



**Investigating the Integration of ICT in the Teaching and Learning of Social
Sciences in the Intermediate Phase**

By

Nokulunga Phathiswa Nxusa

**Submitted in Fulfilment of the Requirements for Master of Education Degree
with Specialisation in Subject Education in Social Sciences**

Department of Social Sciences and Commerce Education

Faculty of Education

University of the Free State

Bloemfontein

South Africa

2025

Supervisor: Professor Boitumelo Benjamin Moreeng

Co-Supervisor: Dr Pfuurai Chimbunde



DECLARATION

Master's Student

I, Nokulunga Phathiswa Nxusa, declare that the master's degree of interrelated, publishable manuscripts/published articles, that I herewith submit for the master's degree qualification Master of Education specializing in Social Sciences subject education at the University of the Free State is my independent work, and that I have not previously submitted it for a qualification at another institution of higher education",

A handwritten signature in black ink, consisting of a series of loops and a trailing line, positioned above a horizontal line.

Date: 28/11/2025

Student's Signature

Social Sciences and Commerce

Name of Department

DEDICATION

I dedicate this research to my late mother for instilling the educational value in me which has driven me to this level even without her presence and support. Her journey may have ended prior to this undertaking, but she walked so that I could run and be even greater than she was and reach heights she never got to.

ACKNOWLEDGEMENTS

My deepest gratitude is extended to the following individuals and institutions for playing an invaluable role in the success of my research journey:

- My supervisors, Professor BB Moreeng and Dr P Chimbunde for the professional guidance in this journey. Their support, understanding and patience not only helped me succeed academically, but it taught me true leadership.
- The University of the Free State for allowing me the opportunity to grow in their institution and providing the necessary tools and resources to help me succeed in my journey.
- Schools and Participants – I am eternally grateful to the principals and the teachers for their willingness to be a part of this study and for providing meaningful contributions.
- Funding – The National Research Foundation played a huge role in assisting me stay afloat with my daily and research related expenses. And for that, I am grateful.

ABSTRACT

The popularised trend of technology in the classroom is evident in many countries and yet, the South African Social Sciences (SS) subject is seemingly still left behind with minimum evidence of studies exploring it despite the clear directives of the curriculum policy framework on its significance for the subject. This qualitative case study aimed to investigate the integration of Information and Communication Technology (ICT) in the teaching and learning of SS in Intermediate Phase (IP), with the Diffusion of Innovations theory providing a lens. The main objectives explored towards achieving the aim were to determine the perspectives of teachers with the integration of ICT, to discuss ways that the SS teachers are integrating it, to investigate challenges experienced, and to determine the possible solutions to mitigate said challenges. The researcher employed a dual-method strategy of semi-structured interviews and observations of six teachers in three primary schools situated in the Motheo District, Bloemfontein. The results elucidate that SS IP teachers have positive perspectives of technology in the classroom, exhibiting heterogeneity in ICT integration practices, albeit persistent challenges were reported with possible solutions to tackle them. Theoretical confirmation followed that addressing the existing challenges could lead to a more favorable implementation level. These results were significant to possibly bridge a gap in policy and practice, suggesting a desperate need for government and even parental intervention for a smoother process.

Keywords: ICT integration, Social Sciences, Teachers, Technology

TABLE OF CONTENTS

DECLARATION.....	2
DEDICATION	3
ACKNOWLEDGEMENTS.....	4
ABSTRACT.....	5
LIST OF ACRONYMS/ABBREVIATIONS	9
IMPORTANT TO NOTE	10
CHAPTER ONE	11
INTRODUCTION AND BACKGROUND TO RESEARCH PROBLEM	11
1.1. INTRODUCTION	11
1.2. BACKGROUND.....	15
1.3. PROBLEM STATEMENT	16
1.4. RESEARCH QUESTIONS	16
1.5. AIMS AND OBJECTIVES	16
1.6. THEORETICAL FRAMEWORK	17
1.6.1. Historical development of DOI.....	17
1.6.2. Principles / characteristics of DIO	18
1.6.3. Factors influencing the adoption of innovation.....	20
1.6.4. Criticism against DOI	21
1.7. RESEARCH METHODOLOGY	22
1.7.1. Paradigm	22
1.7.2. Research approach.....	23
1.7.3. Research Design.....	24
1.7.4. Sampling procedure	25
1.7.5. Data collection	26
1.7.6. Data analysis	28
1.7.7. Quality assurance.....	29
1.7.8. Ethical considerations	31
1.8. SIGNIFICANCE OF THE STUDY	32
1.9. DEFINITION OF OPERATIONAL TERMS.....	32
1.9.1. Social Sciences	33
1.9.2. ICT and ICT in Education	33
1.9.3. ICT Integration.....	34
1.9.4. Teaching	34
1.9.5. Learning	35
1.10. CHAPTER LAYOUT	35

1.11. CHAPTER SUMMARY.....	36
CHAPTER TWO	37
ARTICLE 1	37
Introduction	38
Methodology.....	40
Inclusion and exclusion criteria.....	41
Database search and key terms	41
Study selection.....	41
Results.....	42
Thematic analysis.....	45
Factors affecting the integration of ICT.....	47
Discussion.....	48
Conclusions	49
References.....	50
CHAPTER THREE	53
ARTICLE TWO	53
CHAPTER FOUR	74
ARTICLE THREE.....	74
CHAPTER FIVE	96
ARTICLE FOUR	96
CHAPTER SIX.....	118
BRIDGING THE ARTICLES.....	118
6.1. INTRODUCTION	118
6.2. ARTICLE SUMMARY	118
6.2.1. Article 1	118
6.2.2. Article 2	119
6.2.3. Article 3	120
6.2.4. Article 4	120
6.3. ANSWERING THE RESEARCH QUESTIONS/OBJECTIVES.....	121
6.3.1. To identify and report on the research that has been conducted on ICT integration in SS	121
6.3.2. To determine the IP SS teachers' perspectives of ICT integration	121
6.3.3. To discuss the ways in which IP SS teachers are integrating ICT in the teaching and learning of SS.....	122
6.3.4. To investigate the challenges that IP teachers experience when integrating ICT in the teaching of SS.....	122

6.3.5. To explore strategies that can be used to enhance the integration in the teaching and learning of IP SS.....	122
6.4. REALISING THE RESEARCH AIM/QUESTION	123
6.5. RECOMMENDATIONS	124
6.6. IMPLICATION OF FINDINGS	125
6.7. LIMITATIONS	126
6.8. IMPLICATION FOR FUTURE RESEARCH	126
6.9. REFLECTION	126
6.10. CONCLUSION	128
REFERENCES	130
APPENDICES	137
Appendix 1	137
Proof of registration	137
Appendix 2	138
Title registration	138
Appendix 3	139
Ethics approval	139
Appendix 4	140
Free State Education Approval	140
Appendix 5	141
Language editing	141
Appendix 6	142
Turn-it in report	142
Appendix 7	143
Data generation tools: Interview and observation schedules	143

LIST OF ACRONYMS/ABBREVIATIONS

SS – Social Sciences/Studies

ICT – Information and Communication Technology

IP – Intermediate Phase

CAPS – Curriculum and Assessment Policy Statement

DOI – Diffusion of Innovations

AR – Augmented Reality

VR – Virtual Reality

IMPORTANT TO NOTE

This dissertation consists of four interrelated research articles (Chapter 2-5):

Article 1

This article titled *A Systematic Review of ICT Integration in Social Sciences* has been published in the journal *Acta Educationis Generalis*.

Article 2

This article titled *Perspectives of Social Sciences Teachers on ICT Integration* has been submitted for publication to *Yesterday & Today* journal.

Article 3

This article titled *Integration Techniques of ICT in the Teaching and Learning of Social Sciences* is yet to be submitted to a journal.

Article 4

This article is titled *Challenges and possible solutions of ICT Integration in Social Sciences Teaching and Learning* and is yet to be submitted to a journal for publication.

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO RESEARCH PROBLEM

1.1. INTRODUCTION

Recently, Information and Communication Technology (ICT) integration has been studied in conjunction to the recent pandemic which brought about transformations in education practices globally. However, ICT implementation has been in progress since it came into being, with some areas adopting it successfully and at a faster pace than others. Developing countries face several challenges integrating ICT into schools due to it requiring huge financial investments. Over the years, this has led to the adoption of ICT being slower and inconsistent. The onset of COVID-19 fortunately allowed these countries an opportunity to advance the integration of ICT in their schools. Thus, their education systems moved significantly closer to the 4th Industrial Revolution.

In South Africa, the government introduced the e-education policy as a strategy to redress imbalances of the past. Mooketsi and Chingona (2014:3) highlighted aspects of the policy by stating “All SA educators and learners, irrespective of race should be able to: apply ICTs in order to access, analyse, evaluate, blend, present and communicate information; integrate ICT to enhance teaching and learning; search for and access ICT resources that support curriculum delivery” among others. Several studies reported internet access as one of the prevalent challenges identified with this integration (Zou et al., 2025; Almithqal & John, 2024; Gonfa et al., 2024). In response, the South African broadband policy of 2013 came into being. The aim of this policy is that by 2030 universal access is achieved by the country (Mwapwele et al., 2019). Further efforts are being made to assist the country to transform its education system into the digital age.

Technology use in the classroom is a concept that is growing rapidly at present and therefore, this study aims to explore the integration of Information and Communication Technologies (ICTs) in the teaching and learning of Social Sciences (SS) in primary schools. According to Ojo and Adu (2018) ICT includes among other examples, electronic machines or devices that assist teachers achieve the set goals and objectives in teaching and learning in a short period. In this proposed study, ICT is considered with a modern perspective, which includes cellphones and computers.

Multiple definitions of integrating are available, but for the purpose of this study, the most relevant one is provided by Lloyd (2006) stating that it is the combination of components, parts or elements into a cohesive and unified whole. This means ICT is implemented to be a part of the teaching and learning curriculum to meet educational goals. It is critical to note that if parts are integrated into a whole, they function as a unit to create a more effective result. In essence, if teaching and learning functions independently from ICT in this digital age, then it means effective education is impossible.

