notwithstanding these initiatives, problems still exist including poor infrastructure, restricted access to new technologies, and insufficient technical support especially in rural regions. The government has been funding in ICT infrastructure and teacher training initiatives to encourage efficient technology integration in classrooms in order to solve these challenges (Muyinda, 2021).

Muia (2021) carried out an extensive investigation to pinpoint the elements affecting public primary school integration of ICT into teaching and learning in Kitui Central Sub County. The study turned up several important variables: instructors' ICT literacy, their opinions about ICT, and the availability of ICT tools. Teachers' ICT literacy turned out to be the most significant measure of a good ICT integration, underscoring the need of a significant expenditure in teacher development.

Furthermore, the study underlined that although opinions of ICT were rather good and resources were rather limited, both factors taken together explained a significant amount of the variance in ICT integration phases. The data points to the need of

considering the improvement of teachers' ICT skills by mandatory on-the-task training in order to acquire successful integration of ICT in education.

Gesare (2023) examined the Kiambu County secondary school in Kenya and tackled the problems that teachers and students encounter while trying to apply Information and Communication Technology in Home Science. Gesare further notes that integrating ICT into the classroom involves more than merely running the equipment. Gesare contends that one should take into account every element of the environment and learning process. This idea helps one to see the subtleties accompanying the incorporation of ICT in the classroom.

2.3 Extent of ICT integration among secondary school teachers of History and Government

With many of digital textbooks, virtual classrooms, interactive whiteboards, and multimedia resources to improve historical learning, the degree of ICT integration among secondary school History and Government teachers in the United Kingdom (UK) is rather high (Department for Education, 2022). Through programs like the EdTech Strategy, which supports teacher training, access to digital resources, and creative teaching approaches, the UK government has promoted ICT integration (Govern.uk, 2019). With many teachers switching to online platforms and hybrid learning models still in use today, the COVID-19 epidemic sped ICT integration even more (OECD, 2021). Still, issues include unequal access to ICT resources and the necessity of continuous teacher development remain especially relevant in rural or underdeveloped areas (UNESCO, 2021).

Factors including teachers' degree of education, ICT training, attitudes toward technology, and their experience utilizing ICT in the classroom have been driving a growing degree of ICT integration among Ghanaian secondary school teachers

(Wasilswa, 2016). Notwithstanding good attitudes, obstacles including inadequate training, few resources, and opposition to change prevent complete integration (Wasilwa, 2016).

Christopoulos and Sprangers (2021) conducted a mixed-methods study to better understand how teachers and students used educational technology during the COVID-19 epidemic. The study included 15 teachers and 335 students, largely from mathematics, but the findings are applicable across subjects. It discovered that, while teachers were forced to utilize ICT during a crisis, there were substantial issues about platform usability and the mismatch between technology and pedagogical requirements. This underlines the dilemma in history and government education, where tools frequently lack historical or contextual coherence. The study emphasized that integration of ICT should be guided by instructional objectives rather than the mere availability of technology. This demonstrates a gap in teacher readiness to link tools with curriculum goals in content-heavy disciplines such as History and Government.

Thulo (2024), focusing specifically on History teachers in Lesotho, explored teacher perceptions regarding ICT integration. Using semi-structured interviews in a qualitative design, the study found that while teachers generally had positive perceptions of ICT in History instruction, they were constrained by limited ICT resources, insufficient administrative and technical support, and lack of targeted professional development. Despite these barriers, teachers remained optimistic about ICT's potential, largely due to its perceived usefulness in making historical content more engaging. This study surfaces the paradox of positive perception versus low integration a gap suggesting the need for systemic support and localized ICT policies tailored for History instruction.

Valverde-Berrocoso et al. (2021) examined pre-COVID ICT usage across primary and secondary education in Spain using a structured questionnaire with 251 teachers. They

found low levels of digital competence and limited participation in ICT innovation projects. Their results also emphasized the lack of experiential teacher training as a major obstacle to effective integration. The study underscores that History and Government teachers, especially in developing contexts, may face similar challenges due to limited hands-on training or outdated curriculum frameworks that do not align with emerging digital tools.

Mdhlalose (2023) reviewed secondary sources to analyze the broader impacts of technology in education. The findings indicate both opportunities such as enhanced collaboration and research capacities—and challenges, including software incompatibility and outdated tools. For History and Government, these problems are amplified by the need for multimedia tools (e.g., historical simulations, archives) that often require more sophisticated and reliable ICT infrastructure. This highlights a technology-content mismatch specific to humanities subjects and reflects a gap in resource provision tailored to subject-specific needs.

Yang et al. (2021) in their large-scale survey of 1,185 teachers in China applied the Technological Pedagogical Content Knowledge (TPACK) model to examine digital platform adoption. Their structural equation modeling showed that technological knowledge (TK) had a stronger impact on ICT acceptance than pedagogical or content knowledge. The implication for teachers of History and government is critical: without sufficient TK, even strong content and pedagogical knowledge may not translate into effective ICT use. Thus, training programs must be redesigned to integrate technical skills within historical pedagogical contexts a gap in current teacher development initiatives.

Ayanwale et al. (2022) focused on Nigerian teachers' readiness to teach emerging technologies like AI. Their quantitative study with 368 teachers revealed that confidence and perceived relevance were critical predictors of ICT integration. While AI is still emerging in History instruction, the findings mirror those in broader ICT contexts where teacher attitudes and institutional support predict integration levels. The study points to a key gap: lack of investment in teacher confidence-building and relevance-driven professional development in humanities subjects.

Perera (2023) and Alenezi et al. (2023) both offer futuristic views on the digitalization of education. Perera advocates for ethical and regulated use of AI tools in education, urging educators to align emerging technologies with academic integrity and pedagogical purpose. Alenezi et al., in a conceptual analysis, argue that despite infrastructure readiness in many higher institutions, the integration of ICT depends on robust policies and continued teacher capacity-building. The gap, especially in secondary History classrooms, is the lack of a roadmap for responsibly integrating AI and emerging ICTs into historical inquiry and source evaluation.

Though obstacles still exist, the degree of ICT usage among East African history and government high school teachers has demonstrated notable improvement. Oubibi et al. (2024) conducted a methodical assessment showing how African teacher education has improved in including interactive technologies between 2014 and 2024. Although ICT has the ability to improve teaching strategies, the study found that adoption of it is still inconsistent because of infrastructure constraints, poor teacher preparation, and socioeconomic differences. The authors stress the need of thorough frameworks including improved infrastructure, sustained ICT development, and large-scale teacher

professional development programs to help effective ICT integration in teaching in order to break these obstacles.

Bariu (2020) reports that ICT integration in Kenyan secondary schools is really low. Descriptive survey study was applied. To evaluate the state of the ICT infrastructure, likewise used were questionnaires, interviews, and observations. Based on the findings, expensive hardware and software expenses were seen to be a main obstacle to school ICT facility investment. This is so since most of the consumers were ignorant about the applications of ICTs and the possibilities of networking technologies. On the other hand, Bariu (2020) notes that ICT is little used in Kenyan secondary schools despite official government policies. Under this context, a descriptive survey design examining the ICT infrastructure using questionnaires, interviews, and observations was applied. The results have revealed that extremely low investment in ICT is caused by high hardware and software prices.

Furthermore, developing new skills and competencies in teachers, school leaders, and students becomes very significant for proper implementation of ICT integration in education. These findings are relevant to assess the level of ICT integration among secondary school teachers of History and government in Ainabkoi Sub-County. Thus, these economic constraints and skill disadvantages identified by (Bariu 2020) can therefore provide a background for finding out at what level and how effectively ICT is currently used in teaching History and Government subjects. However, while these studies provide general insights into ICT integration trends, there is limited research specifically examining the extent of ICT integration among secondary school teachers of History and Government in Ainabkoi Sub-County, Uasin Gishu County, Kenya. This gap necessitates an investigation into how ICT tools are currently used in History and

Government instruction within this specific context, considering local infrastructural, economic, and training-related challenges.

2.4 Challenges impeding effective ICT integration in Teaching and Learning

Despite the growing recognition of ICT as catalyst for enhancing teaching and learning, its effective integration in schools remains constrained by several factors. These factors stem from limited infrastructure inadequate teacher ICT literacy, and varying attitudes towards technology. Such factors not only affect how teachers deliver content but also influences learners' engagement and participation in ICT supported lessons. This section discusses these challenges in detail, highlighting their implications for effective ICT integration in the teaching and learning of History and Government.

2.4.1 Availability of ICT facilities and ICT Integration in Teaching and Learning

Computers, laptops, projectors, and interactive teaching boxes are examples of digital infrastructures that are part of ICT. These ICT devices represent the latest tools, concepts, and techniques used to facilitate interaction between learners and teachers, as well as among learners themselves. For instance, tools such as clicker devices, mobile applications, and flipped classrooms enhance engagement and improve the teaching and learning experience.

Integrating ICT into education offers both possibilities and problems, according to Gesare (2023), since teachers and students have to negotiate problems like infrastructure constraints, technical knowledge, and accessibility. Lack of suitable infrastructure, especially in isolated and rural locations, presents major obstacles for Information and Communication Technology (ICT) integration into Australian education. Schools in these areas frequently suffer with inadequate digital infrastructure, including limited access to high-speed internet and modern technology resources, according the Information and Communication Technologies (ICT) Strategy

2020–2024. This inequality reduces the efficient integration of ICT into teaching and learning environments, therefore extending the educational difference between urban and rural students. The plan stresses government initiatives to increase digital skills by means of infrastructure, professional development, and cyber-safe environments as well as the need of fair ICT access among all schools. Addressing these issues is crucial to ensuring that all students, regardless of location, can benefit from technology-enhanced education.

One of the key elements is the availability of resources to facilitate technological integration. Amuchie (2015) studied the level at which ICT has been integrated into teaching and learning in some selected secondary schools in Ardo-Kola and Jalingo, Taraba State, Nigeria. The findings revealed that the availability and utilization of ICT resources are very low. Most teachers described the level of availability of all the types of ICT infrastructure as very poor: desktop computer (75.0%), laptop computers (100.0%), television (94.6%), video player (98.2%), digital camera (100.0%), interactive whiteboard (100.0%), and multimedia projector (100.0%). Poor power supply was another factor discovered to impede the use of ICTs in this study. These findings form the basis for a call to improve infrastructure and for less expensive ICT resources, which could imply the more effective integration of technology into teaching and learning processes within the Taraba State educational context.

A study done at the University of Dar es Salaam, Tanzania, Mtebe and Raphael (2018) underline that poor ICT infrastructure and unstable internet access are main obstacles to efficient e-learning deployment. According to the report, limited access to computers, antiquated digital tools, and inadequate technical assistance prevent teachers and students from fully using ICT in the classroom and in learning. Furthermore, poor internet access disturbs online learning activities and makes it

challenging for students to access digital resources, engage in virtual debates, and successfully finish online tests. These infrastructure issues not only reduce the efficiency of ICT integration but also help to generate opposition to the acceptance of digital learning. To enable a more smooth and inclusive technology-driven education system, the report underlines the need of significant investment in modern ICT facilities and stable internet connections.

ICT integration into classroom practice is complex and multidimensional in nature; as such, it surpasses the mere availability of hardware and internet access. These challenges are also shared with Muia (2021), bringing to light the fact that such challenges are stretched across different contexts of educational settings in Africa. Along this line of argument, Muia (2021), researched the best describing factors that integrate ICT into public primary schools in Kitui Central Sub County, Kenya, whereby he identifies the availability of ICT resources as part of the important elements. In another development, for example, research has shown that schools can improve the way they integrate ICT into teaching and learning if they have the necessary resources to enable this integration. On a larger scale, Ongwenyi, Mumo, and Mueni (2023) found that schools with sufficient ICT resources had a better degree of integration than those with less, like Gucha South, Kisii County schools.

This study also explained that the effective use of technology in education can only be realized with much investment in the infrastructural designs of ICT. Further, although Amuchie (2015) gave an insight into the secondary education sector in Nigeria while(Muia,2021) focused his study on primary education sectors in Kenya; both were thus able to understand many of the systemic problems that were at the center of the incorporation of ICT into teaching and learning processes. This comparative research

suggests that the removal of such shared barriers could dramatically improve the effectiveness of ICT integration at the classroom level across the continent. However, none of them employed the robust statistical model to determine how the availability of ICT resources influences the level of ICT integration. This current study, therefore, estimated the effectiveness of integrating ICT in secondary schools in Ainabkoi Sub County and the availability of ICT facilities.

Fidelis and Onyango (2021), in their study of public secondary schools in Ngara District, Tanzania, revealed that the availability of ICT facilities remains a core impediment to ICT integration. The mixed-methods research, involving interviews and questionnaires from 84 respondents, found that many schools lacked internet connection, suffered from erratic electricity supply, and had limited ICT maintenance funds. Moreover, many teachers exhibited low levels of competence in ICT usage, with only a few familiar with internet applications or hardware functionality. These infrastructural limitations significantly hamper the integration of digital tools into classroom practice, particularly in subjects like History and Government that require multimedia tools and real-time resources to illustrate complex historical concepts.

A related case is observed in Nepal, where Rana and Rana (2020) found that despite policy frameworks emphasizing ICT integration in higher education, practical implementation suffered due to lack of strategic planning and insufficient funding for infrastructure and professional development. Although their study was situated in a university setting, the parallels with secondary education are striking. The absence of institutional support mechanisms such as sustained funding and strategic ICT infrastructure rollouts illustrates a systemic barrier that is likely mirrored in many secondary schools attempting to digitize History and Government instruction.

In a study by Esfijani and Zamani (2020) on secondary school teachers in Isfahan province, Iran, the researchers surveyed 180 teachers to assess access to ICT resources and their ICT skill levels. Although hardware access was relatively adequate at home and school, software access was poor, and teachers demonstrated low proficiency despite attending ICT training courses. Their actual classroom integration of technology remained minimal, particularly in areas of communication, teaching, and research. This reflects a broader issue affecting History and Government educators who, even when equipped with basic tools, may not have the content-specific software, pedagogical models, or support systems needed for meaningful integration.

In South Africa, Munje and Jita (2020) examined how ICT resource scarcity impacted teaching and learning. Through semi-structured interviews with educators in three primary schools, the study found that lack of resources led to underutilization of ICT tools, negatively affecting student learning outcomes. The researchers highlighted the need for context-sensitive resource allocation and reinforced the importance of school-community partnerships and in-service teacher training. For History and Government, which often require audiovisual aids and real-time content updates, such underutilization results in missed opportunities to bring historical narratives to life through technology.

Agyei (2021), in a multi-country study involving over 4,900 STEM teachers from six Sub-Saharan African countries including Kenya and Nigeria—assessed the impact of an ICT professional development program. While the teachers expressed satisfaction with the training, the study found that conditions necessary for successful classroom transfer of ICT skills such as ongoing support and school-level ICT integration plans were lacking. Although this study focused on STEM subjects, its implications for

History and Government are crucial, as the absence of a sustainable post-training support structure significantly reduces the chances of technology being integration in actual instruction.

Arrieta (2020) assessed ICT integration among Math and Science teachers and found that time constraints, lack of pedagogical support, and poor internet connectivity hindered effective integration. Although the study focused on science subjects, the challenges are similar in History and Government classrooms, where teachers also struggle with limited time for ICT lesson preparation, lack of curriculum-aligned digital resources, and poor connectivity that restricts access to online archives or historical documentaries.

Miskiah, Suryono, and Sudrajat (2019) further emphasized that even where ICT facilities are available as seen in their case study of an Islamic Religious Education training center in Indonesia usage remains limited to basic applications like PowerPoint. Age-related challenges and technical difficulties hinder deeper integration. For History and Government teachers, this means that even with access to devices, a lack of technical competence and adaptability may restrict the creative use of ICT tools such as virtual museums or interactive timelines.

Obi and Iwuji (2023) underlined the importance of equipping schools with reliable power supplies and providing continuous training to improve teachers' ICT skills and attitudes. They argued that adequate ICT availability directly correlates with effective teaching and learning. Without reliable power and sufficient technical capacity, even the most advanced ICT tools become ineffective particularly in History classes where storytelling and visualization are essential.

Bariu (2020) asserts that the ICT infrastructure in secondary schools in Kenya has long been unsustainable. This is demonstrated by the fact that most schools lack the essential ICT resources needed for learning and teaching. Sufficient ICT infrastructure in education improves access, preserves educational quality, and makes it easier to assess information gathered from many sources to improve instruction. Contrarily, most studies highlight the fact that lack of resources is an impediment to integration into ICT. While these studies provide valuable insights, there is limited empirical research specifically examining the challenges impeding ICT integration in teaching History and Government in secondary schools in Ainabkoi Sub-County, Uasin Gishu County, Kenya. This gap necessitates an investigation into the specific infrastructural, economic, and pedagogical barriers faced by teachers of History and government in the region, contributing to localized solutions for effective ICT integration.