Although the conceptualisation of Social Sciences and Social Studies differs slightly from one country to another, the two terms will be used interchangeably. The purpose of this subject is discussed by various authors in different ways, among which are Dynneson and Gross (1999) who provide two purposes: first, the SS prepares learners in this ever-changing world with the skills and knowledge to adapt successfully; second, their standpoints and comprehension of the community, state, nation and world are widened. In South Africa, the SS subject consists of Geography and History disciplines which are to be taught interchangeably. "The Social Sciences curriculum aims to provide opportunities for learners to look at their own worlds with fresh, critical eyes and perhaps more importantly, it aims to introduce learners to a world beyond their everyday realities" (CAPS, 2011). It is important to note that the curriculum suggests resources such as internet usage, Google maps and YouTube videos as important in the classroom, which clearly indicates that ICT is regarded as an important element in this subject. If ICT is not integrated, learners will likely be unable to access the world beyond their everyday realities. This failure to include technology in this subject clearly nullifies the purpose of the subject to a certain extent as the goals and aims are not fully achieved.

Incorporating technology into the SS classroom is important because it can facilitate an active and interactive learning environment (Haleem et al., 2022). They believe that the use of multimedia resources, for example, stimulates the lessons and easily catches learners' attention. Bariham (2019) further states that technology has the potential to support different types of collaborations in SS, such as learner-content, learner- learner, learner-teacher and learner-interface. To add, this is further discussed by Rizk and Davies (2021) who found that technology narrows engagement gaps as it fosters teamwork and participation in and even outside of class. In addition, as a

result to the availability of e-books and other paperless material, Haleem et al. (2022) argue that technology is time saving and convenient, which contributes to potentially increasing interest in research. Furthermore, Arzimurodovich (2022) posits that it enhances learning experiences as it allows connection with students of all learning styles. Over and above this, believes that technology equips students with the necessary digital skills to prepare them for the future that will be technologically centered, thus allowing them to be compatible for jobs that will require such skills. This serves as motivation to the researcher with regard to the need for the integration of ICT studies to be done continuously to further identify challenges and provide suggestions and solutions until the desired goal of the implementation of ICT in Social Sciences is achieved.

Technology is a broad term encompassing different types of tools that can be implemented differently in the learning environment or classroom to create more dynamic and engaging lessons. Firstly, the most common type of technological tool that is integrated in classrooms is the interactive whiteboard. This tool opens both teachers and students up to an array of programs to be presented in front of the class, such as YouTube videos, PowerPoint presentations, pictures, and Google maps among others (Pehar, 2019). Secondly, the use of mobile devices or cell phones is also a fast-growing concept in classrooms which also allows access to the wealth of educational content from online and other platforms that facilitate online learning such as Moodle. Junior (2020) emphasises that with smart phones, teachers can establish quick and creative ways to assess their learners. Gamification is another one of the growing software programs that can be integrated with the use of cell phones to enhance learning experiences (Mohamad et al., 2018). Through this, learners can, for example, engage in enjoyable quizzes that teach them important concepts for their learning, spelling, important historical events, and more that could provide engagement in the classroom. Lastly, social media use is also gaining traction as a technological teaching and learning tool. Kumar and Nanda (2024) assert that through social media, learners get to read more, exchange information and knowledge or even share learning materials. Evidently, technology integration in the classroom can take various forms with the vast array of technological tools that exist to create meaningful teaching and learning environments.

The integration of ICT in teaching and learning is often met with common challenges in various parts of the world, especially in developing countries. The issue of inadequate funding (Onyema, 2020; Saleem & Mohammadzadah, 2018) is one of the biggest challenges faced by schools because it leads to a manifestation of more challenges. Poor internet or lack of it is another issue widely reported by teachers to affect the integration of ICT successfully (Adu & Zondo, 2023; Onyema, 2020; Shinghavi & Basargekar, 2019). This is one of the challenges that manifest as a result of inadequate funding. Moreover, the success of integration is also dependent on teachers as the implementers possessing technological skills and expertise; however, teachers have reported to have insufficient technological skills which causes challenges on its own (Adu & Zondo, 2023; Onyema, 2020; Saleem & Mohammadzadah, 2018). These are but a few amongst the vast challenges experienced with the integration of ICT in teaching and learning.

The focus on the integration of ICT in teaching and learning is not a new phenomenon. A study by Khan (2023) focused on the integration of ICT in poor socio-economic contexts in South Africa (SA). This study found that teachers were optimistic about the integration process, but teacher training was an issue to commonly be voiced among participants. The rural area-related context was also studied by Taole (2024) on their investigation of teacher experiences with ICT integration in multigrade contexts, as well as Maluleke (2024) when he conducted research into English FAL teachers' attitudes on e-learning in rural schools. Another study by Adu and Zondo (2023) looked at the economics teachers' perceptions on ICT integration and found that while some teachers were positive about ICT and its impact on teaching and learning, others felt it was a "waste of time". In addition, they were found to also face some challenges with this innovation. This was further investigated by Graham et al. (2019) who investigated reasons behind SA teachers implementing or not implementing ICT in their Mathematics classrooms and found that they were integrating it because they associated its benefits with an increase in productivity and social influence. Similarly, in a study that sought to explore the integration of ICT for an economics curriculum (Manzi & Moreeng, 2024), it was reported that indeed, teachers utilised ICT but room to improve was still extant.

Closer to home, a study conducted by Motsoeneng et al. (2023) in the Free State investigated the ability of the accounting teachers to use Google classrooms for

assessment. This study found that the teachers were satisfied with the tool's ability to help them deliver effective teaching and learning as it enhanced the active participation of learners and its continued utilisation was recommended as it proved to be useful in assessment of learners even outside of the classroom. Similarly, Siyaya et al. (2024) explored the impacts of ICT in accounting teaching and reported the importance of technological skills and availability of ICT resources as motivators of the integration process. Munje and Jita (2020) delve deeper into the impact of the lack of ICT resources in rural classrooms where demotivation to learn was highlighted alongside limited to no independent research by learners among others. They further identified enablers and constraints in teaching science through ICT by new teachers from which they reported on the lack of ICT resources and access to tools amongst others (Jita & Munje, 2020).

These studies were not subject-specific, and those that were, focused on other subjects other than SS. Hence, I would like to add to this growing body of knowledge by looking at the SS subject and hope to contribute to the pool of literature by investigating the integration of ICT in the teaching and learning of SS.

1.2. BACKGROUND

South Africa as a developing country pours hope onto its education system as a potential tool to eradicate its economic impairments. Salam et al. (2018) believe that the life standard of people in developing countries can be improved by ICTs in that a digital workforce will be produced and eventually elevate the countries' economic state. This serves as motivation to the researcher with regards to the need for the integration of ICT studies to be conducted continuously to further identify challenges and provide suggestions and solutions until the desired goal of the implementation of ICT in schools is achieved. Additionally, Chen (2015) emphasised ICT, information and media literacies as pillars of the 21st century. Therefore, it is essential that the SA education system adopts this trend successfully to produce competent citizens that can relate to and with the whole world.

1.3. PROBLEM STATEMENT

There is evidence that indicates that SS teachers are still using traditional modes of teaching such as over-reliance on textbooks and chalkboards and Kwayi's (2022) study on challenges in teaching and learning of map-skills in primary schools emphasised this overreliance. Unfortunately, teachers are not able to make certain concepts meaningful to learners as a result. According to Kwayi (2022), this hinders SS teachers from creating a stimulating, interactive environment, and eventually students only gain limited knowledge which results in poor learner performance. Thus, it is evident that there is a need for the investigation of ICT integration in the South African IP Social Sciences classroom.

1.4. RESEARCH QUESTIONS

Main question:

How is the integration of ICT executed in the teaching and learning of SS in IP?

Sub-questions:

1. What research has been done on ICT integration in SS?
2. What are IP SS teachers' perspectives of ICT integration?
3. How are IP SS teachers integrating ICT in their teaching and learning practices?
4. What are the challenges experienced by IP SS teachers when integrating ICT?
5. What strategies can be used to enhance integration of ICT in the teaching and learning of SS in the IP?

1.5. AIMS AND OBJECTIVES

Aim:

Investigate the integration of ICT in the teaching and learning of SS in IP.

Objectives:

1. Identify and report on the research that has been conducted on ICT integration in SS
2. Determine IP SS teachers' perspectives of ICT integration
3. Discuss the ways in which IP SS teachers are integrating ICT in the teaching and learning of SS
4. Investigate the challenges that IP SS teachers experience when integrating ICT in the teaching of SS
5. Propose strategies that can be used to enhance the integration in the teaching and learning of IP SS

1.6. THEORETICAL FRAMEWORK

This study uses the diffusion of innovation theory (DOI) first popularised by E.M. Rogers in 1962. According to Wani and Ali (2015) DOI is focused on understanding how, why and at what rate novel concepts and technologies disseminate in a social system. In this case, a social system would constitute of the educational institutions such as schools. Furthermore, this theory assists those responsible for ensuring that innovations are implemented to advance the utilisation and dissemination of selected technologies (Garcia-Aviles, 2020). This theory is compatible with the study because the aim was to understand how the integration of ICT in IP SS classrooms is achieved by teachers. Rogers (2003) suggests five factors that influence the adoption of an innovation: relative advantage, compatibility of the idea, complexity, trialability, and observability. The first two factors were invaluable in answering the first research question of this study. Thereafter, the third factor provided a lens to the third question. In manoeuvring the second research question, the fourth factor was relevant. The last factor offered insight into answering the fourth research question.

1.6.1. Historical development of DOI

The emergence of this model dates back to the late 19th century, but the modern development was initiated in the mid-20th century by sociologist Rogers (1931-2004)

through his book *Diffusion of Innovation* (1962). The diffusion of agricultural innovations is where this model was built up from in early sociological research. “In 1928 researchers started to study the adoption patterns of farmers using hybrid corn produced by the Iowa State Agricultural Experiment Station” (Garcia-Aviles, 2020:1). It soon saw an expansion towards different innovations, social contexts and fields.

The model introduced in 1962, although built on previous works, included some more elements. Firstly, the stages of innovation diffusion: knowledge, persuasion, decision, implementation and confirmation (as discussed in above sections). Furthermore, he identified factors that influence innovation adoption: relative advantage, complexity, compatibility, trialability and observability (to be discussed in upcoming sections). As time progressed, the model was popularly used within other fields of education, and health among others. This utilisation eventually opened up platform for critics and limitations (discussed in upcoming sections) which he committed himself to addressing through editions that succeeded.

Despite the various iterations and adaptations over the years, some core elements of the framework remain unchanged. Three of the four characteristics (discussed in upcoming sections): Innovation, communication channels, and social systems continue to serve this model towards its initial goal of understanding and influencing the spread of new ideas. The adoption stages, adopters, and factors of influencing innovation adoption have also remained consistent to DOI.

At present, the vitality and popularity of this model continue to expand as the cornerstone of new ideas and practices that are emerging constantly. Despite the modifications and critics over the years, the model continues to assist scholars understand and promote the innovation adoption of novel concepts.

1.6.2. Principles / characteristics of DIO

There is a total of four characteristics of DOI (Rogers, 2003):

- Innovations

This first element addresses the “what?” question. As diffusion has already been defined, what is it that we are diffusing? Innovations are the objects, ideas or practices

that potential adopters consider as novel. It is believed that as innovations diffuse at differing rates, it has been observed that innovations that present minor changes spread faster than the ones that bring huge modifications to existing practices or ideas. With that said, it is clear that there are different types of innovations, those that bring minor modifications to existing ideas or practices, those that bring large modifications to these ideas and practices and those that are completely new. In the context of this study, the integration of digital tools into SS pedagogy is the new concept.

- Communication channels

The “how” question is addressed by this second element. When these innovations are introduced, they have to be communicated and spread to the wider population. Two means of communication are typically common, mass media and interpersonal communication. The difference is that the former includes media communication such as radios and television, while the latter involves first hand interaction by members of society. As much as mass media is able to get the message across to a wider audience, it still seems that the most effective of these channels is interpersonal communication for the mere fact that most people would prefer to depend on the experiences of others before deciding to adopt a new innovation. Hence, diffusion is considered a social process. Thus, in this study teachers, School Management Teams (SMT) are the influential channels in this process through planned workshops and colleague observations and informal discussions.

- Time

This third element is concerned with the pace through which the innovations disseminate from the time of introduction to the time of complete adoption. The three processes involved with this aspect are: a) innovation-decision which is an internal process to an individual or organisation from the time an innovation is introduced to the contemplation of adoption and implementation or rejection based on the information that possess at their disposal; b) innovativeness which is concerned with the differences in how early people adopt than others; c) rate of adoption is a process focused on the speed through which adoption is occurring. The innovation decision in this context would be based on observed and experienced benefits of technology in educational practices. The innovativeness and rate of adoption would be determined

by the motivation and ICT skills of teachers coupled with the ICT infrastructural wealth of schools.

- Social system

This fourth element addresses the “where” question. A social system includes individuals, groups or organisations that share a common goal and this is where diffusion occurs. Collaborative professional structures and proactive SMTs of schools would in this case form part of the social system supporting the integration process.

1.6.3. Factors influencing the adoption of innovation

Rogers (2003) proposed five factors that influence the innovation adoption by potential adopters:

- Relative advantage

This factor considers the superiority of the innovation over the existing one. Without a doubt, if individuals find that indeed the innovation is bringing immense positive change, they are most likely to adopt it. Whereas, if not much advantage can be identified, potential adopters are likely to reject it.

- Compatibility

If the innovation aligns well with the values of the individuals or organisation, and also seeks to address the existing challenges, it stands a good chance of being adopted. The compatibility factor thus, considers values and existing challenges of individuals of potential adopters.

- Complexity

Complexity is concerned with the simplicity and ease of use of an innovation, if it is easy or difficult to use and/or understand. If it is considered simple to understand and easy to use, it will likely be accepted. However, if potential adopters experience any difficulty in use and understanding, rejection may follow.

- Trialability

Trialability looks at the experimental aspect of an innovation, if it can be experimented on a limited basis. It is also during this stage where reinventions of the innovation occur.

- Observability

This factor focuses on the results of an innovation. Potential observers require observable effectiveness of an innovation prior to the decision to accept or reject. Thereafter, if the results are observed as positive, the innovation may be accepted and adopted.

1.6.4. Criticism against DOI

Even with this popular multidisciplinary approach of DOI, there has been criticism. Four of these are to be discussed below.

This theory is firstly criticised for being too pro-innovative (Botha & Atkins, 2005). This means that innovations are automatically judged to be desirable and having the potential to bring positive change within the target context. The pro-innovation bias ignores the reality that some innovations bring about negative results. For example, a school that has technology for certain subjects and not others creates a gap in learning opportunities and experiences of learners within the same school.

The next criticism focuses on the factors affecting innovation (Glover, 2012; Dearing & Cox, 2018). DOI is criticised for not taking into consideration the other factors that have a potential to influence the rate at which innovations are adopted within a social system. One of these possible factors is the social context which can determine if those using the technology possess the necessary skills, budget, resources or even space to adopt an innovation. Another factor is power dynamics which can affect the pace of adoption and even lead to uneven implementation, especially in developing countries where modern change is often first enjoyed by those at the top of the hierarchal structure.

Unrealism on the categories of adopters is another one of the criticisms associated with DOI. Downs & Mahr (1976) argue that all it takes to qualify anyone as an innovator is that novel ideas are aligned with target contexts for innovation. This means that the

potential adopters must have the means to adopt and also have a problem or situation that can be addressed by this innovation.

1.7. RESEARCH METHODOLOGY

This section deals with the detailed description of the methodology aligned with the study. This part of the paper clearly explains the utilised methods, the strategies and techniques, as well as the underlying reasoning. The chapter addresses the following concepts: paradigm, research approach and design, sampling procedures, data collection and analysis, validity and reliability, and ethical considerations.

1.7.1. Paradigm

It is essential to first understand what paradigms are in research. According to Abbadia (2022) a research paradigm is a set of ideas or assumptions that act as a guideline for the creation of research methods of a study, which in turn will influence how the topic of the study is examined. The most relevant paradigm in qualitative research is interpretivism. The interpretivist paradigm was initially developed following criticism against the positivist paradigm during the 1980s (Alharahsheh & Pius, 2020), as the former supports the existence of multiple realities while the latter suggests the opposite, a single reality for all. This means that the interpretivist perspective is one concerned with subjectivism based on in-depth understanding and interpreting of each individual's life experience (Guba & Lincoln, 1989). In simpler terms, the research conducted while the researcher is positioned in an interpretivist perspective will be explicated based on the feelings, beliefs and experiences of the participants.

As already mentioned, interpretivism is based on meaning making through interpretation of experiences. Kumatongo and Muzata (2021) echo this idea by stating that knowledge and meaning are as a result of interpretation of how one perceived or experienced events. Thus, this paradigm considers aspects such as culture, circumstances and times in the formulation of this knowledge and meaning through understanding of human experience (Alharahsheh & Pius, 2019).

According to Ugwu et al. (2021), this paradigm holds ontological and epistemological positions. Because, as mentioned above, the knowledge and meaning are formulated and acquired through the interpretation of the affected or concerned individuals' stance, the ontology is relativism. Furthermore, as the researcher extracts meaning by using their own thinking affected by the interaction between themselves and the participants, the epistemology is subjectivism.

The interpretivist perspective as the philosophical framework decided upon by the researcher of this study was suitable for certain reasons. Firstly, the researcher intended to gain an understanding by exploring the participants' experiences with the integration of ICT in the teaching and learning of Social Sciences. Additionally, it is these experiences that played a significant role in answering the main research question of how the integration of ICT is achieved in the intermediate phase Social Sciences classroom.

1.7.2. Research approach

This study followed a qualitative approach. In research settings, qualitative researchers make use of this type of approach to describe patterns and trends using predominantly words instead of numbers as with the other type of research approach, quantitative (Hancock & Algozzine, 2021). This approach was especially relevant for this study in that the researcher's attempt was to examine the experiences of Social Sciences teachers when it comes to the use of ICT.

Qualitative research is characterised by the following aspects (Creswell, 2013):

- ☐ The phenomena are studied in their original environment where they occur
- ☐ The researcher is responsible for the decisions concerning methods and the actual collection of data
- ☐ Qualitative research employs more than one research method, such as interviews, observations, and documents among others
- ☐ The focus is on multiple meanings that participants possess over those of the researcher

- Deductive and inductive reasoning are used where generalisation is also backed by specific inferences

There are multiple reasons a researcher may decide to embark on a qualitative enquiry and why it informed the researcher to adopt it in this study. The aim of this study was to explore the integration of ICT in the teaching and learning of Social Sciences in intermediate phase, and it is for this reason that this approach was deemed suitable for this study. Creswell (2013) suggests that one of the reasons a researcher may conduct a qualitative study is if they are attempting to explore a phenomenon. Also, the intention was to visit and engage with participants in their natural setting, as Creswell (2013) states that a qualitative approach is suitable for such situations where one intends to gain a complex understanding of the problem which can only be achieved by interacting with participants on site. Moreover, the researcher intended to create an environment of shared power with participants where no one would feel compelled to comply with a predetermined structure of interviews. Qualitative research aims to provide a platform for participants to be heard and to be actively involved in areas such as data analysis and the choice of research questions (Creswell, 2013). Finally, the nature of this study, considering the research questions suggests that it could not be approached quantitatively as the intention was not to count or measure anything. Thus, it is for these reasons that a qualitative approach was the most ideal for this undertaking.