2.4.2 Teachers' ICT Literacy and ICT Integration in Teaching and Learning

The study by Tondeur, Scherer, Siddiq, and Baran (2020) titled "Enhancing Pre-Service Teachers' Technological Pedagogical Content Knowledge (TPACK): A Mixed-Method Study" was conducted in Belgium. The research focused on evaluating the effectiveness of strategies employed in Belgian teacher education programs to prepare pre-service teachers for technology integration in their future classrooms. To compile thorough information on the participants' experiences and competencies, the study took a mixed-methods approach combining quantitative questionnaires and qualitative interviews. The results highlight the need of focused training and ongoing professional development in improving instructors' confidence and competency in properly using ICT resources.

Examining how computer upskill training affects teachers' technological literacy and its effect on ICT integration in teaching and learning in the Philippines, Cantutay and

Taganas (2024) found Higher ICT literate teachers were more likely to include digital tools into their teaching strategies, thereby improving student engagement and learning results, according to the study carried out in certain Mindanao public schools. Effective ICT integration was hampered, nevertheless, by issues like inadequate training opportunities, restricted access to contemporary ICT infrastructure, and little ongoing professional development. The researchers underlined the importance of organized technological skills development initiatives to provide instructors with the required competencies for smooth integration of technologies into classrooms. By means of continuous infrastructure and training investments, addressing these obstacles can greatly increase the efficiency of ICT-based education in the Philippines.

Many studies conducted in Ghana have found that incorporating technology into the educational system is greatly hampered by the ICT literacy of instructors. For example, Quaicoe and Pata (2020) discovered that many basic school teachers in Ghana have low digital literacy, therefore impairing their capacity to properly apply digital technology in the classroom. In line with policy initiatives to improve educational results by means of technology integration, Abedi et al. (2023) underlined that teachers' inadequate technological competency contributes in part to the little effect on student learning. These results highlight the need of thorough professional development initiatives to improve teachers' ICT competencies, therefore enabling more successful technology integration in Ghanaian institutions.

Particularly with regard to teachers' ICT literacy, Information and Communication Technology (ICT) integration into education presents major obstacles in Rwanda. While Rwanda has made significant investments to transition to a knowledge-based economy, a scoping review by Mushimiyimana et al. (2025) reveals that obstacles including limited digital skills among educators and inadequate training opportunities

impede the effective use of ICT in teaching and learning, so undermining Rwanda's efforts to achieve this. Likewise, a 2018 study by Twagilimana and Männikkö-Barbutiu critically analyzes Rwanda's ICT in educational policies and found that inadequate teacher preparedness and support often resulted in the intended policy goals not entirely accomplished despite government efforts. These results highlight the need of thorough professional development initiatives targeted on improving teachers' digital capabilities to guarantee the effective integration of ICT into Rwanda's educational system. Teachers thus must be ICT knowledgeable if they want to properly include ICT into their courses. ICT literacy is the set of skills needed to access, change, combine, evaluate, and create knowledge by means of digital devices, networks, and communication technologies. According to Gesare (2023) one of the greatest obstacles to the successful integration of ICT in classrooms is instructors' inadequate digital literacy. tIn 2021, Muia conducted a study on public elementary schools in Kitui Central Sub County, Kenya, utilizing the TPACK Model and the Technology Acceptance Model (TAM) as theoretical frameworks. Among the objectives of this study were to investigate how the ICT literacy of the teachers influenced the use of ICT for teaching and learning.

Data collection was done through a descriptive survey research approach whereby questionnaires and interviews were issued out to a sample size of 105 teachers and 21 head teachers. The findings indicated that even though some measures had been taken, the general ICT literacy in teachers still remained low; thus, it still remained a huge obstacle in ICT integration. The most powerful predictor of integration was teachers' ICT literacy: $\beta = 0.568$, $t(89) = 5.365$, $p < 0.05$; hence, therefore, the need for focused professional development initiatives in this regard. On the other hand, teachers had a moderately positive attitude toward ICT and showed that ICT resources were

moderately available. However, teachers had a moderately positive attitude towards ICT in the indication that the ICT resources were moderately available. These include other past studies such as Muia (2021), and Gesare (2023), that cited the gap in the ICT competencies of teachers as the critical factor in the barriers toward the effective integration of ICT into the classroom. This calls for an all-inclusive teacher training program in ICT skills-a particular aspect of training which has not been emphasized enough in the previously related studies, which have mostly explored attitudes and resource availability.

Hafifah and Sulistyo (2020) conducted a correlational study among 280 English language lecturers in Indonesia and found that over 60% of respondents had above-average ICT literacy levels and integrated ICT regularly in teaching. However, challenges such as insufficient ICT training and internet limitations persisted. Their findings affirm that frequent ICT use positively correlates with higher ICT literacy, suggesting that continual engagement, alongside training, boosts digital competence. Although this study focused on higher education and English instruction, its implications extend to secondary History and Government education, where similar pedagogical demands exist, especially for enhancing engagement with historical texts and political simulations.

Meanwhile, Gómez-Trigueros, Ruiz-Bañuls, and Ortega-Sánchez (2019) emphasized the importance of digital literacy among teacher trainees and introduced a shift from Information and Communication Technologies (ICTs) to Learning and Knowledge Technologies (LKTs). Using a mixed-method approach, they found substantial gaps in knowledge of basic technological concepts among prospective teachers. Their study highlights age as a differentiating factor in digital proficiency and recommends early

intervention in teacher training programs. The transition from ICT to LKT is especially relevant in History and Government, which require educators not only to use digital tools but to strategically apply them to develop historical thinking and analytical skills.

Falloon (2020) critiqued narrow conceptualizations of teacher digital competence, presenting the Teacher Digital Competency (TDC) framework that moves beyond mere technical literacy. He argues that educators require holistic digital competencies including ethical, pedagogical, and contextual dimensions to integrate ICT meaningfully. This framework is critical for History and Government instruction, where navigating digital archives, managing digital narratives, and promoting critical civic engagement necessitate more than basic ICT skills.

Similarly, Tondeur et al. (2019) examined the role of teacher educators as gatekeepers in preparing preservice teachers for technology-rich environments. Their use of the Synthesis of Qualitative Data (SQD) model highlighted the importance of modeling technology use, collaborative learning, and scaffolding authentic technology experiences. While this study provides a roadmap for improving ICT integration through teacher training, it falls short of addressing discipline-specific needs. In History and Government education, digital storytelling, primary source analysis, and virtual museum tours demand specialized training that is not emphasized in generalized professional development programs.

Marín and Castañeda (2022) contributed a broader conceptualization of digital literacy as a multifaceted and socially situated practice. Reviewing global frameworks, they argue that digital literacy is no longer a peripheral skill but a core competence. Despite this recognition, many education systems still treat digital literacy as optional or secondary, leading to disparities in digital competence across subjects. This is

particularly concerning for teachers of History and government, who often lag in digital adoption compared to Science, Technology, Engineering and Technology (STEM) counterparts due to content-specific digital resource limitations and insufficient training in interactive technologies suited for humanities.

Malik, Rohendi, and Widiaty (2019) highlighted the importance of teachers' mastery of technology, pedagogy, and content knowledge (TPACK) in integrating ICT. Their literature review showed that teachers often lacked balanced development in all three domains, especially in humanities-based instruction. Without robust TPACK integration, History and Government educators may struggle to effectively merge digital tools with content-rich and interpretive curricula, which often require nuanced discussions and context-driven narratives.

Finally, Raman, Thannimalai, and Ismail (2019) explored the influence of principals' technology leadership on ICT integration among Malaysian teachers. Although both leadership and technology integration levels were high, the study found no significant relationship between them. This disconnect suggests that broader systemic and individual teacher-level issues such as digital literacy, resource availability, and curriculum constraints may play a more critical role in ICT integration. For teachers of History and Government, whose subjects are traditionally text-heavy and lecture-based, supportive leadership alone may not suffice without subject-specific training and tailored ICT resources.

The study intended to highlight the importance of continuous professional development by teachers in enhancing their ICT literacy, hence addressing this knowledge gap. Guided by the Digital Learning Program and the National ICT Policy on Education, the report recommends regular and compulsory in-service training as a way to care for the

needed ICT skills in educators. This model has targeted the improvement of previous successes while responding to the gaps of the past research in ensuring that teachers are prepared with the skills to effectively integrate technology into the teaching and learning process. The study, therefore, results in what could be precursors of improved teacher competencies, improved integration of ICT in the classroom, and improved alignment with national policies in education. These results are important insofar as they serve to further the main objective of technology integration: raising quality and accessibility of education.

It was concluded that with focused training programs, digital literacy among teachers can be significantly enhanced, and this would make the infusion of technology in a normal classroom environment much easier. This research contributes to filling the gap in the current educational system and provides a clear strategy for enhancing ICT integration into instruction to make it more worthwhile, interactive, and essential. It is an important study because it focuses on teachers' ICT literacy as the determinant factor of the effectiveness of ICT integration and provides workable ways of overcoming barriers to improving learning outcomes. The literature reveals a gap in addressing the critical role of targeted professional development in enhancing teachers' ICT literacy for effective classroom integration. However, while these studies acknowledge the importance of professional development, there is limited research focusing specifically on how ICT literacy challenges affect History and Government teachers in Ainabkoi Sub-County, Uasin Gishu County, Kenya. Most studies address general ICT integration without examining subject-specific challenges, leaving a gap in understanding the unique needs of History and Government educators. This study aims to bridge that gap by exploring how teachers' ICT literacy levels impact ICT integration in teaching History and Government and recommending targeted professional development

strategies to enhance digital competencies in this context. Although these studies draw attention to overall ICT integration issues, there is little study especially on how teachers' ICT literacy influences the integration of ICT in teaching History and Government in secondary schools, especially in Ainabkoi Sub-County, Uasin Gishu County.

Most research examine ICT use generally without considering subject-specific obstacles. For teachers with inadequate ICT knowledge, history and government instruction calls for special digital tools including historical simulations, interactive timelines, and archive research platforms, which may provide further difficulties. By looking at how teachers' ICT literacy affects the integration of technology in teaching History and Government, spotting particular skill deficits, and suggesting focused professional development strategies to improve digital competencies in this subject area, this paper aims to close that gap.

2.4.3 Teachers' Attitude and ICT Integration in Teaching and Learning

Effective integration of ICT into teaching and learning depends much on the attitudes of the teachers. Improving teaching strategies and creating a more engaged and interesting classroom depend on positive attitudes toward ICT usage. Most instructors saw ICT favorably, according to a systematic review of teachers' opinions on technology integration in Pakistan over the past five years by Akram et al. (2022), which maintained students motivated and changed their teaching methodologies. The study also showed, though, that several factors—slow internet connections, frequent power outages, lack of infrastructure, little online teaching experience, and poor training negatively affected instructors' opinions about ICT integration.

By means of a case study on the usage of Bring Your Own Device (BYOD) programs in Australian classrooms, (Chilton, Wilson and Dutton 2024) investigated the difficulties related with teachers' views toward ICT integration in history and government education. Although BYOD programs gave students more access to digital resources and improved historical research, the study revealed that teachers' reluctance to completely integrate ICT resulted from worries about classroom management, lack of professional training, and differing degrees of digital competency. Further restricting its useful application in history teaching, the study revealed that some teachers saw technology as a distraction rather than an educational tool. The writers stress the importance of focused professional development initiatives to increase teachers' confidence in using ICT tools as well as the development of supportive school policies supporting deliberate and ordered digital learning environments.

Mather (2021) says Investigating Students' Opinion on the Role of ICT in Learning at a Higher Education Institution looks at how students on the Mahikeng campus of North-West University, South Africa, view ICT's importance for their education. The report emphasizes that although ICT improves access to and autonomy in education, poor planning and insufficient training sometimes prevent its effective deployment. Furthermore, some students grow hostile about ICT because of low technical knowledge, poor confidence in using digital tools, and annoyance with technological breakdowns. These difficulties together with different degrees of digital literacy influence the flawless integration of ICT into the educational process.

The 2019 Buabeng-Andoh study looks at the elements affecting secondary school Ghanaian teachers' opinions of ICT integration. The study emphasizes how much instructors' willingness to use ICT in the classroom depends on their impressions of it. While negative attitudes resulting from a lack of confidence, insufficient training, and

limited technical assistance function as obstacles to effective ICT integration, positive attitudes toward technology usually contribute to higher integration. The study highlights even more the need of ongoing professional development and institutional support in helping teachers to have a good attitude, thereby improving the use of ICT in teaching and learning.

With unfavorable teacher attitudes a main obstacle, Nyakito, Amimo, and Allida (2021) discovered that National Teachers' Colleges in Uganda struggle much in including ICT into instruction. The study found that educators' resistance stems from elements including poor training, technological anxiety, and restricted access to digital resources. These difficulties impede the efficient use of ICT in classroom environments, thereby stressing the requirement of thorough professional development and supporting institutional policies to promote good attitudes toward the integration of technologies into teaching and learning.

Njiku, Maniraho, and Mutarutinya (2019) provide a foundational understanding by reviewing literature on teachers' attitudes toward ICT. They identify four key constructs enjoyment, confidence, anxiety, and position towards technology as critical in shaping attitude. The authors emphasize the need for appropriately designed survey tools that reflect these constructs to effectively evaluate teachers' willingness and preparedness to integrate ICT. This framework is valuable in History and Government education, where teachers may view technology as either enhancing historical inquiry or disrupting traditional instructional methods. The attitudinal construct of *anxiety* is particularly relevant, as some teachers may feel apprehensive about using digital simulations, online archives, or student-centered historical debates.

Bariu and Chun (2022) advance this discussion through an empirical study conducted in Kenyan universities. Their findings show that positive teacher attitudes significantly predict ICT implementation. Teachers with favorable perceptions were nearly twice as likely to implement ICT tools compared to those with negative attitudes. However, they noted that inadequate infrastructure, limited in-service training, and lack of administrative support diminished motivation. These findings emphasize a key challenge for History and Government educators: without consistent institutional backing, even teachers with positive attitudes may hesitate to incorporate ICT in teaching, especially in contexts where such integration demands extra effort in content adaptation and digital sourcing.

Belay, Khatete, and Mugo (2020) similarly observed positive attitudes toward ICT integration among Biology teachers in Eritrea. Teachers believed that ICT made lessons more interesting and improved learner performance. While this study was subject-specific to Biology, its insights can be extrapolated to History and Government, where visualization tools, digital timelines, and virtual museums could significantly enhance student engagement provided that teachers perceive such tools as beneficial and practical.

Guillén-Gámez and Mayorga-Fernández (2020) applied a regression model to assess affective, cognitive, and behavioral components of attitudes among higher education faculty in Spain. Their study found that behavioral attitudes teachers' actual actions in using ICT were the weakest, despite generally positive affective and cognitive orientations. This gap suggests that even if History and Government teachers value ICT and understand its importance, they may not consistently apply it due to systemic or

contextual barriers such as time constraints, lack of discipline-specific resources, or inadequate digital training.

Farjon, Smits, and Voogt (2019) offer further insight into pre-service teachers, using an expanded WST model (will, skill, tool) to explain technology integration. They found that attitudes and beliefs (will) were the most significant predictor, more than access to tools or competency. This highlights the critical importance of fostering positive perceptions among trainee History and Government teachers early in their careers. However, the model also reveals that without consistent reinforcement through practical application, these initial positive attitudes may not translate into effective classroom integration.

Asad et al. (2021) provide a complementary view from Pakistan, indicating that despite student interest and the government's policy emphasis on ICT, teachers' limited resources and inadequate encouragement from management were key hindrances. Teachers' concerns about lacking competencies and support discourage them from fully embracing ICT even when they recognize its potential benefits. For History and Government teachers, who may already feel overwhelmed by the vast and sensitive content, this barrier could further discourage ICT use, especially if institutional support is missing.

Factors including training, resource availability, and institutional support have shaped teachers' opinions about ICT integration in the classroom in Kenya. Teachers' attitudes greatly affect the effective integration of digital tools in education, according to the Bariu and Chun study on ICT use at Kenyan institutions. Although many teachers acknowledge that ICT could improve instruction and learning, the study found that its effective integration is hampered by issues including poor training, lack of confidence,

and unstable infrastructure. Those who underwent ongoing professional development showed a more favorable attitude and were more inclined to apply ICT in their teaching strategies. Research by Ntorukiri, T. B., Riungu, C. M., & Karimi, F. (2021) in Meru County secondary schools revealed that while teachers agree ICT helps to improve educational quality, inadequate resources and opposition to change help to explain teachers' reluctance in implementing technology.

Murithi and Yoo (2021) also looked at ICT use in Kenyan public primary schools implementing the competency-based curriculum (CBC) and found that teachers' opinions affected their readiness to include technologies. Many teachers, despite realizing ICT is important for modern education, had little confidence in integrating ICT tools because of things like poor internet connectivity, lack of digital equipment, and limited technical knowledge. To raise teachers' digital competency and inspire technology usage in classrooms, the study underlined the need of focused training programs, institutional support, and upgraded ICT infrastructure. These results underline how successful ICT integration in Kenya's educational system depends on a good attitude developed by means of constant professional development and sufficient support mechanisms.