1.7.3. Research Design

The study employed the case study. Hancock and Algozzine (2021) explain case studies involve a thorough examination of single units or systems defined by space and time. The authors further add that with this design, researchers are able to seek insights and meaning from participants (Hancock & Algozzine, 2021). A case study is widely used within qualitative research and is anticipated to also be invaluable in assisting to achieve the aim and objectives of this study. According to Yin (2018), a case study is an experiential enquiry concerned with the in-depth study of contemporary phenomena in its natural setting and where no conclusions are statistical. The author further adds that it is concerned mainly with the “how or why”

questions, however, Ary et al. (2019) posit that case studies can also address the “what” questions. Because case studies allow for the use of various instruments, the opinions are often judged as realistic (Muzari et al., 2022). The choice of a case study for this design was influenced by its flexibility and that phenomena is studied in its real world. As already mentioned, case studies are flexible as they allow the researcher to utilise more than one data collection method, thus availing a variety of evidence which triangulates data (Clough & Nutbrown, 2012) and it was the researcher’s plan to use at least two data generation methods. Also, the researcher intended to collect data from the natural setting of the phenomena, in this case, schools, and this is in line with the characteristics of this design. For these reasons, a case study design was suitable for this study.

1.7.4. Sampling procedure

McCready (2006:147) describes sampling as that which “provides systematic rules and methods for allowing us to estimate how well our sample represents the reality we are studying”. In the attempt to answer the research question, the researcher made use of the non-probability sampling method as it was proximally impossible for the researcher to sample all primary schools, especially in the Free State; only three schools were studied. The schools were located within the Motheo District in the city of Bloemfontein. Alvi (2016:13) gives characteristics of a non-probability sampling method, mentioning that “Every unit of population does not get an equal chance of participation in the investigation”. And this is why this method best fits with this study. The study utilised the purposive sampling technique in that it was relevant as the researcher had a purpose and a criterion of suitable people to best participate and successfully assist in answering the research question. The researcher sought to approach qualified Social Sciences teachers in the intermediate phase, who had taught SS for a minimum of three years as they would have a better understanding of ICT use in the subject and the challenges presented by the integration of ICT. These were also supposed to be teachers in schools that have technological devices. A total of six teachers were approach from three different schools, two teachers per school.

1.7.5. Data collection

Data was collected in a form of semi-structured interviews with relevant individuals as well as observations where necessary.

- Interviews

Interviews are one of the most preferred data collection methods among qualitative researchers. Interviews are the interchange of knowledge, views and ideas through interaction between two or more people on mutual interest topics (Kvale, 1996). These verbal interactions are as a means of collecting data and the interviewee is regarded as the primary data of the study (Monday, 2020). The interviews do not only have to be face to face, but they can also be done telephonically.

Interviews can either be structured, semi-structure or unstructured (Zhang & Wildemuth, 2016). Structured interviews are closely related to surveys in that they consist of predetermined questions to be asked in a similar sequence to all interviewees. These interviews do not provide any room for possible modification of research questions and the discussion as a whole to fit each participant's distinctive experiences. On the other hand, semi-structured interviews may consist of some predetermined questions, but the discussion is directed by the types of responses provided by the participants. Questions can be modified, and participants can also suggest questions to be asked. Finally, unstructured interviews are completely flexible, and the participants share their reality without following any set of questions. In this case, questions are improvised based on the flow of the discussion.

Gray (2004) suggests three advantages of using interviews as a data collection method in research. Firstly, the author highlights the need for highly personalised data. This means that interviews provide the researcher with quality information that is straight from the affected participants' mouths. Secondly, interviews avail opportunities for probing. This suggests that during the interaction, the researcher will have an opportunity to investigate further to gain in-depth understanding of the phenomena being studied. Finally, Grey (2004) mentions the importance of a good return rate.

Semi-structured interviews were appropriate for this research because the researcher had the flexibility to probe depending on the level of the different Social Sciences teachers' understanding, knowledge and experience of ICT, as they were not on the

same levels of experience and expertise. The interview process took place before the observation process, within a time limit of thirty to sixty minutes. The interviews were once-off for every participant. During the introductory phase of the interview, the aims and objectives of the study, and further explanations were provided where required. The intention to record the proceedings was communicated where participants could either accept or reject this notion due to level of comfort. It was important to find out if the participants were still willing to participate and that they could withdraw at any time. Thereafter, the interview continued with the use of the pre-set questions.

○ Observations

The act of carefully watching someone or something with a purpose of gaining information is observation (Kamp, 2004) and it combines sensation and perception (Gray, 2004) where recording, analysing and interpreting is paramount. According to Kawulich (2012), observations require that the researcher has a good memory and does extensive note taking.

There are certain key elements of observations that a researcher needs to be aware of before visiting the observation site. Firstly, they need to decide if they will collect the observation data covertly or overtly. Covert observation requires that the researcher observes without making participants aware that they are being observed, while overt observation means that the participants are aware of the observation (Kawulich, 2012). One of the reasons a researcher may opt for covert observation would be in cases where they are worried that if participants are aware they are being observed, they would alter their behaviour thus, not portraying the real phenomena as it takes place daily, leading to unreliable data. However, a major concern with this type of observation is that it can be regarded unethical (Gray, 2004).

To add to the above elements, researchers need to decide on their positions during the observation (Kawulich, 2012). The researcher can choose participant observation, where he/she assumes both roles of observer and participant in the setting under study. Alternatively, direct observation can take place where they do not partake in any activities in the setting under study. Choosing a position will be dependent on what the researcher aims to achieve. For the researcher that wishes to gather and report on experiences, direct observation would be suitable. However, if they also want to

experience the phenomena along with participants, participant observation would be the most appropriate method.

The very first step the researcher took for the observations was deciding on the position to be assumed, which was direct observation for the mere fact that only experiences of Social Sciences teachers were to be studied, understood and reported on, without the researcher attempting to get their share of any of the experience of the phenomenon. Secondly, the researcher followed the guide by Merriam (1998) who proposes that researchers must develop an observation guide, draw a map of the setting and describe it to create a word-image. It was also crucial that the researcher build good relationships with gatekeepers who are responsible for gaining or denial of access to the site, as suggested by Gray (2004). Finally, as proposed by Creswell and Creswell (2018), observation protocol was set.

1.7.6. Data analysis

As the study followed a qualitative approach, a thematic analysis of data strategy was utilised. As the chosen data analysis method for this study, it identifies patterns in data and because it can be used across various theoretical and epistemological data sets, it is considered flexible (Kiger & Varpio, 2020). Its flexibility stretches also to being able to be used in a variety of study questions, designs and sizes of samples. This analysis method was suitable for this study because of this flexibility. Also, the researcher intended to understand the experiences and thoughts of Social Sciences teachers with the integration of ICT in their classroom. This is in line with Braun and Clarke (2012) who emphasise that this method is useful for researchers with the similar intention.

Terry et al. (2017) provides a guide for researchers to adhere to when analysing dataset thematically and the researcher followed this exact guide in the analysis of the findings for this study:

- Data familiarisation

This is the first step a researcher will begin with. It ensures that data is free of errors, and it actively commences while data collection is taking place through pattern

recognition by the researcher. This step involves in depth reading of transcripts and listening to recordings while actively taking notes.

- Code generation

In this second step, following pattern recognition the researcher is tasked with the responsibility to reduce and organise data by assigning keywords or labels. It is also at this point that excess and irrelevant data is discarded.

- Theme construction

Thereafter, codes that are similar are then grouped into themes and the researcher identifies relationships between these codes and themes. This process ought to be guided by the research questions to ensure alignment.

- Theme revision and Theme definition

This step acts as an editing step where the researcher ensures the alignment with research questions and that themes represent data accordingly. Themes are the defined by assigning names or labels to them.

- Producing report

Finally, the researcher presents data in a form of reporting of findings. At this point, the reported can either use illustrations to present the findings, or they can write them out using logic and/or reasoning.

1.7.7. Quality assurance

- Trustworthiness

The quality and worth of research is assessed through trustworthiness which also concerns itself with how well the findings from participants align with the study aim (Alexander, 2019). Lincoln and Guba (1986) have developed four criteria towards ensuring this trustworthiness, including credibility, confirmability, dependability, and transferability.

- Credibility

Credibility refers to the degree of accuracy in the data and its interpretations (Lincoln & Guba, 1985). The two aspects considered are, the manner in which the study has been carried out to maximise the believability of the findings, and the measures taken in convincing the audience about the study's credibility. The credibility of this study was attained in various ways. Firstly, the researcher ensured prolonged engagement with the setting in order to understand it and build positive relationships with the participants. Secondly, data and method triangulation took place, where data triangulation suggests obtaining data from different sources and method triangulation concerned with using more than a single data collection technique. The data were collected from a total of six different Social Sciences teachers from three different schools, with the use of two data collection methods, namely, interviews and observation. In addition, member checking also played a role in ensuring credibility as participants were briefed about the interpretations of data for feedback, adjustments or modifications.

- Confirmability

Confirmability can be aligned with objectivity where the bias of the researcher and/or participants has not affected the data and that the data matches with the information provided by the participants, not from the researcher's imagination (Liamputtong, 2019). The confirmability of this study was ensured in three different ways, as suggested by Lincoln and Guba (1985). The researcher sought input from the colleagues who could authenticate the interpretations and look out for biases. In addition, participants were asked to examine and validate the authenticity of the findings.

- Dependability

Dependability pertains to the ability of the study to endure and persevere through time and contexts. The dependability of a study is indicated by consistency and reliability, suggesting that if the study were to be conducted again under similar circumstances, methods and participants, results would not differ (Kakar et al., 2023). In order to ensure dependability of this study, method triangulation and audit was used. This means that the researcher utilised more than one data collection method which allowed the corroboration of evidence. Furthermore, an external reviewer will examine the data and relevant documents of the study.

- Transferability

Transferability suggests that the study can be used for generalisations for contexts that are similar to those of the study. One way transferability can be ensured is through thick descriptions. Therefore, to ensure this for this study, the researcher worked tirelessly in collecting ample amounts of descriptive data from the different data generation methods they used. This allows the audience to make informed conclusions as to whether or not the findings can be generalised. The application of different techniques for ensuring trustworthiness for these four pillars means comprehension and transparency will be achieved. Ahmed (2024) points out that professionals from different fields are able to provide better services if they understand the phenomenon being presented by the enquiry's findings. The author adds further that transparency allows for the scholarly community to critically evaluate it.