Research especially looking at how secondary school History and Government instructors in Ainabkoi Sub-County, Uasin Gishu County, see and handle ICT integration difficulties is lacking, nevertheless. Studies conducted in Kenya have examined teachers' opinions on ICT in general, but they do not offer a targeted study of History and Government education, where ICT integration may run against certain subject-specific challenges. This study aims to close this discrepancy by looking at how teachers' attitudes affect the acceptance of ICT tools in teaching History and

Government and by pointing forth ways to promote a more favorable attitude toward ICT use in this setting.

2.5 Strategies to overcome challenges in use of ICT in teaching

The integration of Information and Communication Technology (ICT) in the teaching of History and Government presents significant potential to transform traditional methods of instruction. However, this integration is often met with multiple challenges including limited digital literacy, inadequate infrastructure, resistance to change, and difficulty adapting subject-specific content to digital formats. Tolstykh et al. (2023) offer insights into strategies applied in hybrid learning environments, emphasizing careful instructional planning and collaborative engagement as essential in overcoming ICT-related challenges. The integration of e-learning tools into both online and offline classes allows for a balanced teaching method that supports ICT competence development, even for subjects like History and Government that traditionally rely on physical interaction and text-based resources. The promotion of active student participation and peer collaboration is key in ensuring ICT tools are not just add-ons but are embedded into the instructional process.

Ogunode and Musa (2020) emphasize the macro-level strategies involving government and institutional interventions. They argue that to enhance ICT integration, governments must increase funding, provide adequate infrastructure, and ensure stable academic calendars. While this is a broader systems-level recommendation, it indirectly empowers teachers by creating an enabling environment where personal coping strategies can flourish. In the teaching of History and government, effective use of online archives, documentaries and interactive civic simulations depends on the availability of adequate ICT infrastructure.

Bećirović (2023) identifies professional development and ongoing training as critical strategies teachers use to overcome digital challenges. Teachers who struggle with ICT often lack the necessary technical skills or confidence, which inhibits effective integration. As a response, some educators engage in self-initiated learning, peer mentoring, and in-service training to bridge their competency gaps. In History and Government classes, these strategies are particularly important in learning how to incorporate tools such as projectors, tablets, smartphones, laptops, computers and digital archives.

De Villa and Manalo (2020) provide a detailed qualitative perspective on teachers' coping mechanisms in the pre-implementation of distance learning. They identify strategies such as gathering digital resources, profiling learners to match content with student needs, and investing in continuous professional development. Importantly, teachers also adopted time management, peer mentoring, and positive mental attitudes to cope with the stressors of technology integration. In teaching History and Government, these strategies support curriculum adaptation and enhance the delivery of engaging and relevant content even in resource-constrained environments.

Tlili et al. (2021) discuss the potential of emerging technologies like Artificial Intelligence (AI), blockchain, and big data in enhancing Open Educational Resources (OER) usage, which can significantly aid History and Government teaching. Teachers, especially in low-resource settings, can access and adapt OER materials to local curricula, minimizing costs while enriching content diversity. The challenge lies in selecting and validating appropriate OERs, which some teachers address by collaborating in professional networks, using peer reviews, or relying on trusted education platforms

2.5.1 Enhancing ICT Infrastructure and Technical Support

By enhancing digital infrastructure and increasing internet connection, government projects in Australia have concentrated on tackling ICT issues in isolated and rural schools. The Information and Communication Technologies (ICT) Strategy 2020–2024 claims that large expenditures have been made to improve ICT capacities including improved connection, professional development for teachers, and cyber-safe learning settings. Still, there are difficulties including inadequate high-speed internet in rural areas, a dearth of current technological tools, and overburdened ICT support staff at educational institutions. The plan stresses the importance of ongoing investment in ICT infrastructure, cooperation with stakeholders, and the supply of sustainable digital learning solutions over all areas of Australia to guarantee fair access to technology-enhanced education.

Amuchie (2015) underlines how urgently ICT infrastructure and power supply must be improved to increase the incorporation of technology into teaching and learning in secondary schools in Ardo-Kola and Jalingo, Taraba State, Nigeria. To provide classrooms with basic digital tools such desktop and laptop computers, multimedia projectors, and interactive whiteboards, government funding must rise. By means of funding and subsidized ICT equipment, collaborations with private sector partners and international organizations help to guarantee that schools possess the required resources. Furthermore, the acceptance of alternate power sources like solar energy helps solve the problem of erratic electricity, thereby permitting constant usage of ICT equipment in educational environments. Structured policies should also be followed to encourage the procurement of reasonably priced ICT instruments in line with the budgetary situation of the educational sector. Ensuring that teachers are ready to properly include ICT into their teaching activities depends on similarly strengthening

their training programs. By means of these approaches, ICT resources can be more readily available and used, therefore promoting a more technologically driven learning environment in Taraba State.

Mtebe and Raphael (2018) advise several important initiatives to solve the problems of poor ICT infrastructure and unpredictable internet access in Tanzanian higher education. Emphasizing the importance of significant investment in modern ICT facilities, they underline in their research done at the University of Dar es Salaam, Tanzania, ensuring that universities are equipped with current computers, digital learning tools, and enough technical assistance. Especially in isolated locations where connectivity is sometimes poor, increasing access to reasonably priced and fast internet is also absolutely vital. Furthermore, helping to provide discounted internet packages and digital resources for teachers and students are alliances between colleges, corporate players, and telecommunication firms. Moreover, institutions should set up systematic ICT training courses to provide instructors and students with the required digital skills, therefore guaranteeing the efficient use of the given technologies. Tanzania can build a stronger ICT infrastructure by using these techniques, therefore encouraging smooth integration of technology into education and learning.

Emphasizing the need of improving ICT infrastructure and offering sufficient technical assistance to enable the integration of technology into education, Shikomera, Mulwa, and Mwania (2023) The survey underlines how many public primary schools in Kenya lack enough computers, projectors, and internet connectivity, so making it challenging for instructors and children to make good use of ICT resources. To solve this, the researchers advise more government support and alliances with private companies to provide new digital tools to equip educational environments. Furthermore, the creation of specialized ICT support teams in educational institutions can assist in technical

problem solving, therefore guaranteeing minimum disturbance of the delivery of classes. Schools can provide conditions fit for efficient ICT integration by improving infrastructure and technical support.

Schools should give investing in the infrastructure facilities that would solve the issue of insufficient ICT tools top priority. This is consistent with the claim of Bariu (2020), who pointed out the vital need of suitable ICT tools in education. The required tools—computers, projectors, internet access will be sought for by means of a fund request from both governmental and non-governmental organizations, Amuchie (2015). Such alliances with local energy providers to guarantee a consistent power supply and the hiring of technical support staff would thus be able to even help to maintain and use the ICT infrastructure so that both teachers and students may fully utilize whatever resources are made available. Actually, Amuchie (2015) and Bariu (2020) underline that overcoming the infrastructure-related obstacles to efficient ICT integration will mostly depend on this all-encompassing approach.

Research particularly targeted at methods to improve ICT infrastructure and technical assistance for History and Government instructors in secondary schools within Ainabkoi Sub-County, Uasin Gishu County, is lacking. Although studies conducted in Kenya have examined general ICT issues in education, they rarely provide subject-specific analyses of how infrastructural challenges influence the teaching and learning of History and Government, the study addressed this gap by investigating the specific infrastructural and technical constraints faced by History and Government teachers in Ainabkoi Sub-County and by proposing targeted strategies to enhance ICT integration within the subject.

2.5.2 Implementing Comprehensive Teacher Training Programs

Targeted interventions are required to improve teachers' ICT literacy and advance efficient technology integration in the classroom. Tondeur et al. (2020) claim that structured ICT courses including hands-on experience to develop confidence and competence in the use of digital tools should be included into teacher preparation programs carried out in Belgium. Programs for ongoing professional development (CPD) also help to keep in-service teachers current on new technologies and best practices. The study also underlines the value of peer cooperation and mentoring; whereby more experienced teachers assist colleagues with less ICT competency. Moreover, smooth integration depends on enough institutional support including dependable ICT infrastructure, technical help, and digital resources. Research-driven policies should also be investments made by policymakers to solve ICT issues facing teachers and guarantee continuous technological adoption in classrooms.

Particularly at public schools in Mindanao, Philippines, Cantutay and Taganas (2024) emphasize how effective technology integration in classrooms depends on teachers' ICT competency. The researchers advise extending computer upskill initiatives with an emphasis on both fundamental and advanced digital competencies in order to fill in the skill shortages. Teachers should get regular hands-on training courses to equip them with useful knowledge in using digital teaching tools, online learning environments, and instructional software. Including ICT skill development into ongoing professional development initiatives will also help to guarantee that teachers remain current with newly invented technology. Establishing peer mentoring programs inside universities, whereby tech-savvy teachers assist colleagues in developing their ICT competency, will help to improve skill development even more. By strengthening these initiatives for

capacity-building, Mindanao's teachers would be able to successfully include ICT into their lessons, therefore enhancing the results of student learning.

Many research projects have looked at ways to improve teachers' ICT integration abilities in Ghanaian schools. Asare et al. (2023), for example, looked at ICT integration in Ghanaian Colleges of Education underlining the importance of ongoing professional development and institutional assistance to improve teachers's digital capabilities. Improving ICT integration in education depends on giving teachers digital skills, sufficient infrastructure, and a supportive policy environment, according to their research (Asare, Emmanuel, Dankwah, & Eric, 2023).

Teachers' opinions of ICT-driven cooperation in Rwandan secondary schools were investigated in a recent Habiyaremye et al. (2024) The results showed that although teachers understand how ICT might improve cooperative teaching and learning, various obstacles prevent its successful incorporation. Among these difficulties are limited technology resources, poor training, and insufficient institutional support. The report suggests thorough professional development programs targeted on ICT skills, investment in required infrastructure, and the creation of supporting policies to create a favorable climate for ICT integration in education in order to solve these challenges.

Another important way to improve ICT use in the classroom is by putting in place thorough teacher development initiatives. In their research done in public elementary schools in Kenya, Shikomera, Mulwa, and Mwania (2023) found that lack of digital literacy and pedagogical abilities are main obstacles keeping instructors from using ICT into their teaching strategies. To evaluate the degree of ICT integration in teaching and learning, the study comprised 200 instructors and 100 headteachers using a descriptive survey research approach. Emphasizing both fundamental and advanced ICT abilities, the researchers advise that regular in-service training courses be instituted. Training

should be customized to enable teachers grasp how to properly include technology into various disciplines, thereby guaranteeing that ICT tools are not just used for administrative purposes but also as fundamental parts of the teaching and learning process. Furthermore, offering ongoing professional development can help teachers become more eager to use technology-driven pedagogies since it will increase their confidence in using digital tools.

For instance, comprehensive training courses are in place under requirement to close the variations in ICT literacy degree among teachers. Muia (2021) claims that a good integration depends on teacher competences in ICT being absolutely essential. Training should be provided to develop fundamental skills required in properly using ICT technologies in the classroom. To ensure that ongoing professional development keeps the teachers current with developing technology, this will be accomplished through seminars, online courses, and peer mentoring events. According to Muia (2021) improving teacher competences by means of these training courses has been observed as a crucial component in the successful integration of ICT into education and learning.

However, there is limited research specifically examining the effectiveness of teacher training programs in facilitating ICT integration for History and Government instruction in secondary schools within Ainabkoi Sub-County, Uasin Gishu County, Kenya. While studies in Kenya have addressed general ICT training needs, they do not provide insights into subject-specific training approaches tailored for History and Government teachers. This study sought to bridge this gap by investigating how current teacher training initiatives impact ICT integration in History and Government classes and identifying targeted strategies to enhance digital competencies among educators in this specific educational context.

2.5.3 Fostering positive attitude toward ICT integration

Teachers are very much influenced by the attitude that integration would bring forth for example, studies have shown that a positive attitude towards the use of technology enhances the rate at which teachers adopt such technologies. Schools should, therefore encourage an environment where there is freedom to try out ICT integration, recognizing and rewarding those teachers who successfully integrate technology into their lessons. Case studies and testimonials showing successful integration of ICT in schools will help remove the fears or concerns that some teachers might have about technology. This would create a culture to support technology and consequently improve the disposition of teachers to integrate ICT in their teaching methods (Gesare 2023).

Recent research has underlined the important part that teachers' attitudes play in the effective integration of ICT into teaching strategies. Lawrence (2022, for example, looked into the strategic factors affecting teachers' ICT integration in Australian classrooms and learning environments). The study revealed that teachers' confidence and technological competency were much connected with their opinions about ICT. The study advises the implementation of focused professional development programs aiming at improving teachers' digital abilities and pedagogical knowledge of ICT applications in order to solve issues of negative attitudes. Furthermore, advised to encourage good attitudes about ICT integration are supporting institutional culture and sufficient resources.

Research conducted in South Africa have looked at ways to improve teachers' attitudes toward including Information and Communication Technology (ICT) into their classrooms. For example, a 2025 Musasa et al. study looked at elements impacting technology integration among Gauteng high school math teachers. The study made

clear that teachers' desire to use ICT tools in the classroom is much influenced by their technological competency and pedagogical subject knowledge. The study suggests focused professional development programs emphasizing on developing both technical skills and pedagogical understanding of ICT applications in order to solve problems with negative attitudes. Moreover, encouraging good attitudes about ICT integration depends on a supportive institutional culture and enough resources.

Effective teaching and learning in Uganda depend on educators having a good attitude toward Information and Communication Technology (ICT) integration. Teachers' readiness to include ICT into their teaching activities is much influenced by their attitudes, according to a 2021 Muweesi et al. The report advises thorough professional development initiatives that improve both technical abilities and pedagogical tactics to handle issues including fear of technology and perceived complexity. Furthermore, inspiring instructors to accept technological breakthroughs is a supportive school atmosphere that promotes ICT tool experimentation and sharing of best practices. Strong leadership pushing for ICT integration helps to maintain good attitudes, therefore enhancing the dynamic and efficient learning environment available to students.

In Kenya Shikomera et al. (2023) concentrated on public elementary schools in their research the researchers looked at the difficulties teachers have included including information and communication technology (ICT) into their curricula. As major obstacles they found were fear of technology, lack of enthusiasm, and opinions that digital technologies impede instruction delivery. The report advises school administrations to foster an innovative culture by means of encouraging instructors to test several ICT tools and disseminate best practices in order to handle these difficulties. Furthermore, appreciating and supporting teachers who effectively use technology into

their lessons could inspire others. Shifting teachers' attitudes and promoting a more technologically friendly teaching environment depend on a supportive school climate along with strong leadership pushing for ICT integration.

In a related vein, Bariu 2020 looked into the condition of ICT infrastructure in every public secondary school in Meru County, Kenya. The need identified was for guidance and adaptation. Bariu argued that training teachers in ICT would enable them to stay updated with the latest information on the subject and facilitate the infusion of ICT structures into education processes. Bariu went on to recommend that the government should provide at least basic computer and ICT facilities in all secondary schools to ensure equal access and utilization. Bariu emphasized that technical support must be available in sufficient numbers, thus calling for trained ICT technicians who can provide quick solutions to problems and sustain continuously available ICT resources for classroom use. Existing studies explore teachers' attitudes toward ICT integration but lack focus on History and Government instruction in Ainabkoi Sub-County. Research rarely addresses subject-specific needs like digital archives and interactive historical tools. This gap necessitates examining barriers and facilitators influencing ICT integration in teaching History and Government in this context.

2.6 Critique of the Existing Literature Relevant to the Study

The literature reviewed provided very valuable insight into the integration of ICT in education, with a particular focus on teacher attitude, ICT literacy, and implementation challenges. According to research conducted by (Muia, 2021), and (Gesare, 2023), the ICT literacy and attitudes of teachers are some of the important factors in the successful integration of ICT. The focus in the present research, though, has largely been on primary education, while secondary contexts have received less attention, as has been noted by Muia, 2021. While Gesare's study, 2023, in Home Science education gives

specific insights, its applicability to broader subjects like History and Government remains at a low level. The existing literature constantly points out the barriers to ICT integration without really putting forward practical suggestions on what to do. This would include the work by (Amuchie, 2015), identifying major challenges like infrastructure inadequacies and gaps in skills but failing to suggest elaborate models of intervention that would suit different education settings. It is, therefore, an area where more research is needed to address these gaps in the integration of ICT into secondary education, especially in History and Government.

2.7 Research Gap

Despite all the rich contribution that literature has made towards the integration of ICT in education, huge gaps exist, which this study hoped to fill, especially within the context of secondary education and History and Government subjects. Gesare (2023) conducted a study on the integration of ICT in Home Science education while the current study focused on History and Government at the secondary school level.

Muma (2021) investigated ICT usage in primary school settings with a focus on curriculum delivery. While valuable, the study largely centered on the lower primary level and general classroom practices, whereas the current study addressed ICT integration in teaching Form three students History and Government in public secondary schools in Kenya.