1.7.8. Ethical considerations

Ethics in research ensures that participants are protected from any harm. They are the standards usually enforced by committees of institutions to safeguard conduct and moral values (Bhattacharjee, 2012). Coe et al. (2021) and Kwang and Hwang (2021) highlight the principles of ethics in research being informed consent, confidentiality, beneficence, and honesty and integrity.

In terms of informed consent, it is important that the researcher is forthcoming about the nature of the study when they approach possible participants. This ensures that when participants decide to partake in the study, they have the necessary information about what the study is about and how it will unfold as per their roles. For this study, teachers were provided with a consent form that consists of all the background information about the study as well as measures towards protecting each participant.

The confidentiality aspect, especially with regards to interviews and observations suggests that the researcher is aware of the identities of participants but ensures that no other individual can discover these identities at any point. To uphold this conduct, the researcher used pseudonyms as alternatives to the real names of participants. The researcher also locked away any documentation and recordings in cupboards

only accessible by them. Furthermore, computer files are only accessible by passcodes known only by the researcher.

Behaving in respectful and kind ways minimises harm towards participants and also plays a crucial role in ensuring good ethical conduct. This was upheld by means of treating all participants equally. Meaning, no participant was made to feel less of themselves, for example, even for those whose ICT experience was found to be lacking. Additionally, the researcher avoided uncomfortable questions that could stir controversy.

It is important to be honest and uphold integrity during an undertaking. This should be upheld before, during and after data collection, when the researcher presents the findings. To ensure this, the researcher did not exclude any important information when requesting informed consent. This means that everything that occurred during data collection was what participants anticipated based on the information provided on the consent form. Additionally, the researcher did not falsify findings from data collected for furthering their own agenda.

1.8. SIGNIFICANCE OF THE STUDY

This study is valuable because:

- It informs audience of the status of integration of ICT for SS in SA
- It offers an insight on teachers' experiences in the integration of ICT in SS intermediate phase classrooms
- It provides possible solutions and suggestions for existing challenges associated with this phenomenon
- It encourages schools to take advantage of technology to advance SS education

1.9. DEFINITION OF OPERATIONAL TERMS

This section provides definitions of the main concepts to promote clarity and understanding of the entire document. The concepts addressed are Social Sciences and ICT integration.

1.9.1. Social Sciences

Social Sciences, otherwise known as Social Studies, is an intermediate and senior phase school subject in the South African context. The subject comprises of two disciplines namely History and Geography which are both to be taught and assessed in all four terms of the year. The CAPS document outlines that the subject is aimed at fostering understanding of the world in both immediate contexts and those outside of the learners' realities (DBE, 2012). It further highlights that learners in this subject are encouraged to be able to pose the *Who? Where? What? Why? When? How? Should? Could? Is/Are? If?* questions. According to Utaminingsih (2023) the significance of SS stretches beyond mere historical concepts and geography. This is true considering the postulation by the CAPS document that language is a major part of the subject, specifically reading and writing. Furthermore, it states that the training of learners is centred on them being able to speculate, debate, make connections, select, prioritise and persist. History is study of society in terms of the past, present and future. The curriculum policy statement (DBE, 2012) outlines the knowledge learners are expected to acquire, including constitutional knowledge and human rights. The subject further promotes peace and responsibility stating that learners are prepared for their roles in different contexts of society. On the other hand, Geography is the study of the human and physical environment over space and time (DBE,2012). The discipline equips learners with various skills including literacy, oracy, numeracy and graphicacy.

1.9.2. ICT and ICT in Education

ICT in this study is used synonymously with technology. According to Khan et al. (2024) ICT refers to digital technologies such as computers, smartphones, the internet, software applications and telecommunications infrastructure which allow for the acquisition, processing, storage and dissemination of information. Henderson (2020)

adds that these technological tools avail information conveniently, at the right place, form and to relevant users. The ICT Policy Whitepaper (2016) also details that ICT consists of several technologies including computing and information technology, telecommunication, audio-visual content and the internet. ICT in education can be defined in different ways but first, it is important to understand what education is; Machmud et al. (2021) state that it involves transferring and facilitating the acquisition of knowledge, skills, values, beliefs and habits. Thus, ICT in education entails an improvement in educational process outputs (Machmud et al., 2021). On the other hand, Miao et al. (2022) suggest that it is an intersection of the two concepts, offering multiple perspectives, advancing teaching tools and developing technologically advanced learners while also emphasising that teaching and learning is not at all directed by ICT, but rather it is there as an aid to existing practices.

1.9.3. ICT Integration

Various scholars provide a definition for ICT integration. Lloyd (2006) details different forms of the definition of the concept. Firstly, the scholar starts by explaining that the word 'integration' is used interchangeably with the simpler word 'use' and that it means to combine components, elements or parts into one whole. They then state that ICT integration in education basically suggests a transformation in teaching and learning practices for more student-centred learning. On the other hand, Ngao and Sang (2024) also provide their own definition of ICT integration in education stating that teachers infuse pedagogy with technology instead of abandoning their current practices. Therefore, ICT integration is all about adapting instructional methods to accommodate technology for a more advanced teaching and learning environment.

1.9.4. Teaching

According to Shavelson (1973) teaching is concerned with the act of consciously, or subconsciously deciding to explain, question and reinforce. The author suggests that it is the act of transferring skills and knowledge to the next person artistically and/or scientifically - artistically because it requires the creativity and imaginative skills of

teachers in order to successfully deliver content and scientifically because sometimes it requires logical, mechanical, and procedural approaches. Although Poyla (1963) disagreed with the scientific notion, the artistic one was extended on by suggesting concepts of theatrical art, poetry, music and profanity as some of the strategic ways in which teachers can teach effectively. There are some characteristics of teaching that have been written about. Firstly, Jackson (1996) highlighted that teaching is a moral enterprise because it is concerned with bettering the world and those that live in it. Several other characteristics are written by Rajagopalan (2019) including that it is well-planned, democratic, suggestive and not dictatorial, kind and sympathetic. These characteristics suggest a moral high ground associated with teaching.

1.9.5. Learning

It is important to note that generally learning is not confined to schooling, Pritchard (2017) explains that this process occurs prior to instruction and continues even after. The author provides definitions of the learning concept which briefly suggest it as gaining knowledge and behavioural transformation informed by experience and practice. Shmeck (2013) states that others can interpret it as a process of reality apprehension and interpretation. Kolb (2014), on the other hand, argues that the learning process involves the transformation of experience to create knowledge. It is suggested that this process can transpire spontaneously or unintentionally (Pritchard, 2017) where one can go to school or read a book for example, or like a child learning to speak or walk. Rogers (2002) presents qualities that facilitate learning. Firstly, authenticity is mentioned suggesting realness without an existence of a façade, Secondly, it is prizing, acceptance and trust suggesting closeness and care. Thirdly, empathetic understanding is also important which is concerned with emotional connection. Moreover, Poyla (1963) presents principles of learning which can also be of teaching being active learning, best motivation and consecutive phases.

1.10. CHAPTER LAYOUT

This study is made up of six total chapters that are organised in the following manner:

Chapter 1 The introduction and background of study

Chapter 2 Article 1 – A Systematic Review of ICT integration in Social Sciences

Chapter 3 Article 2 – Perspectives of Social Sciences Teachers on ICT Integration

Chapter 4 Article 3 – ICT Integration Techniques in Social Sciences

Chapter 5 Article 4 – Challenges and Possible Solutions in the Integration of ICT in Social Sciences Teaching and Learning

Chapter 6 The overall summary of the study

1.11. CHAPTER SUMMARY

This chapter has concisely presented the introduction and background information of this study as well as the research questions, aims and objectives. It further details the significance of the study, as well as the scope and delimitation. In this chapter the scientific procedure and techniques that were used to carry out the research have also been outlined. The discussion started by explaining the chosen paradigm, which is interpretivism and moved to detail the qualitative approach and case study design. It then described the population sample and the site, followed by the procedure involved in generating data and the assisting tools. Thereafter, the strategies followed in analysing data and ensuring quality of the findings was detailed. Finally, the principles that ensured protection of participants were presented under ethical considerations.

CHAPTER TWO

ARTICLE 1

The article has been adapted according to the *Acta Educationis Generalis* Journal requirements.

DOI: 10.2478/atd-2025-0034

A Systematic Review of ICT Integration in the Teaching and Learning of Social Sciences

**Nokulunga Phathiswa Nxusa – Boitumelo Benjamin Moreeng –
Pfuurai Chimbunde[□]**

Received: April 17, 2025; received in revised form: May 26, 2025 accepted: May 27, 2025

Abstract:

Abstract:

Introduction: With the growing trend of technology adoption in teaching and learning, this integration must continuously be studied to track its status. Social Sciences, also known as Social Studies in other countries, is one of the subjects that the South African government has designed to accommodate technology adoption. Therefore, this qualitative review systematically analyses published data on integrating ICT in the teaching and learning of Social Sciences. Understanding the level of ICT integration in teaching Social Sciences in schools will open avenues for designing evidence-based intervention strategies to bridge policy and practice gaps in curriculum implementation.

Purpose: The purpose of this study was to identify the attitudes and perceptions, extent of integration and challenges of SS teachers in integrating ICT in their instruction. It is hoped to eventually identify gaps in existing literature and to guide future research.

Methods: The review was guided by the PRISMA guidelines and utilised three search engines, Google Scholar, EBSCOHost and Sabinet, from which a total of 25 records from the last ten years were deemed suitable for the purpose of this study. Thereafter, data were analysed using the thematic analysis method based on the attitudes and perceptions, level of integration and challenges.

* Nokulunga Phathiswa Nxusa, University of the Free State, Bloemfontein, South Africa; 2015054378@ufs4life.ac.za; ORCID: 0000-0001-6939-4202

Boitumelo Benjamin Moreeng, University of the Free State, Bloemfontein, South Africa, moreengBB@ufs.ac.za; ORCID: 0000-0002-3644-3140

Pfuurai Chimbunde, University of the Free State, Bloemfontein, South Africa; chimbundep@gmail.com; ORCID: 0000-0002-3423-2163

Conclusions: Overall, integration is in its infancy, but there is an eagerness to integrate ICT if the challenges are mitigated. This analysis was significant in pointing out areas of future research.