Habiyaremye et al. (2024) examined teachers' perceptions of ICT-driven collaboration in Rwandan secondary schools. The study found that limited access to technology, lack of training, and weak institutional support hinders effective integration. While the study highlights the need for professional development and policy support, it was conducted in Rwanda and did not focus on subject-specific ICT integration. The current study

focused on History and Government in Kenyan secondary schools, addressing both contextual and subject-specific needs.

Shikomera, Mulwa, and Mwania (2023) studied ICT integration in public primary schools in Kenya and identified limited digital literacy and pedagogical skills among teachers as key barriers. While the study recommends regular in-service training, it focused on primary education. The current study concentrated on secondary school teachers of History and Government; a subject often overlooked in ICT-related research.

Although previous studies have acknowledged challenges to ICT integration such as inadequate infrastructure and low digital literacy few have proposed feasible and context-specific intervention models. The current study sought to fill this gap by developing specific strategies tailored to enhance ICT integration and effectiveness in teaching History and Government at the sub-county level in Ainabkoi, Uasin Gishu County.

2.8 Chapter Summary

This chapter reviewed literature on issues relevant to the objectives of the study, starting with the concept of ICT literacy. Crucial studies were interpreted and precisely established that teacher preparation and a holistic approach were important in integrating ICT. Inhibiting factors in ICT integration among secondary school History and Government teachers, such as high costs and inadequate infrastructural base, are highlighted. This included increased funding, training of the teacher, and technical support. The critique therefore established gaps in the secondary school educational contexts majorly in History and Government, where practical intervention models are needed. More studies are therefore essential to address these gaps and are needed to

increase the integration of ICT in teaching Form Three History and Government in Ainabkoi Sub-County, Uasin Gishu County, Kenya.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter describes the methodology and research design that were employed in this study. The study area, target population, sampling strategies research tools, data collecting tools, data analysis techniques, and ethical issues are all thoroughly discussed.

3.2 Research Methodology and Design

A mixed-methods strategy was used in the study, combining quantitative and qualitative methods. This approach integrates the numerical data with specific contextual information therefore enabling a thorough study of the research problem. It adopted an explanatory sequential mixed methods design**,** which involved collecting and analyzing quantitative data first, followed by qualitative data. A mixed methodology, according to Creswell and Plano Clark (2023), is one in which philosophical presumptions are used to acquire and evaluate data from many sources in single research. Combining two approaches was most successful than utilizing one as, depending on qualitative or quantitative approaches, profound insights into the research topic that are difficult to completely understand are most often missed. Using a mixed-methods approach which combines and aggregates several data sources helps one research difficult problems (Poth & Munce, 2020).

The fundamental operational pattern or framework of the project is the research design, which specifies the techniques and approaches to compile the needed data. It also outlines what information has to be acquired from what sources, using what techniques (Kiplimo, 2018).

The study employed a descriptive survey research design. This study employed a descriptive survey design, which is appropriate for obtaining information about current status of phenomena, attitudes and relationships among variables (Creswell 2014, Orodho, 2017). This specific design was ideal for collecting detailed reports of previous cases and spotting patterns and trends across variables. Descriptive research allows the researcher to obtain detailed information that may be generalized to the wider setting by using a sample that is representative of the target population. It allows empirical systematic data collection from a diverse sample, thus making rich and reliable findings. Integrating quantitative and qualitative data enabled an in depth understanding and thorough comparisons across schools and practical recommendations through comparison and understanding of realities in ICT integration, challenges thereof, and impacts.

3.3 Study Area

The study was conducted at Ainabkoi Sub County, Uasin Gishu County, Kenya. It is a rural settlement in the North Rift valley part of Kenya with approximate population of 138,184 people according to the 2019 National population and housing census. Subsistence farmers growing maize, potatoes and wheat in small scale inhabit Ainabkoi.

Ainabkoi Sub-County was selected for study because of its socio-economic diversity, which is succinctly correspondent to the problem statement: underutilization of ICT tools in History and Government instruction. In Ainabkoi, an appropriate sampling was drawn out, with its ideal mix of rural and peri-urban setups for exploring differences in access to ICT infrastructure. Such diversity is important in informing the challenges and opportunities that relate to the integration of ICTs in education because different environments within the sub-county could influence the availability of effective use and

impact of ICT on teaching and learning outcomes. The study focused its attention on Ainabkoi in the pursuit of specific factors that contribute to differences in ICT integration to inform targeted strategies in the improvement of uptakes in similar contexts across Kenya.

3.4 Target Population

The target population is a full set of the general population being studied, (Willie 2024). It refers to the entire group from which samples are drawn. As a result, the total study target population were 660 individuals, consisting of 600 students studying history and government, as well as 30 History and government teachers and 30 school principals in the Ainabkoi sub county of Uasin Gishu County, Kenya.

Table 3.1 Target Population

Category	Population
Principals	30
Teachers	30
History and government students	600
Total	660

Source: Ainabkoi Sub-County Directors of Education office (2025)

3.5 Sampling Frame

A sampling frame according to Smith (2022) refers to the list or representation of every element in the target population, from which one sample can be drawn. As a source from which the participants or items are selected, all elements would have known chances of being included in the study. Principals, Teachers of history and government and students from selected schools in Ainabkoi sub-county formed the sampling frame. The researcher looked into some aspects of ICT integration in classroom instruction by making sure the involvement of principals, History and Government teachers, and

students. This approach involves stratified random sampling technique; thus, an in depth understanding of processes and dynamics of ICT Integration into teaching History and Government in randomly selected secondary schools is facilitated.

3.6 Sample Size and Sampling Technique

According to Smith (2022), sample size refers to the number of participants selected from the population, while sampling technique describes the method used to choose those participants. A rigorous sampling approach was employed to determine how History and Government instructors in Ainabkoi Sub-County use ICT in their lessons. According to Stratton (2021), when dealing with huge populations, it is not practical to acquire data from the entire population, hence sampling is required. Stratified random sampling was used in this study to ensure that all school types; national, Extra County, county, and sub-county are appropriately represented. The sample size was 30% of the total population, which included 9 schools, 9 school principals, 9 History and Government teachers, and 180 History and Government students. A sample size of 10%-30% is recommended for descriptive studies to ensure feasibility, manageability and statistical reliability while maintaining data accuracy (Kothari & Garg, 2021). This range allowed meaningful analysis without excessive resource demands, making it a practical choice for educational research and similar fields.

Table 3.2 Sample size

Sample	Total population	Sample size
Principals	30	9
Teachers	30	9
History and government students	600	180
Total	660	196

The study used a stratified random sampling technique to ensure representation from all categories of secondary schools in Ainabkoi Sub-County namely national, extra county, county, and sub-county schools. Schools were stratified based on these categories, after which a proportionate number were randomly selected from each stratum using simple random sampling technique. From the selected schools, principals and Form three History and Government teachers were purposively sampled due to their direct involvement in instructional leadership and subject delivery. History and Government students were selected using simple random sampling, with the number drawn proportionately from each school to achieve the desired sample size.

3.7 Research Instruments

According to Ojwang (2023), a research instrument is a tool that a scientist employs to collect, measure, and analyze data. This study used a range of research tools to gather detailed data. This comprised an interview schedule for principals, questionnaire for history and government teachers and students to collect data on the real extent of ICT use in history and government teaching and learning, challenges and coping strategies.

3.7.1 Questionnaire

A questionnaire is a research tool used in the data collecting process, according to (Ojwang, 2023), which consists of a sequence of questions or other forms of prompts meant to generate information from respondents. This study used open-ended and closed-ended questions. Targeting Form Three students, a structured questionnaire gathered quantitative information on ICT integration from the instructors' opinions on its usage and availability. The importance of this is that Form Three students are at a crucial stage in secondary education, thus making their experience meaningful.

The questionnaire was structured into several sections to effectively gather data relevant to the study objectives on ICT integration in teaching History and Government. It began

with demographic questions to contextualize responses based on factors such as age, gender, and teaching or study experience. This was followed by items assessing the availability and accessibility of ICT resources, including computers, projectors, internet connectivity, and subject-specific digital content. Another part concentrated on the frequency and type of ICT use in History and government courses, letting participants mark how often and in what ways technologies including projectors, instructional videos were utilized. Using Likert-scale items to reflect the opinions of both teachers and students about its efficacy and relevance, the questionnaire also investigated views and perceptions toward ICT integration. It also covered the difficulties ICT use faces like poor infrastructure, insufficient technical assistance, inadequate training and time limits. Finally, an open-ended part let participants propose ways to increase the use of ICT in history and government, so augmenting the qualitative insights added to the quantitative results.

3.7.2 Interview Schedule

According to (Taherdoost, 2021), an interview is defined as a method of asking questions to gain qualitative data. Set of interview schedule was designed for selected school principals to get their views on extent of ICT integration in classroom, the challenges impeding effective ICT integration in teaching of history and government and strategies used by teachers to overcome challenges.

Semi-structured interviews were used for data collection because they allow room for flexibility while still concentrating on specific topics. They included how principals mobilize and champion ICT integration within their schools, the extent of ICT integration, the barriers to effective ICT Integration and the strategies to overcome challenges in use of ICT. This method, therefore, complemented the structured information collected by a questionnaire with richer, contextualized materials.

3.8 Pilot Study

A pilot study was conducted as a small-scale trial of the entire research process to test the feasibility of the study design, research instruments and logistics. It helped to identify potential weaknesses, ambiguities or challenges that could affect the main study, allowing for necessary adjustments to improve the reliability and validity of research instruments and procedures. Three secondary schools from Kesses Sub County, Uasin Gishu County participated in the pilot project. Kesses Sub County was selected because it is quite similar geographically and demographically to Ainabkoi and thus the findings from the pilot study were relevant and applicable. Later on, those schools were not included in the final analysis.

3.9 Validity and Reliability of Instruments

3.9.1 Validity

Validity of the research instruments was ensured through a multi-step approach. Validity is defined as whether the measuring instrument accurately assesses the behavior or quality being assessed, as well as how well the instrument executes its work (Sürücü & Maslakci, 2020). Validity is the degree to which results obtained from the analysis of the data actually represents the phenomena under the study. Questionnaire was first subjected to perusal by subject matter experts in education and ICT integration. The instruments were examined for content validity by university supervisors and other experts in this category. That is, they checked if the instruments are comprehensive in covering all the research objectives put forward. Experts' feedback from the field of ICT were utilized in refining the instruments. Ambiguous or irrelevant questions were eliminated. Additionally, pilot testing conducted on a very small sample of the target population so that further refinement was done on the instruments based on participants' responses and problems they encounter while going through the pilot.

3.9.2Reliability

Reliability refers to as a measuring instrument's stability and consistency across time, which means that it should generate similar results when used in different instances (Sürücü & Maslakci, 2020). A test-retest procedure was used to determine the reliability of the interview schedule. The interview schedule was administered once to a group of participants, then again after a two-week period to the same participants. Both times, analysis of response consistency was done, and high similarity was an indication of its reliability. Large discrepancies may bring up concerns to review and probably revise interview questions. This approach can result in a quite stable and consistent interview schedule over time.

Reliability was assessed using Cronbach's alpha coefficient in the questionnaire. This was administered again to a bigger sample, and responses were analyzed statistically with appropriate software in calculating Cronbach's alpha. A coefficient of 0.7 or higher indicated good internal consistency and reliability. Items with low item-total correlations were reviewed for revision or removal in order to enhance the general reliability of the questionnaire. This rigorous process ascertains that the questionnaire is a reliable tool to capture the variables of interest.

Table 3.3 Reliability Statistics for Pilot Study Instruments

	Teacher Questionnaire			Student Questionnaire		
Objective	No. of Items	Cronbach's Alpha	Interpretation	No. of Items	Cronbach's Alpha	Interpretation
To assess the level of ICT integration in teaching History and Government	6	0.812	Reliable (Good)	4	0.714	Reliable (Acceptable)
To determine challenges affecting ICT integration in teaching History and Government	4	0.875	Reliable (Very Good)	5	0.805	Reliable (Good)
strategies used by teachers to overcome challenges in use of ICT in teaching of History and Government	5	0.793	Reliable (Acceptable)	5	0.753	Reliable (Acceptable)

Table 3.1 presents the reliability test results for the study instruments, measured using Cronbach's Alpha. The values indicate the internal consistency of the items under each variable. According to standard reliability thresholds, a Cronbach's Alpha value of 0.7 or higher is considered acceptable. As shown in the table, all the variables recorded alpha values above this threshold, confirming that the instruments used in this study are reliable for data collection.

3.10 Data Collection Procedure

The data collection involved seeking permission from the University of Eldoret (UOE) after which permission was sought from the National Commission for Science, Technology and Innovation (NACOSTI) to conduct the research. Once a study permit was obtained, the researcher submitted it to the relevant authorities in the areas targeted in the study, such as the County Commissioner, County Director of Education, Uasin Gishu County, Sub County Education Office and the principals of the selected schools.

After obtaining the necessary consent, the researcher could be introduced to the respondents through school authorities. Arrangements were made with the appropriate staff to decide on the appropriate time to participate in an interview and administer the questionnaire. The researcher personally controlled the research process and ensure adequate communication and understanding with the respondents.

Interviews were arranged for 9 principals, while questionnaires were administered to 9 history and government teachers and 180 Form three history students that information is accurate and up-to-date. Subsequently, all data collected were coded, retrieved, processed, analyzed and further discussed and interpreted.

3.11 Data Analysis Technique and Presentation.

The process of preparing information so that it may be used to find answers to the problems that have been explored is known as data analysis. In other words, data analysis for this study entailed giving the wide range of information collected organization, order and significance (Temba, 2021). Quantitative data were coded and entered into SPSS version 29 for analysis. Descriptive statistics (frequencies, percentages, means, bar charts, graphs) were generated to summarize data. Qualitative data from interviews were analyzed thematically.

3.12 Ethical Considerations

According to Scribbr (2023), ethical considerations are the foundation of research, which guarantees that the researcher protects the participants while maintaining the integrity of the study. To maintain ethical standards in this research study, the researcher first sought ethical clearance from relevant institutions, including the University of Eldoret. The researcher also sought ethical approval from the NACOSTI to meet the standards set in national research regulations. Participants were made aware of the study's intent, its objectives and what was expected of them in the study to maintain an atmosphere of open access and trust.

The principle of informed consent was applied at the time of giving the participants the necessary information, clear and comprehensive in all respects on the purpose and potential advantages and risks of the study, before their agreement to take part. The consent forms were prepared in a language that is simple so they will clearly and unambiguously state the intent of the study, its potential benefits and its risks to participants.

A unique identification code system away from personal identifiers was applied on all the collected data to secure participant confidentiality and anonymity. Data were stored on devices secured through passwords and thereby only accessible to the researcher. The research findings were presented in an honest and objective manner so that no information is manipulated or misrepresented.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents, analyzes, interprets and discusses the findings of the study based on the data collected from secondary school teachers, students and principals in selected secondary schools in Ainabkoi Sub-County, Uasin Gishu County, Kenya. The purpose of the study was to explore the extent to which instructors integrate ICT in the teaching of History and Government. The analysis is aligned with the study's specific objectives, namely: to examine the extent of ICT integration in classroom among History and Government teachers; to explore the challenges impeding effective ICT integration in teaching the subject; and to interrogate the strategies employed by teachers to overcome those challenges. The results are further interpreted and discussed with reference to existing literature and relevant theoretical frameworks

4.2 Response Rate

The study achieved a high overall response rate. Out of the 180 students targeted, 166 responded by completing the questionnaires, yielding a response rate of 92.2%. All 9 teachers responded to the questionnaires, achieving a 100% response rate. Similarly, all 9 principals participated in the interviews, also resulting in a 100% response rate. These high response rates ensured the data collected was reliable and representative of the target population. Table 4.1 presents the distribution of the response rate.