Key words: ICT, integration, Social Sciences, Social Studies, systematic review, PRISMA.

Introduction

Technology is an undeniably beneficial innovation worldwide, and according to Gül (2023), its existence can be detected in almost all areas of our lives. Of course, the impact will not be similar between different income classes (Ghalayani et al., 2020), but the positive impact is still reported by numerous scholars researching this aspect. These scholars commonly use fixed broadband subscriptions, mobile subscriptions, Internet, and telephone communication as indicators. Ghalayani et al. (2020) suggest that the effect level on the economy for each region studied will differ according to the technological indicator studied. However, a

general overview indicates that despite the differing levels, the effect of ICT on the economy is favourable.

As already mentioned, the world consists of various countries with differing income classes, which results in the varying effects of ICT on each economy. The high and upper-middle-income classes have positive results for all indicators since they have adequate technological infrastructure and advanced knowledge of its use. Still, even in this case, the lower middle-income class reportedly shows an even more significant impact of digital technology on its economy compared to the high and upper middle-income classes. In contrast, the impact is still positive in low-income classes. Still, mainly fixed broadband and cellular subscriptions significantly impact economic growth (Ghalayani et al., 2020). The studies in Asian countries also presented findings similar to those of lower income classes (Nipo et al., 2022). Studies suggest that mobile telecommunication makes significant economic growth within South Africa, Libya and Gabon, showing a higher level in South Africa with the most evident impact on economic growth (Adeleya & Eboagu, 2019; David & Grobler, 2020). Without a doubt, studies have clearly shown that technology is a widespread trend that seeks to bring revolution in different sectors, especially education, and it can be argued that building a sustainable future has been technology's primary focus (Das & Barman, 2023). For instance, multimedia tools are a common technological integration in education. They are software applications and platforms designed to create, edit, and manage various forms of media, including text, images, audio, and video. They enable users to combine these elements to produce rich and engaging content for different purposes, such as education, marketing, entertainment, and communication. Digital technology enhances verbal instruction by incorporating static and dynamic visual aids, facilitating improved expression and understanding (Alemdag & Cagiltay, 2018). Furthermore, there is accelerated production of information, with access to it enhanced as technology continues to develop (Gül, 2023).

Technology in education is not a recently emerging concept, as it has been around for decades. According to Mdhlalose and Mlambo (2023), the 1920s were the earliest recorded time when ICT was used to teach history and political sciences through a radio broadcast. In the 1950s, the University of Illinois developed a computer-based teaching system, and in the 1960s, audio and video cassettes were popularised for lectures. Carlos et al. (2022) also noted an introduction and growing use of personal computers, signifying a tremendous educational turn. Thereafter, from the 1990s to date, the Internet has been widely used, allowing for digitalised teaching such as virtual learning (Mdhlalose & Mlambo, 2023).

Interestingly, Social Sciences (SS) is one of the subjects that the Department of Education has outlined to make room for technology integration. Different scholars conceptualise SS as a school subject in several ways. According to Bariham (2019), this subject is an inquiry-based subject which seeks to study problems that exist within society. He adds that it is a multidisciplinary subject that aims to instil the relevant skills, attitudes and values to help combat poverty and societal issues. Likewise, Bariham (2020) highlights the origin of this learning area in Britain from the 1920s and its dissemination to the US as time progressed.

In essence, the learning area in South Africa is offered in grades 4-9 and the Intermediate and Senior Phases. This subject offers the History and Geography disciplines, in which language and writing are integral. At the same time, they are trained to debate and speculate on issues and questions (Department of Basic Education [DBE], 2011). The two disciplines branch out independently from grades 10 to 12. The resources prescribed for its instruction include textbooks, magazines, newspapers, maps and globes, audio and visual material, and the Internet for programs such as Google Earth.

Moreover, the subject's curriculum and policy statement further outline the envisaged learners (DBE, 2011). It clearly indicates that learners' inquisitiveness must be encouraged, having to ask *is/are, should, could, who, what, why, when, where, and how* questions, which advance to *"if"* as they progress to the next phase. The history part aims to create learners who enjoy the study of the past, are knowledgeable and appreciative of the past and related dynamics, can partake in historical enquiries, and possess knowledge of historical concepts, sources and evidence. On the other hand, the geographical side aims to produce learners who want to know more about their environment, are knowledgeable about it and the relationship between society and the natural world, are independent thinkers, care about the environment, can communicate effectively, etc.

In addition, Ibrahim et al. (2020) emphasise that "ICT integration in Social Sciences education refers to the purposeful and systematic incorporation of ICT tools and resources into the teaching and learning process of the subject". According to the report of Whitworth and Berson (2002), the popularity of technology in SS can be traced back to 1996 and 2001. The emphasis around this time was still on the location and utilisation of the World Wide Web resources. Around this time, Martorella (1997) described technology integration in this area as a "sleeping giant", seeing as it was lagging in adoption compared to other disciplines. Most significantly, reports have brought forth various reasons for ICT's importance in SS education. A study by Mwinkaar (2018) on ICT integration in Social Studies reported on three crucial contributions of technology in classrooms: effective and better lesson delivery, lessons more interactive and easy teaching of the lesson and better understanding by learners, which is similar to what Mensah and Osman (2022) posited about Social Studies lessons being more engaging, varied and well presented with the use of technology, derived from their participants' perceptions. In addition, Ibrahim et al. (2020) found that it promotes engagement and motivation, a similar notion also reported by Anim (2024). Furthermore, Atubi (2022) added to the list that the innovation makes Social Studies lessons more practical, which is in line with what Anim (2024) reported from her participants' responses that highlighted the practical nature of multimedia usage and that with ICT, learners do not only read about SS, but they also apply the knowledge, resulting in active learning. Access to a vast array of resources is another widely reported importance of the concept (Bariham, 2022). These reports strengthened the argument on the importance of ICT in SS education.

Clearly, the progress of ICT incorporation in this subject's teaching and learning must be tracked and understood to maximise learning and enhance teaching experiences with the innovation. The aim of this analysis was to unveil the progress and level of technology integration in SS and to set a clear path for future research on this phenomenon. Thus, this systematic review addresses the following questions on ICT integration in Social Sciences teaching and learning:

1. What are the attitudes and perceptions of Social Sciences teachers on integrating technology?
2. To what extent are they integrating ICT in their teaching?
3. What challenges do they encounter with the process?

Methodology

This study sought to uncover the extent to which Social Sciences teachers integrate ICT. The Preferred Reporting Items for Systematic Reviews and MetaAnalyses (PRISMA) guideline was invaluable in the development of the study. In addition, the main research questions were equally significant in creating a criterion for studies to be included in the analysis. Suitable studies had to adhere to Table 1.

Table 1

Inclusion and exclusion criteria

<u>Included</u>	<u>Excluded</u>
Focus on primary school/Junior High, or Secondary school SS.	High school SS
Primary research	Secondary research
Published between 2015 and 2025	Older
From peer-reviewed journals	Non-reputable journals
In English	Other languages

Database search and key terms

In search for relevant studies to be analysed, a total of three search engines were utilised: Google Scholar, EBSCOhost, and Sabinet. A thorough delve through these databases was guided by using a few critical keywords to ensure the results highly matched the main topic of this study. These keywords included:

- ICT/Information and Communication Technology integration AND/OR Social Sciences
- Technology Integration AND/OR Social Sciences
- Computer-based instruction AND/OR Social Studies
- Technology use AND/OR Social Studies
- Geography AND/OR ICT
- Perceptions/attitudes AND/OR ICT
- Challenges/barriers AND/OR ICT
- Extent AND/OR ICT integration

Study selection

The selection of studies was guided by the PRISMA framework, as shown in Figure 1. PRISMA was initially developed to improve systematic reviews and meta-analyses (Moher et al., 2019) and elaborate on complete and transparent reporting (Liberati et al., 2009). It suggests that the process commonly commences with many identified records, which are then sequentially excluded based on the eligibility criteria formulated by the authors. The step-by-step process includes the following stages: Identification, Screening, Eligibility, and Inclusion.

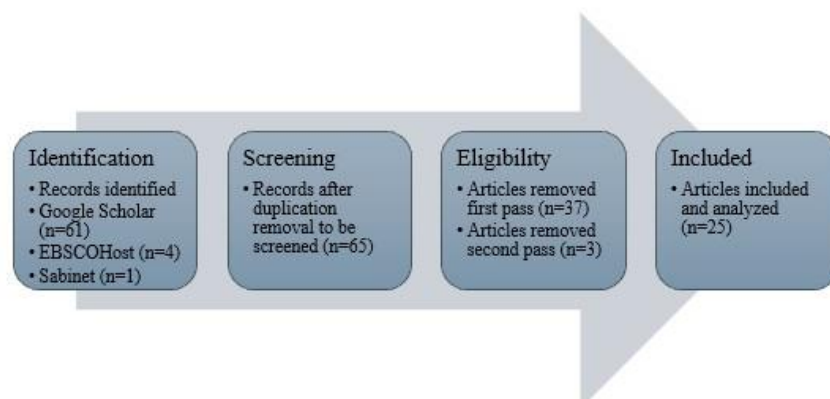


Figure 1. PRISMA flow chart for inclusion and exclusion process.

1.2.1 Identification

A total of 66 records were retrieved from three databases. Sixty-one studies were retrieved from Google Scholar, four from EBSCOhost, and one from Sabinet.

1.2.2 Screening

Briefly screening the records, it came to light that one of the records was a duplicate and was removed, leaving a total of 65 records to be screened.

1.2.3 Eligibility

Based on titles and abstracts, 37 records were removed, deemed irrelevant to the study's goal. This is because the studies addressed other subjects that are not SS; some addressed the subject at the high school level, while there were also some with pre-service teachers as participants, and others focused on the learning area at the tertiary level. Equally important, some of the studies were published before 2015. A further total of three more articles were removed after a full read because they were not primary data as set on the criteria of this systematic review.