Table 4.1 Response Rate

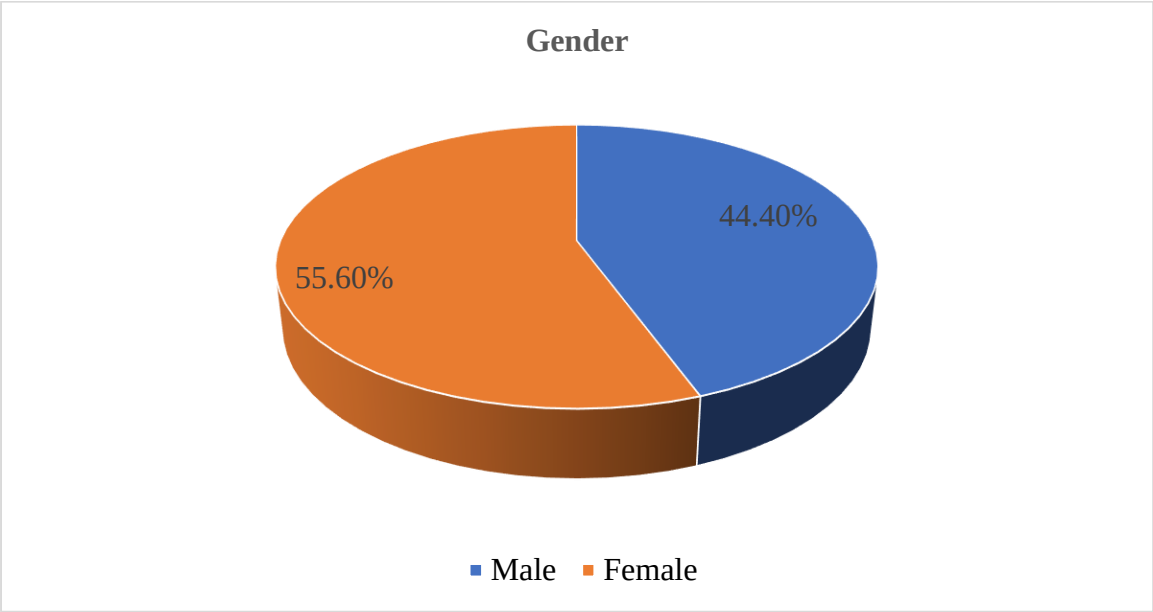
Category	Targeted Respondents	Actual Respondents	Data Collection Tool	Response Rate (%)
Students	180	166	Questionnaire	92.2%
Teachers	9	9	Questionnaire	100%
Principals	9	9	Interview	100%

The findings indicate that of the 180 students that were targeted, 166 answered, for a response percentage of 92.2%. With a 100% response rate for both groups, all nine instructors and all nine principals singled out for the study answered. The high response rates especially the complete participation of principals and teachers indicate a high degree of involvement and improve the representativeness and trustworthiness of the study results.

4.3 Demographic Characteristics of the Respondents

This section presents the demographic information of the teacher respondents involved in the study. The demographic characteristics considered include gender, age, teaching experience, school category and teacher highest academic qualification. The data helps to provide context for interpreting their views on ICT integration in the teaching of History and Government.

4.3.1 Gender of the Respondents



n=9

Figure 4.1 Gender of the Respondents.

The findings show that out of the 9 teacher respondents, 5 (55.6%) were female while 4 (44.4%) were male. This indicates that there was a slightly higher number of female teachers involved in the study than male teachers.

4.3.2 Age of the Respondents

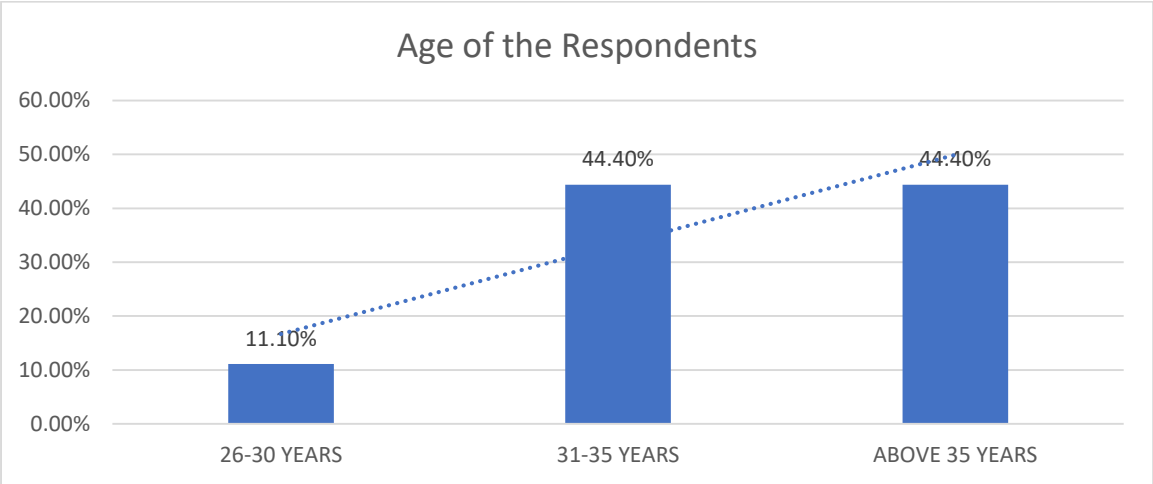


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Figure 4.2. Age of the Respondents

The age distribution indicates that the majority of the teachers (88.8%) were aged 31 years and above, with 44.4% in the 31–35 years bracket and another 44.4% above 35 years. Only 11.1% were in the 26–30 years bracket, suggesting that most of the teachers were mature and potentially more experienced.

4.3.3 Teaching Experience

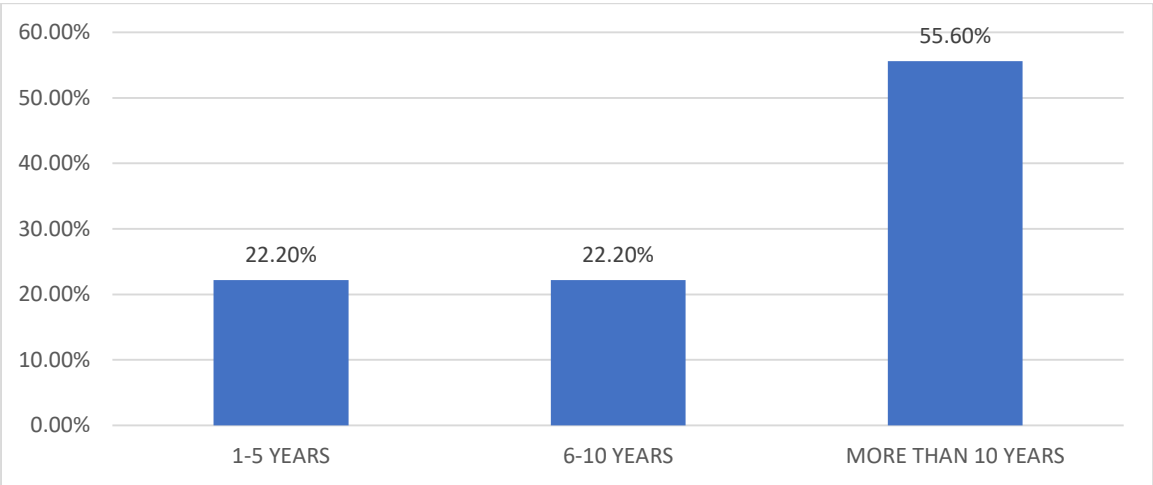

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Figure 4.3 Teaching Experience.

More than half of the teachers (55.6%) had over 10 years of teaching experience, indicating a highly experienced group. Those with 1–5 years and 6–10 years each

accounted for 22.2% of the respondents. The results suggest that most participants were seasoned professionals likely to have formed informed opinions on ICT integration in teaching.

4.3.4 School Category

School category is the division of schools according to particular criteria including its level, ownership, funding, or academic orientation. By use of this classification, the educational system is better organized and the policies, resources, and curriculum applicable to every kind of institution can be found.

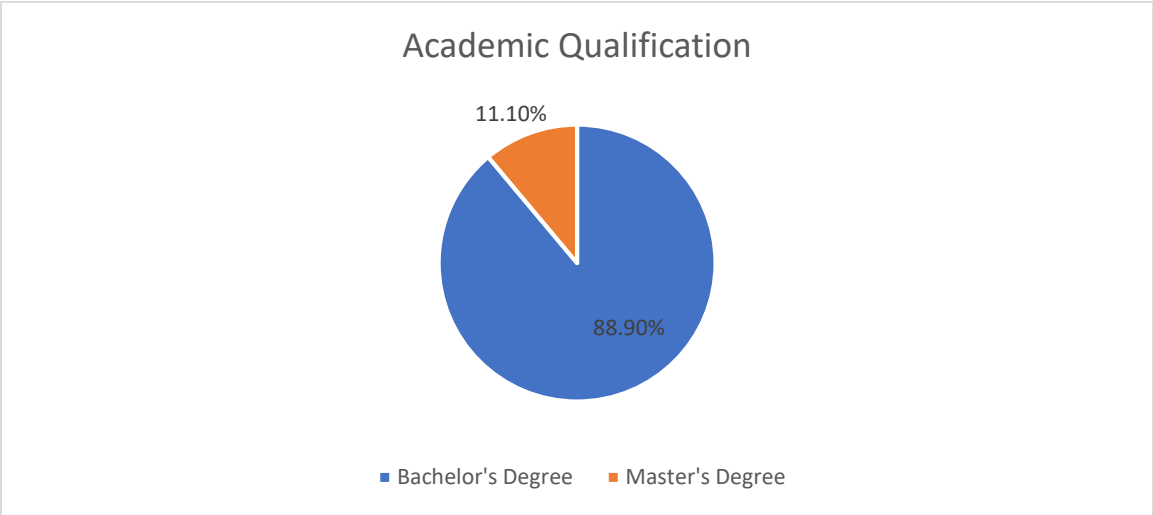
Table 4.2 School Category

School Category	Frequency	Percent
National school	1	11.1
Extra county	3	33.3
County	2	22.3
Sub-county	3	33.3
Total	9	100

n=9

The findings indicate that majority of teachers (33.3%) were drawn from extra county and sub-county schools. Teachers from county schools made up 22.3% of the respondents, while those from national schools each accounted for 11.1%. This distribution indicates a fair representation from different school categories, with a stronger presence from higher-tier schools.

4.3.5 Academic Qualification for Teachers



n=9

Figure 4.4 Academic Qualifications for teachers

The findings indicate that most of the teachers (88.9%) held a Bachelor's degree, while only one teacher (11.1%) had a Master's degree. This suggests that the majority met the minimum qualification required for teaching at secondary school level, with limited representation from those with advanced academic qualifications.

4.4 The extent of ICT integration

This section presents and discusses the extent to which History and Government teachers in secondary schools within Ainabkoi Sub-County integrate ICT into their teaching practices. The analysis is based on six key indicators: frequency of ICT use, types of ICT tools used, proficiency in ICT, ICT training, infrastructure quality, and multimedia tool usage.

4.4.1 Frequency of ICT use in Teaching

In the context of education, frequency of ICT use is the frequency with which Information and Communication Technology (ICT) technologies are included into the process of instruction and learning. This includes the regularity with which teachers use

digital technologies—including computers, projectors, instructional software, the internet, and other electronic resources—to prepare courses, offer instruction, assess students, and enable student participation.

Table 4.3 Frequency of ICT use in Teaching

Category	Frequency	Percent
Weekly	2	22.2
Monthly	1	11.1
Rarely	6	66.7
Total	9	100

n=9

The findings reveals that a significant majority of teachers (66.7%) rarely use ICT tools in their teaching of History and Government. Only 22.2% reported using ICT weekly, while 11.1% used it monthly. Notably, no respondent reported daily usage. This indicates a generally low level of ICT integration in classroom instruction, suggesting that traditional teaching methods still dominate in the subject.

4.4.2 Most Frequently Used ICT Tools

Most often used ICT tools in education relate to the digital tools, applications, or platforms teachers routinely employ to support teaching and improve learning. These resources enable delivery of materials, evaluation of students, and classroom participation and communication enhancement.

Table 4.4 frequently used ICT tools

Category	Frequency	Percent
Computers	3	33.3
Projectors	5	55.6
mobile phones	1	11.1
Total	9	100

n=9

Projectors emerged as the most commonly used ICT tools (55.6%), followed by computers (33.3%). Mobile phones were least used (11.1%), and no teacher reported using tablets. This suggests that while ICT resources are present in some schools, usage is still limited to a few traditional tools, and innovative or mobile-based platforms are underutilized.

4.4.3 Proficiency in Using ICT Tools

Proficiency in ICT tools is the capacity and confidence of teachers or students to efficiently run and implement digital technology in the course of instruction. It entails not only knowing how to use the instruments but also knowing when and how to employ them suitably to reach learning objectives.

Table 4.5 Proficiency in Using ICT Tools

Category	**Frequency**	**Percent**
Proficient	4	44.4
Somewhat Proficient	5	55.6
Total	9	100.0

n=9

The findings showed that none of the respondents rated themselves as "very proficient," and a majority (55.6%) identified as only "somewhat proficient" in using ICT for teaching. This suggests that teachers may have basic knowledge but lack deeper skills

required to fully integrate ICT tools into pedagogy. Lack of training and support may be contributing to this limited proficiency.

4.4.4 Attendance of ICT Training

Participation in organized programs, workshops, or courses aimed at improving teachers' (or other educational stakeholders') knowledge and abilities in using ICT tools for teaching is referred to as attending ICT training.

Table 4.6 Attendance of ICT Training

Category	Frequency	Percent
Yes	2	77.8
No	7	22.2
Total	9	100

n=9

The findings indicate that a large majority of teachers (77.8%) had not received any formal training on how to use ICT to teach History and Government. This lack of professional development opportunities significantly hinders effective integration and reduces confidence in using digital tools in the classroom.

4.4.5 ICT Infrastructure Rating

The assessment of information and communication technology (ICT) facilities' availability, quality, and use inside a school or other educational establishment is known as ICT Infrastructure Rating. This score guides a school's degree of preparedness to facilitate digital teaching and learning

.

Table 4.7 Infrastructure Quality

Infrastructure Quality	Frequency	Percent
Excellent	2	22.2
Good	3	33.3
Fair	2	22.2
Poor	2	22.2
Total	9	100

n=9

The results showed that only 22.2% of respondents rated the ICT infrastructure in their schools as "excellent," while 33.3% rated it as "good." However, nearly half of the respondents (44.4%) described the infrastructure as either "fair" or "poor." These findings point to inconsistencies in ICT resource availability and quality across schools, likely limiting integration efforts.

4.4.6 Use of Multimedia Tools (e.g., Videos, Simulations)

Table 4.8 Use of Multimedia Tools

category	Frequency	Percent
Often	2	22.2
Sometimes	3	33.3
Rarely	4	44.4
Total	9	100.0

n=9

Table 4.8 shows how multimedia tools are used in different schools within the study area. The use of multimedia tools such as videos or simulations is also limited, with only 22.2% of respondents using them often. Most teachers use these tools sometimes (33.3%) or rarely (44.4%). This suggests that the integration of interactive and engaging digital content in History and Government lessons is still in its early stages.

4.4.7 Student Perceptions on the extent of ICT Integration

This section examines how students perceive the use of ICT in the teaching and learning of History and Government in secondary schools. The findings are based on four key

perception indicators rated using a five-point Likert scale: Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), and Strongly Agree (SA).

Table 4.9 Student Perceptions on the extent of ICT Integration

Statement	Descriptive	SD	D	N	A	SA	Mean
The use of ICT makes History and Government lessons more engaging	Frequency	0	0	3	53	109	4.6424
	Percentage	0	0	1.8	32.1	66.1	
I feel more motivated to learn when ICT tools are used in my history and government classes	Frequency	0	0	3	106	56	4.3212
	Percentage	0	0	1.8	64.2	33.9	
I find it easier to understand History and Government concepts when ICT tools are integrated into the lessons	Frequency	6	3	21	50	85	4.2424
	Percentage	3.6	1.8	12.7	30.3	51.5	
The availability of ICT resources in my school enhances my learning experience in History and Government	Frequency	6	3	26	80	50	4.000
	Percentage	3.6	1.8	15.8	48.5	30.3	

n=166

The majority of students (66.1%) strongly agreed and 32.1% agreed that ICT makes History and Government lessons more engaging, resulting in a high mean score of 4.64. This indicates overwhelming support for ICT-enhanced learning, suggesting that digital tools contribute significantly to making lessons interactive and stimulating.

About 98.1% of students agreed or strongly agreed that they feel more motivated to learn when ICT tools are used in History and Government classes, with a mean of 4.32. This underscores the role of technology in boosting learner interest and participation.

More than 80% of respondents found ICT integration helpful in understanding History and Government concepts, with only a small percentage (3.6%) strongly disagreeing. The mean of 4.24 reflects that student generally recognize the instructional value of ICT in simplifying content delivery and enhancing comprehension.

While 48.5% of the students agreed and 30.3% strongly agreed that the availability of ICT resources enhanced their learning, the relatively lower mean score of 4.00 suggests that the impact might be hindered by inconsistent access to ICT facilities across schools. This reflects some level of dissatisfaction or limited exposure among certain students.

The findings demonstrate a strong positive perception among students regarding ICT integration in History and Government classes. The high mean scores across all indicators reflect students' enthusiasm toward the use of technology in education. However, the slightly lower ratings on resource availability point to the need for improved infrastructure and equitable access to ICT tools across schools. For meaningful integration, investments in ICT infrastructure must be paired with policies that support consistent use in the classroom.

The findings reveal that while ICT tools are available in some schools, their integration into the teaching of History and Government remains limited. Most teachers rarely use ICT, with projectors and computers being the primary tools. There is a general lack of proficiency and limited access to ICT training, which further contributes to the low adoption rates.

The variation in infrastructure quality across schools also affects implementation. Even where tools exist, the absence of proper training and technical support hinders effective usage. The limited use of multimedia tools suggests that students may not be receiving engaging, technology-enhanced learning experiences.

The findings from both students and teachers present a consistent narrative on the extent of ICT integration in teaching History and Government. While students expressed overwhelmingly positive perceptions indicating that ICT makes lessons more engaging

(mean = 4.64), enhances understanding (mean = 4.24), and increases motivation to learn (mean = 4.32), teacher responses revealed limited actual integration of ICT in classroom practice. A majority of teachers (66.7%) reported rarely using ICT tools, and 77.8% had not received formal training on ICT use in teaching. Furthermore, while projectors and computers were cited as the most used tools, the overall frequency of ICT integration remained low. This contrast highlights a gap between student expectations and experiences versus teacher capacity and infrastructural support. There is therefore the need for targeted teacher training and improved ICT infrastructure to align instructional practices with student learning preferences and optimize the benefits of ICT in History and Government education.

The principals on the other hand generally reported that the use of ICT tools in History and Government lessons was infrequent and heavily dependent on individual teacher initiative and resource availability. In most schools, teachers continued to rely on traditional, teacher-centered methods, with ICT tools being used only occasionally and in a supplementary manner.

> *"We have a projector in the school, but it is mainly used by sciences and computer teachers. Our history and government teachers rarely use it—maybe once in a while when introducing a new topic."* – Principal A, (personal communication, March 20, 2025)

> *"ICT use in History and Government lessons is not regular. It all depends on the teacher and whether the projector or laptop is available on that day."* – Principal B, (Personal communication, March 20, 2025)

A few teachers attempted to incorporate digital content or use projectors to illustrate historical concepts or show documentaries, but daily or weekly ICT integration remained rare.

> *"One of our teachers tries to show YouTube videos related to History and government, but that is only when the internet is working and if the lab is free."* – Principal C, (Personal communication, March 20, 2025)

According to most principals, formal subject-specific training in ICT for History and Government teachers was lacking**.** While some teachers had undergone basic ICT literacy courses, these were not tailored to teaching methodologies in History. This gap in targeted professional development was cited as a significant barrier to meaningful ICT integration.

> *"Our teachers know how to type and use email, but they haven't been trained on how to use ICT to make History and government lessons more engaging or interactive."* – Principal D, (Personal communication, March 20, 2025)

> *"Most of them learned computer basics in college or through workshops, but there's nothing specifically for History and government education."* – Principal E, (Personal communication, March 21, 2025)

Without this contextual training, even those who were enthusiastic about ICT struggled to effectively apply it within the History and Government classroom.

The quality and sufficiency of ICT infrastructure varied across schools but was generally deemed inadequate**.** Many schools reported limited access to functional computers, unreliable internet**,** and scarcity of projectors or smart boards. In several cases, existing ICT resources were concentrated in computer labs and prioritized for computer studies.

> *"We only have one functioning projector, and it's mostly reserved for Computer or Biology classes. History and Government is not considered a priority."* – Principal F, (Personal communication, March 21, 2025)

> *"Our internet is very slow, and sometimes it's down for days. It discourages teachers from planning ICT-based lessons."* – Principal G, (Personal communication, March 21, 2025)

This infrastructure gap created an unequal playing field for subjects like History and Government, which were often **s**idelined in ICT allocation.

> *"The humanities have always taken a backseat when it comes to technology. It's unfortunate, but that's the reality we're dealing with."* – Principal H, (Personal communication, March 21, 2025)

The findings of this study reveal a compelling contrast between student enthusiasm and teacher capacity regarding ICT integration in teaching History and Government. Students consistently reported positive perceptions of ICT use, citing increased engagement (mean = 4.64), enhanced understanding (mean = 4.24), and greater motivation (mean = 4.32). These findings are in strong agreement with those of Carstens et al. (2021), who found that students are more engaged and comfortable with

technology-enhanced instruction. Similarly, Akram et al. (2022) noted that technology integration makes learning more interactive and helps maintain learner motivation, reinforcing the notion that digital tools have a motivational impact across different educational settings.

However, this enthusiasm is contrasted by the limited integration of ICT tools by teachers. A significant portion of teachers (66.7%) reported rarely using ICT in their teaching, and 77.8% had not received formal training in ICT integration. These findings mirror those of Akram et al. (2022), who highlighted that lack of training, infrastructure, and technological competencies are major barriers to effective ICT integration. Likewise, Mwangi et al. (2023) observed in Kenyan technical training institutions that despite policy support, actual classroom integration of ICT remains low, largely due to limited teacher capacity and insufficient professional development.

Furthermore, the role of school leadership and infrastructure in influencing ICT usage emerged clearly. Principals reported that ICT use in History and Government lessons is sporadic and depends heavily on individual teacher initiative. This echoes the findings by Thulo (2024) in Lesotho, where the absence of structured support systems and formal training contributed to inconsistent ICT use among History and Government teachers. The infrastructural challenges reported in Ainabkoi, including unequal access to projectors, computers, and reliable internet, also align with Christopoulos and Sprangers (2021), who emphasized how disparities in ICT access exacerbated during the COVID-19 pandemic limited the ability of educators to effectively incorporate digital tools into instruction.

These comparisons suggest a broader, systemic issue affecting ICT integration in History education; therefore, a notable gap still exists. Unlike studies by Mwangi et al.

(2023) and Akram et al. (2022) that focus on general or technical education settings, this study provides specific insight into the subject-specific context of History and Government in rural secondary schools. The findings highlight that even in environments where student readiness and interest in ICT are high, actual integration remains low due to teacher unpreparedness and infrastructural barriers.

Moreover, this study contributes a unique perspective by comparing the views of students, teachers, and school principals, revealing a multidimensional understanding of the ICT integration challenge. The national and global studies recommend teacher training and improved infrastructure; this study reinforces the urgency of subject-specific interventions. The demand is not only for general ICT training but for pedagogically grounded, History-focused ICT professional development, which is largely missing from current efforts.

In my view, the current findings are largely consistent with previous research, which indicates that while ICT has the potential to transform learning, its impact is constrained by inadequate teacher training and poor infrastructure. However, this study exposes a critical gap, the disconnect between high student enthusiasm for ICT and the minimal integration by teachers due to limited support and subject-specific training. From my viewpoint, this gap reflects more than just logistical or financial limitations it highlights a systemic oversight in teacher professional development and curriculum planning. I believe that unless teacher training is not only regular but also tailored specifically to the pedagogical needs of subjects like History, the promise of ICT integration will remain largely unfulfilled. For History and Government education in particular, teachers need support in learning how to use tools such as digital archives, interactive timelines, and virtual museum tours to bring historical content to life. In my opinion,

investing in such targeted ICT capacity building alongside improving infrastructure will be essential if we are to align teaching practices with the digital expectations and learning styles of today's students.

The extent of ICT adoption among History and Government teachers, aligned closely with TAM's core principles. Teachers' willingness to integrate technology into their classrooms largely depends on whether they perceive ICT tools as beneficial for enhancing teaching effectiveness and student learning outcomes (perceived usefulness), as well as how accessible and user-friendly they find these technologies (perceived ease of use). For instance, teachers who recognize that digital resources like virtual historical archives or online government databases can make abstract concepts more tangible for students are more likely to embrace these tools. Conversely, those who view ICT as irrelevant to their subject matter or too complex to implement may resist adoption. By applying TAM, this study systematically assessed the current level of ICT integration while identifying the psychological and practical factors that influence teachers' technology adoption decisions.

4.5 The challenges impeding effective ICT integration in teaching History and Government

This section presents the key challenges faced by History and Government teachers in integrating ICT into their teaching practices, based on responses measured through a five-point Likert scale: Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), and Strongly Agree (SA).

4.5.1 Teacher Responses on challenges impeding effective ICT integration

Table 4.10 Challenges impeding effective ICT integration in teaching History and Government

Statement	Descriptive	SD	D	N	A	SA	Mean
Lack of proper training is a major barrier to effective ICT integration in my teaching	Frequency	0	0	2	6	1	3.8889
	Percentage	0	0	22.2	66.7	11.1	
Insufficient ICT infrastructure hinders my ability to integrate ICT in teaching	Frequency	1	1	0	3	4	3.8889
	Percentage	11.1	11.1	0	33.3	44.4	
There is lack of technical support available for using ICT tools in teaching	Frequency	0	3	0	3	3	3.6667
	Percentage	0	33.3	0	33.3	33.3	
Time constraints limit my ability to effectively use ICT tools in teaching	Frequency	0	2	0	1	6	4.2222
	Percentage	0	22.2	0	11.1	66.7	

n=9

A vast majority of respondents (77.8%) agreed or strongly agreed that lack of proper training is a major barrier, with a mean of 3.89**.** This aligns with earlier findings where 77.8% of teachers reported not having attended any ICT training. The lack of skills and pedagogical knowledge likely undermines teachers' confidence and competence in using technology effectively.

About 77.7% of the teachers agreed or strongly agreed that poor ICT infrastructure is a hindrance, also with a mean of 3.89. Only 22.2% disagreed, suggesting that access to essential ICT facilities like computers, reliable internet, and projectors remains inadequate in many schools.

One-third (33.3%) of the respondents strongly agreed and another third agreed that lack of technical support is a challenge. This challenge had a slightly lower mean score of 3.67, yet still significant. This suggests that even when infrastructure is available, teachers may struggle to resolve technical issues independently.

Time limitations emerged as the most significant challenge, with a high mean of 4.22. A majority (66.7%) of the teachers strongly agreed that they lack sufficient time to incorporate ICT into lesson planning and teaching. This could be due to tight academic schedules, pressure to complete syllabus, or limited lesson duration that makes ICT use appear time-consuming or impractical.

The results highlight that both systemic and individual-level barriers affect ICT integration in the teaching of History and Government. The major challenges include insufficient training, poor infrastructure, lack of technical support, and time constraints. There is therefore the need for targeted interventions, such as capacity building through regular ICT training programs, infrastructure investment, provision of ICT support personnel, and restructuring of lesson time to accommodate effective use of technology.

4.5.2 Student Responses on the challenges in ICT integration

This section presents student perspectives on the key challenges that hinder effective integration of ICT in the teaching and learning of History and Government. The data was gathered using a five-point Likert scale, with responses ranging from Strongly Disagree (SD) to Strongly Agree (SA). The mean scores were used to determine the general trends in perception.

Table 4.11 Student Responses on the challenges in ICT integration

Statement	Descriptive	SD	D	N	A	SA	Mean
I encounter technical difficulties when using ICT tools in my History and Government classes	Frequency	14	30	24	65	32	3.4303
	Percentage	8.5	18.2	14.5	39.4	19.4	
There is lack of ICT resources (e.g computers, internet) in my school for effective learning	Frequency	12	12	17	60	64	3.9212
	Percentage	7.3	7.3	10.3	36.4	38.8	
My teachers adequately trained in Using ICT tools for teaching History and government	Frequency	11	45	47	42	20	3.0909
	Percentage	6.7	27.3	28.5	25.5	12.1	
The integration of ICT in history and government lessons disrupts the flow of the class	Frequency	88	42	12	4	19	1.933
	Percentage	53.3	25.5	7.3	2.4	11.5	

n=166

A significant proportion of students (58.8%) agreed or strongly agreed that they face technical difficulties when using ICT tools. The mean score of 3.43 suggests that this is a moderately serious issue. These difficulties could stem from system malfunctions, software incompatibility, or lack of user knowledge.

On inadequate ICT resources, with a high mean score of 3.92, this was among the most pressing concerns for students. Approximately 75.2% of students agreed or strongly agreed that their schools lack sufficient ICT infrastructure such as computers and internet. This aligns with teacher feedback and suggests that both access and availability of ICT tools are major obstacles.

On Teacher ICT Competency, the statement regarding whether teachers are adequately trained received a mean of 3.09**,** indicating mixed views. While 37.6% agreed or strongly agreed, 34% disagreed or strongly disagreed, and 28.5% were neutral. This

suggests that students perceive variability in teachers' ICT capabilities, possibly depending on the school or individual educator.

Interestingly, a majority (78.8%) of students disagreed that ICT integration disrupts the flow of history lessons. With a low mean score of 1.93, this implies that students do not view ICT as a distraction or hindrance to learning; in fact, it may enhance the learning process when effectively implemented.

The students' responses complement the earlier findings from teachers. The key challenges identified were, technical difficulties, lack of infrastructure, and variable teacher training mirror those acknowledged by educators. However, the students clearly do not view ICT as a disruptive force**,** but rather see its potential to enrich the learning experience. These results highlight a shared readiness among learners and a need for systemic support to equip teachers and schools for effective ICT integration in History and Government education.

Both teachers and students recognize similar structural challenges such as limited infrastructure**,** insufficient training, and technical difficulties as major impediments to effective ICT integration. However, while teachers emphasize professional and logistical barriers such as lack of time and support, students largely express a willingness and enthusiasm for ICT use, provided the necessary tools and support systems are in place. This calls for targeted interventions such as teacher training, improved ICT facilities, and administrative support to enhance the effective use of technology in History and Government education.

The principals also identified, a range of challenges to effective ICT integration. These included inadequate infrastructure, lack of ICT training, time constraints within the

curriculum, and resistance from some teachers due to lack of confidence or interest. Principals also cited financial limitations and the absence of digital content specifically aligned with the History and Government syllabus as further obstacles. Some schools also lacked consistent electricity or faced difficulties in maintaining existing equipment.

> *We don't have enough ICT tools, and the ones we have are shared among many teachers. Sometimes, even getting a laptop for one lesson is a struggle."* – Principal I, (Personal communication, March 24, 2025)

> *"The curriculum is already packed. Teachers say they barely have enough time to cover content, let alone plan ICT-integrated lessons."* – Principal A, (Personal communication, March 20, 2025)

> *"Some of our teachers are not comfortable using computers in class. They feel it's too complicated and prefer sticking to their usual methods."* – Principal E, (Personal communication, March 21, 2025)

> *"We cannot afford to buy new projectors or digital content every year. Our budget is already stretched with basic needs."* – Principal D, (Personal communication, March 20, 2025)

> *"Electricity is unreliable here. Sometimes we go for days without power, so planning a digital lesson becomes risky."* – Principal C, (Personal communication, March 20, 2025)

Most principals expressed positive attitudes toward ICT integration and recognized its potential; they admitted that systemic support at the administrative level was limited.

Schools often lacked formal policies, dedicated budgets, and coordinated strategies for promoting ICT use across all departments, especially in non-science subjects like History.

> *"We support the idea, but without a clear plan or funding, it becomes difficult to implement ICT meaningfully across all subjects."* – Principal F, (Personal communication, March 21, 2025)

> *"We occasionally organize peer-sharing sessions where more tech-savvy teachers guide others, but these are not structured or frequent."* – Principal B, (Personal communication, March 20, 2025)

> *"ICT is often associated with sciences and computer studies. Humanities are rarely included in ICT planning or budgeting."* – Principal I, (Personal communication, March 24, 2025)

> *"There is a need for the Ministry or school boards to develop specific policies for ICT in History and Government and other arts subjects, not just STEM."* – Principal E, (Personal communication, March 21, 2025)

The lack of institutional commitment, absence of targeted initiatives, and limited funding were seen as key impediments to creating an enabling environment for ICT integration in the teaching of History and Government.

The findings of this study reveal that multiple systemic and pedagogical barriers hinder effective ICT integration in teaching History and Government in secondary schools in Ainabkoi Sub-County. Among these include technical problems, poor ICT infrastructure, inadequate teacher training, few digital materials fit for the syllabus, and low teacher confidence particularly among older teachers or those opposed to change. Responses from administrators, instructors, and students all repeatedly reflected these difficulties, implying that even if ICT is seen favorably by kids, the ecosystem needed to enable its integration is still scattered and underdeveloped. These findings coincide with those of Hashemi and Kew (2021), who noted as main obstacles in English language teaching lack of teacher confidence, poor training, and insufficient time. Their advice for efficient professional development initiatives and time allocation for ICT use greatly supports the result of this study—that Ainabkoi teachers feel unprepared and unsupported in introducing ICT into History and Government courses. While Hashemi and Kew focused on language teaching, the commonality of barriers across disciplines points to a structural issue rather than a subject-specific one.

Similarly, Bingimlas (2009) agrees with the current study's findings, identifying lack of confidence, competence, and access to resources as major obstacles to ICT integration. Bingimlas also emphasizes that no single factor can ensure success, but a combination of infrastructure, training, and technical support is essential—precisely the gap evident in Ainabkoi schools, where power outages, broken equipment, and insufficient hardware continue to impede meaningful integration. This lends weight to the need for holistic, multi-component strategies rather than isolated interventions.

Salehi and Salehi (2012) reinforce the importance of technical support and Internet access**,** reporting that even when teachers are enthusiastic, the lack of support systems and constrained teaching schedules discourage ICT use. This is aligned with teachers' feedback in the current study, who reported that curriculum pressure and insufficient time limited their ability to prepare and deliver ICT-based lessons. This repeated evidence suggests that beyond providing equipment, time management policies and ICT-specific lesson planning support are urgently needed.