1.2.4 Included

With the help of the PRISMA guideline on inclusion and exclusion, 25 total articles were included and analysed as they were found to closely relate to the study's goal and adhered to the given criteria: they were published between 2015 and 2025, they addressed Social Sciences/Studies/Geography/History at primary/junior high/secondary schools, from peer-reviewed journals, and they were primary research published in the English language.

Results

This section presents the findings and a discussion after the analysis of the included 25 articles in accordance with the mentioned research questions, with the help of a thematic analysis procedure. First, a description of the publications is presented according to the year of publication, followed by the research approach used, the countries of publication, the theoretical frameworks used, and the authors who published.

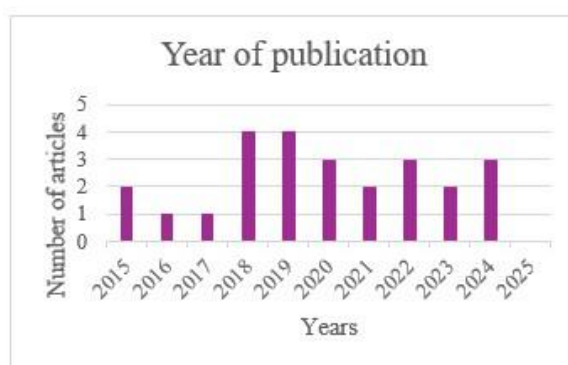


Figure 2. Publications by year.

The included data were filtered by the year of publication, as each article had to be no more than ten years old since its first publication. According to Figure 2, most of the included studies were published in the years 2018 and 2019, with four publications each, followed by 2020, 2022 and 2024 with three each; then 2015, 2021, and 2023 have two publications each, whereas years 2016 and 2017 had the least number with one publication each and 2025 has not yet seen any publications related to this review.

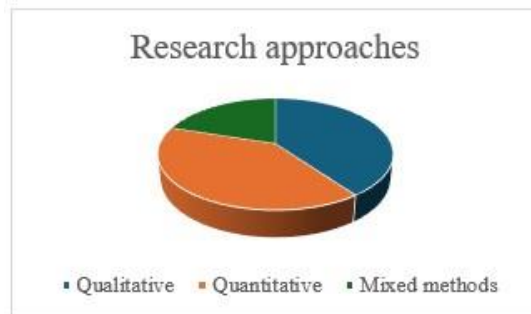


Figure 3. Sampled studies by research approach/design.

The publications included were also analysed based on the type of research approach they used in their studies. Findings, as shown in Figure 3, showed that most of the studies were qualitative in their approach, with a total of 10, and quantitative, with a total of 10, and five used a mixed approach.

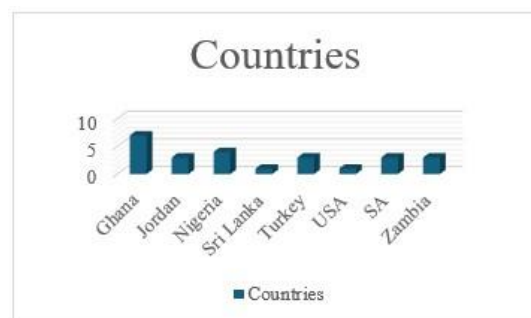


Figure 4. Country of publication.

Countries of publication were also taken into consideration during this analysis. The publications originated in Ghana, Jordan, Nigeria, Sri Lanka, Turkey, the USA, South Africa and Zambia, as shown in Figure 4. Sri Lanka and the USA had the fewest publications, with only one each. On the other hand, Ghana was leading with seven, followed by Nigeria with four, while Jordan, Turkey and Zambia had three publications each. South Africa followed closely with three publications, two focusing on geography in primary schools and one focusing on SS.

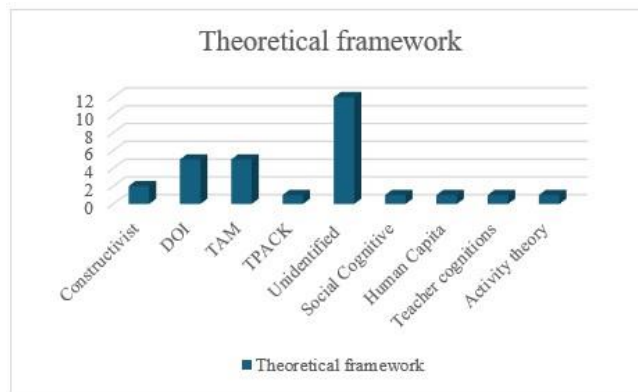


Figure 5. Theoretical framework.

The theoretical foundations of the studies were also considered. It was found that most of the studies did not have any theoretical foundations/frameworks (12), as shown in Figure 5 (unidentified). Five of the studies grounded their research on the Technology Acceptance Model (TAM). Two of the studies employed Constructivism, the other five used the Diffusion of Innovations Theory (DoI), only one used TPACK, and one used Social Cognitive Theory and Human Capital Theory simultaneously. Additionally, one of the studies used DoI, TAM, teacher cognitions, and activity theory as simultaneous frameworks.



Figure 6. Publishing authors.

Upon analysis, it became significant that the articles' publishing authors were considered. Based on Figure 6 above, it is clear that Smadi and Ghanney are the leading authors of this review as they appear three times each in publications, followed by Tarman, Kilinc, Aydin, Lufungulo, Mwinkaar, Donkor, Bariham and Felix as the next prominent authors with two publications each. Bariham had two publications, one independent and one with colleagues. Smadi had three publications, two with colleague Raman and one independent. On the other hand, Tarman, Kilinc and Aydin also had two publications, one with Tarman as a lead author and one with Kilinc as a lead author. Lufungulo also had two publications as a sole author. Felix appeared as a prominent author in two publications, but in each of these publications, the co-authors differed. Donkor was the prominent author of two publications with colleagues, Ghanney appeared as a co-author of both these publications and was a prominent author of a study with Mwinkaar. Mwinkaar also had a publication as a sole author. The rest of the authors had one publication each.

Thematic analysis

Thematic analysis, as the chosen data analysis method for this study, describes data in patterns by creating and interpreting codes and is deemed flexible for its capability of being used among different theoretical and epistemological frameworks (Kiger & Varpio, 2020). They further comment that its flexibility also stretches to be used in various study questions, designs, and samples of different sizes. The data here were analysed thematically according to the three research questions of the study.

Thematic analysis has a simplified guide for researchers to follow when they commence with the analysis of their data (Terry et al., 2017):

- *Data Familiarisation:* This first step is crucial in determining whether or not the interpretations and descriptions emerging from the dataset will be free of defects. The scholars highlight that this step begins before the actual analysis, when researchers still collect data by noticing patterns. During this first step, researchers must read and reread, ask questions, and make notes.
- *Code Generation:* In this second step, researchers have already made notes, understood data, and noticed patterns. Now, they have to create codes, which is a means of reducing and organising the data. This is done by systematically and thoroughly identifying concepts, finding relations between them, and creating labels. At this stage, irrelevant data will also be discarded as it serves no purpose towards answering the research questions.
- *Theme Construction:* Following the generation of codes, researchers now identify patterns, which are then turned into themes. The creation of these themes should align with the research questions, as the scholars suggest that these questions should guide this step. Thereafter, the scholars also recommend using visuals such as thematic maps.
- *Theme Revision and Theme Definition:* This step acts as an editing step, ensuring alignment by checking whether the themes answer the research questions. This stage will either see researchers modifying their themes, removing some themes, or starting afresh with creating themes because each theme should contain rich detail to be independent; themes that do not include this in-depth detail are either expanded, merged with other themes or dropped altogether.
- *Producing the Report:* This is the final step of the analysis, in which the researcher's position shifts back to the bigger picture of the overall study from the analytic mode. They begin to write and report on their findings using either the illustrative style of writing, which relies on examples to make a point, the analytic style, which uses logic and reasoning, or even both.

After completing this analysis, emerging themes were: a) Perceptions and attitudes; b) ICT usage in SS and factors affecting integration; and c) Challenges.

2.1.1 Perceptions and attitudes of social sciences teachers and students Undeniably, teachers are the key role players in the process of technology integration in classrooms (Ersoy & Kavaklioglu, 2020), and the decision to eventually adopt the idea of teaching with technology and its success is highly dependent on their perceptions and attitudes (Boonmoh et al., 2021; Islahi, 2019). Eteokleous (2018) defines perception as the view, understanding or even interpretation of things, while Teyo and Noyes (2011) define attitude as a person's positive or negative emotional tendencies. Clearly, then, if the integration of ICT in the discipline is to be successful, these two components need to be assessed closely.

The analysis of the studies provided sufficient insight into the perceptions and attitudes that the subject's teachers and learners have on ICT integration in teaching and learning. It was commonly found that they had positive attitudes and perceptions towards the incorporation of technology in their teaching (Adeniyi & Mojirade, 2022; Bakare & Olanrewaju, 2022; Bariham et al., 2019; Bariham, 2019; Cener et al., 2015; Felix, 2021; Felix et al., 2018;

Ghanney & Mwinkaar, 2019; Gunzo, 2020; Hong, 2016; Lufungulo, 2017, 2015; Tarman et al., 2019). For example, the participants showed eagerness to use ICT and learn more about it in the process, as they viewed it as an effective teaching tool (Donkor et al., 2023) and a resource bank (Hong, 2016). Furthermore, SS teachers view technology as a valuable innovation to enhance learning (Felix et al., 2018; Gunzo, 2020; Mwinkaar, 2018; Tarman et al., 2019). Teachers were generally interested in ICT integration in teaching and learning (Ghanney & Mwinkaar, 2019). In addition, Lufungulo (2017, 2015) reported that teachers and learners were excited and confident with the use of technology in lessons as they found it easy to use, helpful to enhance curriculum implementation, useful for learners to retain what they learnt and engaged most, if not all, the senses of the learners. Similarly, Donkor et al. (2023) and Mwinkaar (2018) found that teachers had good content and practical ICT knowledge, making integration effortless. The implication of this finding suggests that technology integration will most likely take place (Bakare & Olanrewaju, 2022; Cener et al., 2015), aligning with the findings of Mensah and Osman (2022) who asserted that SS teachers were found to hold positive perceptions of ICT integration in the teaching and learning of SS, which signalled that teachers were going to readily adopt technology if the necessary training and resources were provided for. On the other hand, some teachers perceived technology as useful but experienced extreme levels of demotivation with its adoption. Although they understood the benefits of the innovation, they had poor attitudes towards it as they reported the disadvantages to outweigh the advantages (Chirwa & Mubita, 2021). Even more concerning, other teachers complained that they simply viewed it as a waste of time (Mwinkaar, 2018); this, unfortunately, suggests that such schools will record much lower levels of ICT integration in their teaching and learning.