In contrast, while the students in Ainabkoi expressed optimism about ICT use, their enthusiasm was not matched by the availability of tools or trained personnel. This result corroborates to Ben Ouahi et al. (2022), who observed that although students' value interactive technologies, their limited exposure results from teachers' underuse of tools or lack of training. This disparity between student readiness and teacher preparedness points to a significant implementation gap that, if not addressed concurrently with parallel investments in teacher upskilling and infrastructure provision, runs the danger of stagnating development.

The points of view of the principals draw attention to even more difficult issues like teacher opposition, financial restrictions, curriculum time limits, and the dearth of syllabus-aligned digital materials. This is consistent with Murithi and Yoo (2021), who discovered that Kenyan public-school teachers lacked confidence and practical ideas to include ICT into the Competency-Based Curriculum even with minimal ICT training. Despite widespread policy advocacy, both studies reveal that on-the-ground implementation is still severely lacking due to limited access, poorly designed training programs, and overreliance on outdated infrastructure.

The issue of insufficient administrative and technical support is also echoed by Al-Mamary (2022), who identified that accessibility, technical assistance, time, and training significantly impact ICT integration in Yemeni schools. Though the context differs, the alignment with the Ainabkoi findings underscores those developing countries share structural and logistical barriers that transcend national boundaries. However, Al-Mamary offers a model-based solution to prioritize interventions something that the current study did not delve into, representing a possible area for further research.

The students' positive attitude toward ICT in this study also supports findings by Akram et al. (2022), who reported that learners are often more ready to integrate ICT than teachers, but their efforts are hampered by the lack of teacher competence and administrative encouragement. Similarly, Mokotjo and Mokhele (2021) noted that South African teachers had access to tools like GeoGebra but struggled due to poor confidence and training paralleling the Ainabkoi context where ICT tools are underutilized despite their presence in some schools.

From a Kenyan-specific standpoint, Ntorukiri et al. (2021) observed low investment in ICT infrastructure and emphasized the need for training in core software skills such as Microsoft Office. This is particularly relevant to the Ainabkoi case, where teachers reported that even basic tools like projectors and computers were unavailable or poorly maintained. Although the government has ICT policies in place, these findings indicate that policy implementation is neither uniform nor effective, especially in under-resourced schools.

Finally, Ezeodo and Aroh (2024) reported that Nigerian secondary schools also suffer from poor ICT culture and weak maintenance practices, leading to underutilization of

even the limited ICT resources available. This reinforces the need for a cultural shift in institutional attitudes toward ICT moving beyond hardware acquisition to promoting ongoing usage, repair, and adaptation of ICT tools to meet evolving pedagogical needs in History and Government.

While the literature broadly supports this study's findings, a clear research gap emerges**:** most existing studies focus on STEM subjects or general education without paying sufficient attention to subject-specific needs especially for social sciences like History and Government. Moreover, while students' perspectives are acknowledged in the literature, they are often not central to policy or implementation discussions**.**

This study contributes uniquely by emphasizing learners' readiness and enthusiasm for ICT, which remains underutilized due to teacher-level and systemic barriers. It also brings into sharp focus the misalignment between national ICT policies and actual classroom realities, especially in rural or semi-rural schools like those in Ainabkoi sub county. The convergence of these challenges across teacher, student, and administrative perspectives calls the urgency of a coordinated, well-funded, and context-specific ICT strategy one that is not generic but tailored to discipline-specific content, local infrastructure realities, and differentiated teacher needs**.**

TAM framework offered valuable insights into the barriers teachers encounter. Many of these obstacles directly related to the model's two key components. Technical difficulties such as unreliable internet connectivity, inadequate devices, or frequent system failures can significantly diminish teachers' perception of ICT's ease of use. Similarly, if educators fail to see how digital tools improve student performance in History and Government specifically, they may question the technology's usefulness. Additionally, insufficient training exacerbates these issues by leaving teachers

unprepared to navigate technological challenges confidently. Through the TAM lens, this study categorized these barriers as either stemming from perceived limitations in the technology's utility or from practical difficulties in implementation, providing a clearer understanding of where interventions are most needed.

4.6 The strategies employed by teachers to overcome ICT challenges.

To address the barriers faced in integrating ICT in the teaching of History and Government, teachers have adopted various adaptive strategies as presented in Table 4.12

Strongly Disagree (SD) to Strongly Agree (SA). The mean scores were used to determine the general trends in perception.

4.6.1 Teacher Responses on the strategies employed to overcome challenges.

Table 4.12 Strategies employed by teachers to overcome challenges.

Statement	Descriptive	SD	D	N	A	SA	Mean
I attend professional development workshops to improved my ICT skills	Frequency	2	4	2	1	0	2.2222
	Percentage	22.2	44.4	22.2	11.1	0	
I actively seek out additional ICT resources and tool to enhance my teaching	Frequency	0	0	0	8	1	4.1111
	Percentage	0	0	0	88.9	11.1	
I utilize online platforms and forums to learn about new ICT tools and techniques	Frequency	0	4	1	2	2	3.2222
	Percentage	0	44.4	11.1	22.2	22.2	
I collaborate with colleagues to share best practices for ICT integration	Frequency	0	0	4	4	1	3.6667
	Percentage	0	0	44.4	44.4	11.1	
I incorporate student feedback to improve my use of ICT in teaching	Frequency	1	1	3	3	1	3.2222
	Percentage	11.1	11.1	33.3	33.3	11.1	

n=9

The findings revealed that one of the most prominent strategies employed is actively seeking out additional ICT resources and tools, as shown by the highest mean score of 4.11. A significant 88.9% of teachers agreed or strongly agreed with this approach, indicating a proactive effort to supplement limited school resources.

Collaboration with colleagues to share best practices also emerged as a moderately common strategy (mean = 3.67), with 55.5% of teachers acknowledging its role in enhancing ICT use. This form of professional peer support helps bridges skill gaps and fosters innovation in teaching approaches.

Teachers also utilize online platforms and forums to learn about new ICT tools and techniques (mean = 3.22), and some even incorporate student feedback into their teaching strategies (mean = 3.22). These practices reflect a growing openness to flexible learning and responsive pedagogy.

However, the data reveal that attendance of professional development workshops is still low, with a mean of just 2.22. About 66.6% of the teachers either disagreed or remained neutral on this item. This suggests either a lack of access to such opportunities or limited motivation to pursue formal ICT training, which remains a concern.

While teachers are making commendable efforts to overcome ICT-related challenges, especially through self-initiated resource acquisition and collaboration, there is limited engagement with structured professional development opportunities. This highlights the need for institutional support in organizing regular training workshops and facilitating access to relevant ICT learning platforms. Strengthening these areas could significantly boost the quality and consistency of ICT integration in History and Government teaching.

4.6.2 Student opinions on strategies to overcome challenges

Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), and Strongly Agree (SA).

Table 4.13 Student opinions on strategies to overcome challenges

Statement	Descriptive	SD	D	N	A	SA	Mean
My teachers use a variety of ICT tools to enhance our understanding of history and government	Frequency	14	14	27	79	31	3.6000
	Percentage	8.5	8.5	16.4	47.9	18.8	
When technical issues arise, teachers have effective solutions to minimize disruptions	Frequency	20	38	25	44	38	3.2545
	Percentage	12.1	23	15.2	26.7	23	
Our school provides regular training sessions for students and teachers on using ICT tools effectively	Frequency	41	80	18	21	5	2.2061
	Percentage	24.8	48.5	10.9	12.7	3	
Students are encouraged to use ICT tools for independent learning and research in History and Government	Frequency	19	29	24	46	47	3.4424
	Percentage	11.5	17.6	14.5	27.9	28.5	
Teachers incorporate feedback from students to improve the use of ICT in lessons	Frequency	30	47	28	52	8	2.7636
	Percentage	18.2	28.5	17.0	31.5	4.8	

n=166

The findings indicated that, majority of students acknowledged that teachers use a variety of ICT tools to enhance lessons, with a mean score of 3.60, and 66.7% of the respondents either agreed or strongly agreed. This suggests that students are noticing

efforts by teachers to diversify digital instruction tools, which potentially makes learning more engaging.

Regarding the management of technical issues, the students reported moderate confidence in their teachers' ability to respond to ICT-related disruptions. This is reflected in a mean score of 3.25, with only 49.7% agreeing or strongly agreeing. This suggests that while some mechanisms exist, technical support remains inconsistent.

On the downside, regular training sessions for both students and teachers were rated poorly, with the lowest mean score of 2.21. An overwhelming 73.3% disagreed or strongly disagreed with this statement, signaling a serious gap in formal ICT capacity building within schools.

Students showed a positive outlook on the encouragement they receive to use ICT for independent learning and research. With a mean score of 3.44, more than 56% of students agreed or strongly agreed, indicating that teachers foster a learning environment that values self-directed digital engagement.

Finally, the incorporation of student feedback by teachers to enhance ICT use scored lowest among instructional strategies, with a mean of 2.76. Only 36.3% agreed or strongly agreed, suggesting that students do not feel their feedback is consistently used to shape ICT integration practices.

From the students' perspective, while variety in ICT tool usage and encouragement for independent learning are commendable practices by teachers, there is a notable deficiency in formal training opportunities and feedback-driven lesson improvement. These provides the need for schools to invest more in structured ICT development programs for both students and teachers, and for teachers to be more responsive to student input. While commendable strides are being made at the individual teacher

level, both teachers and students highlight the need for systemic interventions to strengthen ICT integration. Schools must prioritize frequent and targeted training, technical support structures, and inclusive practices that incorporate student feedback, to bridge the gap between effort and effectiveness in digital instruction.

Although teachers in Ainabkoi Sub-County demonstrate admirable initiative in addressing ICT-related barriers, such as sourcing their own materials and collaborating with peers, there is minimal participation in structured professional development programs.

The principals also proposed several strategies to improve the use of ICT in History and Government teaching. These included increasing funding to acquire more ICT tools, providing reliable internet access, and developing digital content that aligns with the History curriculum. Principals further advocated for enhanced collaboration among teachers, peer mentoring, and creating opportunities for teachers to observe best practices in ICT integration. They emphasized that History and Government teachers should be empowered with tools and training to make their lessons more interactive and engaging as indicated;

> *"We need a dedicated budget for ICT in humanities. With enough laptops and internet, our History and Government teachers would do more."* – Principal F, (Personal communication, March 21, 2025)

> *"Digital content should be relevant to our syllabus. Right now, teachers have to search for content that may not even match what they're teaching."* – Principal G, (Personal communication, March 21, 2025)

> *"Let teachers attend workshops where ICT integration is demonstrated practically. Seeing it in action helps more than just theory."* – Principal H, (Personal communication, March 21, 2025)

> *"One teacher who is good at using ICT can train others. Peer mentoring works better because it's practical and relatable."* – Principal I, (Personal communication, March 24, 2025)

> *"We need to empower our History and Government teachers—not just with tools, but also with the confidence and training to use them well."* – Principal D, (Personal communication, March 20, 2025)

The principals emphasized that empowering teachers with both skills and infrastructure would make History and Government lessons more interactive**,** engaging**,** and relevant to 21st-century learning demands.

The findings of this study highlighting sporadic ICT integration in History and Government teaching, minimal formal training for teachers, limited student involvement in feedback processes, and inadequate infrastructural and policy support resonate with and extend the discourse presented in existing literature. For instance, Habiyaremye et al. (2024) agree that while teachers recognize the potential of ICT in collaborative and effective teaching, actual integration is hindered by infrastructural and institutional limitations. This supports the current study's findings that teachers in Ainabkoi Sub-County, despite being proactive individually, face systemic challenges that stifle ICT integration.

Similarly, Shikomera, Mulwa, and Mwania (2023) found that teachers in Kenya's primary schools lack the necessary digital literacy and pedagogical skills a problem

mirrored in the secondary school context of this study. This overlap in challenges across levels of education reinforces the urgency for structured in-service training, as both studies highlight the inefficiency of informal efforts. Eickelmann (2011) further affirms that long-term and sustainable ICT implementation depends on how school leaders empower staff and align ICT use with pedagogical goals. This aligns with principals' sentiments in the current study, who advocated for increased funding, infrastructure, peer mentoring, and digital content aligned with the curriculum.

Moreover, the need for learner-centered approaches in ICT is echoed by Awuor and Okono (2022), who emphasize the shift from teacher-centered to learner-driven instruction in subjects like Physics. This directly supports the current study's call for more interactive and responsive History lessons. However, unlike Awuor and Okono's structured frameworks for ICT use in Physics, there remains a glaring gap in the formulation of similarly robust models for History and Government, especially at the sub-county level. The lack of such frameworks limits the subject's potential to benefit from digital learning innovations.

Kiarie and Jones (2024) add a policy dimension, pointing out that while Kenya has made strides in ICT policy development, actual implementation remains a challenge, with accessibility and equity being major hurdles. This reflects the findings from Ainabkoi Sub-County, where ICT policies exist but are not effectively implemented, leading to unequal access and usage of digital tools.

These findings are consistent with Purba et al. (2022), who emphasized that advancing 21st-century teaching competencies requires deliberate institutional investment in continuous teacher training beyond informal efforts. Similarly, Tolstykh et al. (2023) highlighted that while educators globally are deploying personal strategies to cope with

ICT integration challenges, their efforts are more effective when supported by systemic interventions such as workshops, mentorship, and formal ICT courses. The findings also reflect Langat (2022), who observed that innovative strategies in History and Government significantly improved performance only when they were reinforced through professional growth opportunities and administrative backing. From the students' viewpoint, while they appreciate the variety of ICT tools and the encouragement of self-directed learning, they note a lack of structured ICT learning experiences and insufficient responsiveness to their feedback. This resonates with Barrot et al. (2021), who found that students are better able to navigate digital learning environments when their feedback is incorporated and when schools provide consistent, guided support. Furthermore, Putri and Sari (2021) noted that overcoming online teaching obstacles in secondary schools requires both pedagogical flexibility and structured training for teachers and students alike. Such comprehensive strategies can bridge the current gap between individual teacher efforts and systemic effectiveness in the digital delivery of History and Government education.

In my view, the existing literature widely acknowledges the barriers to ICT integration and recommends practical solutions, however there remains a contextual and subject-specific gap particularly in History and Government education in Kenya’s secondary schools. This study adds a valuable dimension by examining ICT integration from the unique perspectives of both students and teachers in a rural sub-county, exposing not only infrastructural and pedagogical gaps but also the limited responsiveness to student voice and the absence of localized ICT integration frameworks. It is evident that unless systemic changes are implemented through deliberate investments in training, infrastructure, and participatory digital pedagogy ICT’s transformative potential in History and Government education will remain largely untapped.

Strategies teachers use to overcome ICT-related challenges, drew heavily on TAM's framework. The model suggests that improving both perceived usefulness and ease of use can enhance technology adoption. Therefore, this study examined various approaches that address these factors, such as targeted professional development programs that boost teachers' digital literacy and confidence (thereby increasing perceived ease of use). Additionally, demonstrations of subject-specific ICT applications, like interactive historical timelines or digital platforms for analyzing government structures, can help teachers recognize the technology's relevance to their discipline (enhancing perceived usefulness). Support systems, including technical assistance and peer mentoring, further contribute to reducing the perceived complexity of ICT integration. By analyzing these strategies through TAM, the study was able to recommend practical, theory-informed solutions for sustainable ICT integration in History and Government classrooms.

TAM provided a robust theoretical basis for this study by connecting teachers' technology adoption behaviors to their perceptions of ICT's value and usability. The model's emphasis on perceived usefulness and ease of use offers a structured way to examine current ICT integration levels, identify specific barriers, and develop targeted strategies for improvement. As such, the findings from this study will not only contribute to academic discourse on technology integration in education but also provide actionable insights for policymakers and school administrators seeking to enhance digital pedagogy in History and Government instruction.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the principal findings of the study, formulates conclusions based on the specified objectives, and offers pertinent recommendations. The research examined the degree of ICT integration, the obstacles impeding successful ICT utilization in History and Government instruction, and the techniques employed to address these obstacles in secondary schools within Ainabkoi Sub-County.

5.2 Summary of findings

5.2.1 The Extent of ICT Integration

The findings reveal that ICT use in teaching History and Government is limited. While projectors and computers are commonly used, advanced tools like tablets and mobile apps are rarely employed. Most teachers rate themselves as only "somewhat proficient," with 77.8% lacking formal ICT training, highlighting a major capacity gap. ICT infrastructure in schools is inadequate and unevenly distributed. Although students support ICT integration for its engaging benefits, their experiences are hindered by poor infrastructure and limited teacher skills. Principals similarly acknowledged the irregular use of ICT in teaching the subject.

5.2.2 Challenges Hindering Effective ICT Integration

The study identified key challenges to ICT integration, including inadequate training, poor infrastructure, limited technical support, and time constraints. Teachers cited lack of time and training as major barriers, while students noted technical issues and limited access to ICT tools. Although most students found ICT non-disruptive, teacher proficiency varied widely across schools, reflecting unequal readiness and access. Principals highlighted similar issues weak infrastructure, minimal training, and poor

institutional support. Interviews further showed that History and Government teachers often lack subject-specific ICT training and are excluded from ICT planning, with administrative support remaining informal and lacking clear policies.

5.2.3 Strategies Used to Overcome ICT Challenges

Teachers addressed ICT challenges by sourcing additional resources, collaborating with colleagues, and using online platforms, though formal professional development remained limited. Few had attended ICT workshops, and students reported scarce training opportunities. While students acknowledged teachers' efforts to integrate ICT and encourage independent learning, they noted a lack of feedback systems and technical support. Principals recommended increased funding, targeted ICT training, improved resource distribution, and development of subject-specific digital materials, emphasizing regular termly training, mentorship, and online learning as vital for effective ICT integration.

5.3 Conclusions

The study concludes that ICT integration in teaching History and Government in Ainabkoi Sub-County is limited. Teachers mainly use basic tools like computers and projectors irregularly and lack subject-specific ICT training, resulting in low proficiency and minimal integration. Students are enthusiastic about ICT but experience unequal access across schools.

Key challenges include inadequate infrastructure, limited technical support, insufficient resources, lack of time for lesson preparation, and absence of tailored training programs. Both teachers and students face logistical and technical barriers.

Although some teachers take initiative by collaborating and using online platforms, these efforts lack institutional support. There is minimal professional development,

weak administrative planning, and little investment in digital content. Principals emphasized the need for structured policies, regular training, and stronger institutional frameworks to enhance ICT use in teaching History and Government.

5.4 Recommendations

From the findings, the study made the following recommendations;

i. The Ministry of Education, in collaboration with teacher training institutions, should implement regular subject-specific professional development programs to equip History and Government teachers with the digital skills necessary for effective ICT integration.
ii. Schools should employ full-time ICT support personnel and allocate dedicated time for ICT-integrated lesson planning to address technical and structural barriers to ICT use in History and Government.
iii. Schools should institutionalize peer mentorship and professional learning communities to promote collaborative learning and the sharing of best practices in ICT integration among History and Government teachers.

5.5 Suggestions for further research

i. A longitudinal study to evaluate the long-term impact of ICT training on teaching practices in History and Government.
ii. Comparative research on ICT integration in different subject areas within humanities to identify subject-specific needs.
iii. An assessment of student digital literacy and how it affects their engagement with ICT-enhanced learning.
iv. Evaluation of ICT policy implementation in secondary schools and its influence on integration outcomes across school types.

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APPENDICES

APPENDIX I: LETTER OF INTRODUCTION

AARON KIPCHUMBA BOINETT
UNIVERSITY OF ELDORET
P.O. BOX 1125-30100
ELDORET- KENYA
10-03-2025

Dear Sir/Madam

RE: PARTICIPATION IN RESEARCH

"Integrating Information and Communication Technology in History and Government Instruction in Selected Public Secondary Schools in Ainabkoi Sub-C
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U APPENDIX II: CONSENT FORM FOR PARTICIPATION IN RESEARCH

a Title of Study:
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Integrating Information and Communication Technology in History and Government Instruction in Selected Public Secondary Schools in Ainabkoi Sub-County, Uasin Gishu County, Kenya

Researcher:

Aaron Kipchumba Boinett

Master Student, University of Eldoret

Purpose of the study:

The purpose of this study to explore and document integration of information and communication technology in history and government instruction in selected public secondary schools in Ainabkoi sub-county, Uasin Gishu county, Kenya, aiming to provide insights and recommendations for effective ICT integration and policy improvement.

Procedures:

Students selected to participate in this study will be asked to complete structured questionnaire. The questionnaire will collect information on their exposure and use of ICT in learning History and Government. Filling out the questionnaire is expected to take around 10-15 minutes.

Confidentiality:

All responses will be handled with utmost confidentiality. Students' names or any identifying information will not be recorded. The data will be used solely for academic analysis and will be presented in summary form, ensuring anonymity.

Voluntary participation:

Participation in this study is entirely voluntary. Students may choose not to participate or to stop their participation at any stage, without facing any form of penalty.

Risk and Benefits:

There are no risks associated with participating. However, this may lead to educational benefits by providing useful insights that could enhance the integration of ICT tools in History and Government education.

Authorization:

By signing this consent form, the school's Principal or Deputy principal grants permission for student participation on behalf of the parent or guardians, as per ethical standards governing research involving minors within educational institutions.

Consent Declaration:

I, the undersigned, having been fully informed about the purpose and procedures of the research, hereby give consent on behalf of the students' parents or guardians for their involvement in this academic study.

Name of School _____

Signature _____

Date _____

APPENDIX III: QUESTIONNAIRE FOR TEACHERS

This study examines **"Integrating Information and Communication Technology in History and Government Instruction in Selected Public Secondary Schools in Ainabkoi Sub-County, Uasin Gishu County, Kenya."** The researcher is a University of Eldoret Master of Education Technology-History Education student. **Check the box (√)** or **fill in the blanks** with the response that best fits your response. All given information will be kept confidential and used exclusively for academic purposes. kindly feel free to reach out to contact **Aaron Kipchumba Boinett on 0721160966** if you have any questions regarding this study.

Section A: Demographic Information

Kindly tick where appropriate

1. Indicate your gender
   - Male [ ]
   - Female [ ]
2. indicate your age bracket
   - 20–25 years [ ]
   - 26–30 years [ ]
   - 31–35 years [ ]
   - Above 35 years [ ]
3. How long have you been teaching History and Government?
   - Less than 1 year [ ]
   - 1–5 years [ ]
   - 6–10 years [ ]
   - More than 10 years [ ]

4. What is the Category of your school?
   - National school [ ]
   - Extra County [ ]
   - County [ ]
   - Sub County [ ]

5. What is your highest academic qualification?
   - Diploma [ ]
   - Bachelor's degree [ ]
   - Master's degree [ ]

Other (Please specify)

_____

Section B: Examine the extent of ICT integration among secondary school teachers of History and Government

6. While teaching, how often do you use ICT tools in teaching History and Government?
   - Daily [ ]
   - Weekly [ ]
   - Monthly [ ]
   - Rarely [ ]
   - Never [ ]
7. Which of the following kinds of ICT tools is used most often in your teaching?
   - Computers [ ]
   - Tablets [ ]
   - Projectors [ ]
   - Mobile phones [ ]
8. How best can you rate your proficiency in using ICT tools to teach?
   - Very proficient [ ]
   - Proficient [ ]
   - Somewhat proficient [ ]
   - Not proficient [ ]
9. Have you attended any training on how to use ICT to teach History and Government?
   - Yes [ ]
   - No [ ]
10. How will you rate the quality of the ICT infrastructure in your school?
    - Excellent [ ]
    - Good [ ]
    - Fair [ ]
    - Poor [ ]
11. How often have you included multimedia tools like videos or simulations in your teaching of History and Government?
    - Very often [ ]
    - Often [ ]
    - Sometimes [ ]
    - Rarely [ ]
    - Never [ ]

Section C: Explore the challenges impeding effective ICT integration in teaching of History and Government

Please indicate your opinion about the following statements by ticking (√) the most appropriate response. SD is strongly Disagree, D is Disagree, N is neutral, A is Agree, SA is Strongly Agree

Statement	SD	D	N	A	SA
12. Lack of proper training is a major barrier to effective ICT integration in my teaching					
13. Insufficient ICT infrastructure hinders my ability to integrate ICT in teaching.					
14. There is a lack of technical support available for using ICT tools in teaching.					
15. Time constraints limit my ability to effectively use ICT tools in teaching.					

Section D: Interrogate strategies used by teachers to overcome challenges in the use of ICT

Please indicate your opinion about the following statements by ticking (√) the most appropriate response. SD is strongly Disagree, D is Disagree, N is neutral, A is Agree, SA is Strongly Agree

Statement	SD	D	N	A	SA
16. I attend professional development workshops to improve my ICT skills.					
17. I actively seek out additional ICT resources and tools to enhance my teaching.					
18. I utilize online platforms and forums to learn about new ICT tools and techniques.					
19. I collaborate with colleagues to share best practices for ICT integration.					
20. I incorporate student feedback to improve my use of ICT in teaching.					

APPENDIX IV: QUESTIONNAIRE FOR STUDENTS

This study examines **"Integrating Information and Communication Technology in History and Government Instruction in Selected Public Secondary Schools in Ainabkoi Sub-County, Uasin Gishu County, Kenya."** The researcher is a University of Eldoret Master of Education Technology-History Education student. **Check the box (√)** or **fill in the blanks** with the response that best fits your response. All given information will be kept confidential and used exclusively for academic purposes

Section A: Examine the extent of ICT integration

Please indicate your opinion about the following statements by ticking (√) the most appropriate response. SD is strongly Disagree, D is Disagree, N is neutral, A is Agree, SA is Strongly Agree

Statement	SD	D	N	A	SA
21. The use of ICT makes History and Government lessons more engaging.					
22. I feel more motivated to learn when ICT tools are used in my History and Government classes.					
23. I find it easier to understand History and Government concepts when ICT tools are integrated into the lessons.					
24. The availability of ICT resources in my school enhances my learning experience in History and Government.					

Section B: Challenges in ICT Integration

Please indicate your opinion about the following statements by ticking (√) the most appropriate response. SD is strongly Disagree, D is Disagree, N is neutral, A is Agree, SA is Strongly Agree

Statement	SD	D	N	A	SA
25. I encounter technical difficulties when using ICT tools in my History and Government classes.					
26. There is a lack of ICT resources (e.g., computers, internet) in my school for effective learning.					
27. My teachers are adequately trained in using ICT tools for teaching History and Government.					
28. I face challenges in accessing ICT tools outside of school.					
29. The integration of ICT in History and Government lessons disrupts the flow of the class.					

Section C: Strategies to Overcome Challenges

Please indicate your opinion about the following statements by ticking (√) the most appropriate response. SD is strongly Disagree, D is Disagree, N is neutral, A is Agree, SA is Strongly Agree

Statement	SD	D	N	A	SA
30. My teachers use a variety of ICT tools to enhance our understanding of History and Government.					
31. When technical issues arise, teachers have effective solutions to minimize disruptions					
32. Our school provides regular training sessions for students and teachers on using ICT tools effectively.					

33. Students are encouraged to use ICT tools for independent learning and research in History and Government.					
34. Teachers incorporate feedback from students to improve the use of ICT in lessons.					

APPENDIX V: INTERVIEW SCHEDULE FOR PRINCIPALS

This study examines **"Integrating Information and Communication Technology in History and Government Instruction in Selected Public Secondary Schools in Ainabkoi Sub-County, Uasin Gishu County, Kenya."** The researcher is a University of Eldoret Master of Education Technology - History Education student. All given information will be kept confidential and used exclusively for academic purposes. Kindly feel free to reach out to contact Aaron Kipchumba Boinett on 0721160966 if you have any questions regarding this study.

Section A: Extent of ICT integration

35. How frequently do History and Government teachers at your school use ICT tools in their teaching?

    _____

    _____

    _____

36. Have the History and Government teachers at your school received any formal training in using ICT for teaching? If yes, how often and what kind of training was provided?

    _____

    _____

    _____

    _____

37. How would you evaluate the quality and sufficiency of ICT infrastructure in your school, including internet connectivity and the availability of devices?

    _____

    _____

    _____

    _____

    _____

Section B: Barriers to Effective ICT Integration

38. What are the major challenges that teachers face in integrating ICT into their History and Government lessons?

_____

_____

_____

_____

39. How would you describe the level of support provided by the school administration to facilitate the integration of ICT in teaching History and Government?

_____

_____

_____

_____

_____

Section C: Strategies to Overcome Challenges in Use of ICT

40. In your opinion, what would best facilitate increased integration of ICT in History and Government teaching in your school?

_____

_____

_____

_____

41. What type of ICT training do you think History and Government teachers need, and how frequently should this training occur?

_____

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_____

APPENDIX VI: STUDY AREA

Figure 2: Map of Ainabkoi Sub-County.

Source: gadm.org

APPENDIX VII: RESEARCH LICENSE FROM NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **412041**

Date of Issue: **20/March/2025**

RESEARCH LICENSE

This is to Certify that Mr.. AARON KIPCHUMBA BOINETT of University of Eldoret, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Uasin-Gishu on the topic: INTEGRATING INFORMATION AND COMMUNICATION TECHNOLOGY IN HISTORY AND GOVERNMENT INSTRUCTION IN SELECTED PUBLIC SECONDARY SCHOOLS IN AINABKOI SUB-COUNTY, UASIN GISHU COUNTY, KENYA for the period ending : 20/March/2026.

License No: **NACOSTI/P/25/416928**

412041

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Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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See overleaf for conditions

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013 (Rev. 2014)
Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was the established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

CONDITIONS OF THE RESEARCH LICENSE

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to.
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way;
    i. Endanger national security
    ii. Adversely affect the lives of Kenyans
    iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
    iv. Result in exploitation of intellectual property rights of communities in Kenya
    v. Adversely affect the environment
    vi. Adversely affect the rights of communities
    vii. Endanger public safety and national cohesion
    viii. Plagiarize someone else's work
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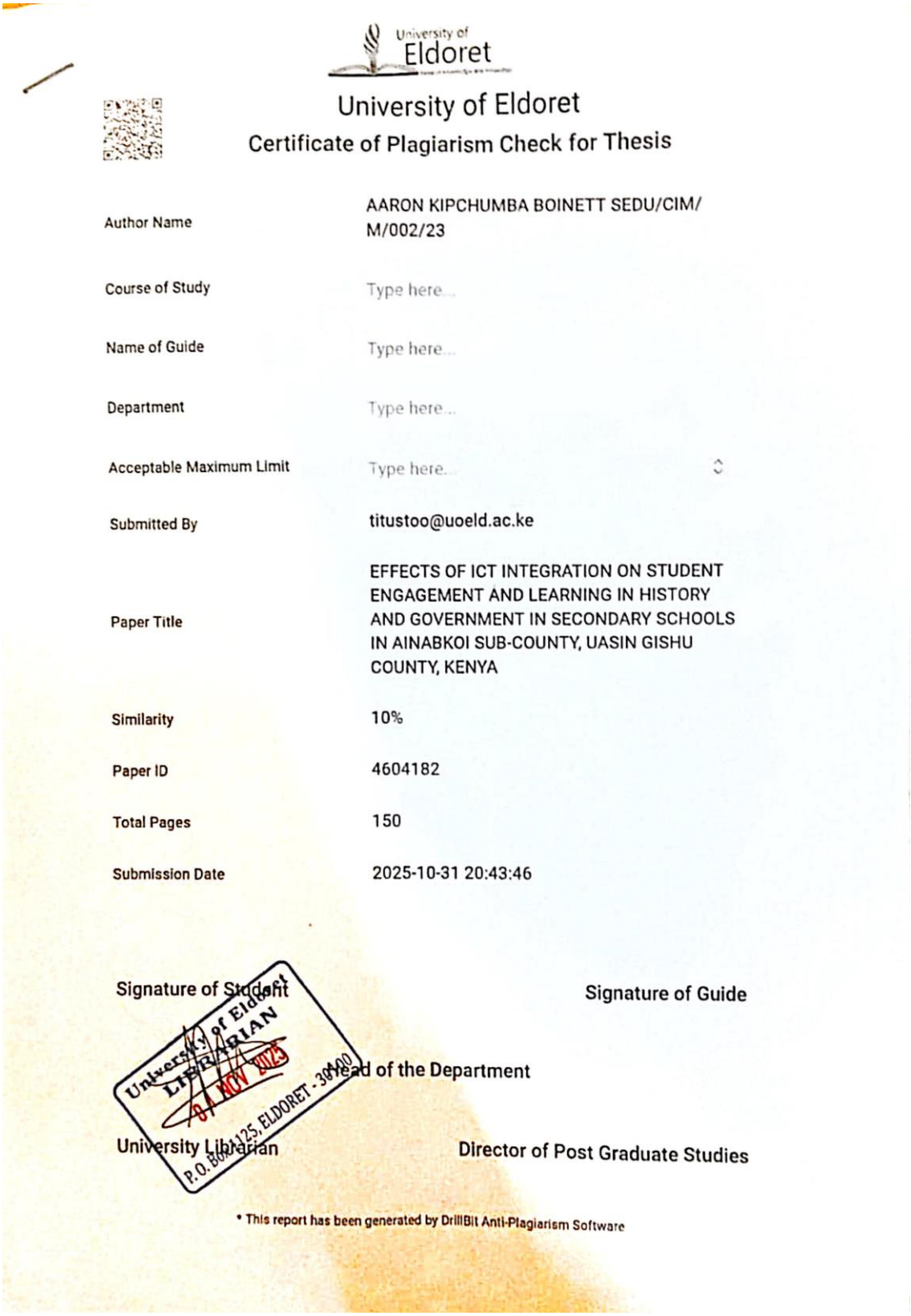
APPENDIX VIII: SIMILARITY REPORT



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