2.1.2 ICT usage in social sciences and factors affecting integration

Generally, the integration of ICT in SS classrooms can be observed using different techniques, depending on the infrastructural wealth of each school. Bariham (2019) found in his study that teachers used videos and DVDs in their SS lessons to present certain concepts to learners, expose them to diverse viewpoints and even play educational movies to learners, such as snippets on events of the past. Atubi (2022) placed emphasis on the Internet, social media, computers, and PowerPoint as substitutes for the textbook. Moreover, Bariham (2020) reported that mobile phones and the Internet were popular technological tools that learners and teachers used in his study. Similarly, findings in Mwinkaar's (2018) study suggested the Internet is the commonly integrated technological tool in the area's classrooms, allowing learners to explore various online content that can further explain complex concepts or open them up to new ideas. Several reports have shown that learners use smartphones and the Internet for research purposes when they have projects to complete.

In as much as teachers exhibited positive attitudes and perceptions towards incorporating it in teaching and learning, it is still important to find out if they are indeed doing it. According to the analysis of the studies, it was uncovered that the teachers' adoption is very low (Adeniyi & Mojirade, 2022; Bariham et al., 2019; Bakare & Olanrewaju, 2022; Gunzo, 2020), even though in some cases, efforts to provide video facilities to teachers were made (Bariham et al., 2019). Similarly, Gunzo (2020) found that even though ICT facilities were available in some schools, teachers still kept technology integration in its infancy. Furthermore, some of these studies tested whether or not the teachers' characteristics influenced their level of adoption in teaching and learning the subject. Young teachers reportedly integrated more than the older teachers, while males integrated more than females; and finally, the inexperienced teachers integrated more than the experienced ones (Bariham et al., 2019). Bariham (2019) had previously reported an opposite finding on this when it was found that teachers with more experience integrated more than the newer teachers.

Factors affecting the integration of ICT

There were more factors affecting integration, other than the characteristics of teachers, such as support, technological skills, location of schools, and exposure to gadgets. Support of the teachers is said to directly impact technology integration because it fuels their willingness to integrate more than those without support (Smadi, 2024). On the other hand, technological skills are just as significant to the process as they influence the level at which teachers participate (Afutor, 2020). Smadi and Raman (2024) reported that because the teachers in their study had technological skills and knowledge, they effectively used ICT in their teaching, which is closely related to the exposure factor; teachers who were already using ICT had higher chances of integration than those who did not (Omokhuah & Nwanekezi, 2018). This aligns with the findings of Olatunde and Okusaga (2015), who reported that ICT usage in SS teaching and learning was below average due to technological competency inadequacies.

2.2.1 Challenges

Social Science teachers face numerous challenges that affect their integration process of ICT in their teaching related to the Internet, ICT labs, professional development, time, finances, and technological support. The Internet issue is a commonly reported issue among various studies on technology adoption, as shown in Figure 7.



Figure 7. Challenges identified.

- *Internet access:* Many schools do not have internet access, or it is problematic, making integration of ICT difficult for SS teachers (Atubi, 2022; Bariham et al., 2019; Bariham, 2019; Chirwa & Mubita, 2021; Donkor et al., 2024; Felix, 2021; Karunakaran & Dhanawardana, 2023; Mwinkaar, 2018; Tarman et al., 2019). Many Websites, such as Google Maps, YouTube, Google and more, require that one has internet access. However, if this is not provided for, teachers cannot maximise their utilisation of ICT in their teaching and learning. For example, Felix (2021) reported that teachers used pictures from Google in the classroom; however, teachers also reported a lack of Internet in their school, which means they are not always able to do this. Atubi (2022) also found that teachers used internet browsing and educational websites in their lessons, but due to poor Internet usage, this is hindered on some days.
- *Lack of ICT labs and facilities:* In addition, unavailability and inaccessibility of ICT labs and tools/facilities in schools was another reported barrier for SS teachers in their technology use (Adeniyi & Mojirade, 2022; Atubi, 2022; Bariham et al., 2019; Bariham,

2019; Donkor et al., 2024, 2023; Felix et al., 2018; Felix et al., 2021; Ghanney & Mwinkaar, 2019; Hong, 2016; Karunakaran & Dhanawardana, 2023; Kilinc et al., 2018; Lufungulo, 2017; Mwinkaar, 2018; Tarman et al., 2019). For example, Lufungulo (2017) found that the sampled schools had short supplies of tablets, laptops, projectors and speakers. These shortages can create even more challenges for teachers and learners, such as learners having to share these tablets in class (Lufungulo, 2017), which may affect the smooth progress of lessons.

- *Lack of ICT-related professional development:* Moreover, SS teachers are unable to integrate technology because of a lack of ICT-related professional development. Teachers were not granted an opportunity to engage in professional development programmes, and when they did, sometimes they were irrelevant, resulting in a lack of technological skills (Bariham, 2019; Bariham et al., 2019; Feix et al., 2021; Ghanney & Mwinkaar, 2019; Hong, 2016; Karunakaran & Dhanawardana, 2023; Kilinc et al., 2018; Tarman et al., 2019). Unfortunately, this leads to teachers' limited ICT knowledge and skills (Donkor et al., 2024; Ghanney & Mwinkaar, 2019). This lack of technological competency resulted in teachers' inability to utilise technology in their lessons effectively.
- *Time constraints:* The issue of time is also viewed as a hindering matter of ICT integration in SS teaching and learning. The time factor ranges from ICT being seen as time-consuming due to long set-up time (Hong, 2016) to lack of time to learn and practice technology (Hong, 2016; Smadi & Raman, 2020) to the SS curriculum not being designed to allow enough time for technology integration (Bariham et al., 2019; Bariham, 2019; Gunzo, 2020; Kilinc et al., 2018; Smadi & Raman, 2020; Tarman et al., 2019) to a lack of transitioning time moving to computer labs (Felix, 2021; Gunzo, 2020; Karunakaran & Dhanawardana, 2023) and limited time to plan lessons (Felix, 2021; Gunzo, 2020) as some teachers had to make use of school computers/laptops which they could only access while at school (Felix, 2021). For instance, it was found that when teachers integrated technology into their lessons, they did not complete the lessons on time as they spent a lot of time setting up the gadgets or moving learners to labs (Gunzo, 2020). As a result, teachers minimised their utilisation of technology.
- *Financial constraints:* Furthermore, financial constraints in schools block the effective adoption of innovations as they are not able to purchase the necessary tools or even maintain them (Bariham et al., 2019; Chirwa & Mubita, 2021; Felix, 2021; Gunzo, 2020; Karunakaran & Dhanawardana, 2023). Participants in one study blatantly echoed that they had challenges because the school reported that they could not afford to pay for internet subscriptions, leading to teachers having to purchase their own data (Chirwa & Mubita, 2021). Consequently, teachers became demotivated and ended up avoiding using ICT.
- *Lack of technological support:* Finally, the teachers are yearning for technological support, especially as non-ICT teachers. They experience challenges manoeuvring the technological tools at times (Bariham et al., 2019; Bariham, 2019; Donkor et al., 2024, 2023; Gunzo, 2020; Hong, 2016; Kilinc et al., 2018; Tarman et al., 2019). When teachers do not get the necessary support with the integration, they become demotivated and reluctant to proceed.
- These reported findings on challenges faced by these teachers are similar to the findings of other scholars, such as Heafner (2013), who found that they were faced with barriers associated with access to the resources, the lack or unavailability of consistent internet access, lack of professional development leading to lack of technological skills, and generally finding technology integration time-consuming

Discussion

The goal of this study was achieved through a systematic review of the literature guided by the PRISMA guideline. The analysis revealed that most studies were published in 2018 and

2019. The situation of the analysed studies was in Nigeria, Sri Lanka, the USA, Ghana, Jordan, Turkey, South Africa and Zambia. Ghana had the most publications in this review. These studies were primarily qualitative and quantitative with equal statistics, and most had unidentified theoretical foundations; however, DoI and TAM seemed more dominant among those with theoretical frameworks. Finally, the leading authors in this analysis were Smadi, Ghanney, Mwinkaar, Donkor, Bariham, Tarman, Kilinc, Aydin, Felix and Lufungulo.

Moreover, the reviewed publications managed to answer the research questions of this paper and the results were thematically presented. The findings showed that Social Sciences teachers and learners have a positive and eager outlook on integrating ICT in teaching and learning. However, they reported minimal integration, possibly due to the challenges listed. These challenges are related to the Internet, ICT labs, professional development, time, finances, and technological support.

This analysis has uncovered a few limitations to the issue of technology adoption in this subject. Firstly, in the last ten years, only a few primary studies have focused on ICT integration in SS in primary school/junior high school/junior secondary school. Secondly, only one publication could be retrieved from within the South African context, published in the last ten years, about the integration of technology in Social Sciences. The other two that have been included did not focus on Social Sciences as a whole but rather on only one of the two disciplines that make up the subject, which was Geography. Consequently, this leaves a considerable gap in knowledge to be filled.

Conclusions

The education sector faces significant transformations as technological innovations are becoming increasingly popular. Interestingly, Social Sciences are one of the subjects designed to incorporate technology in teaching, and it is crucial to investigate whether or not this is happening and at what rate. Thus, this analysis has been a cornerstone in answering this question. It sought to discover what perceptions and attitudes Social Sciences teachers and learners held for this integration, to what extent the Social Sciences teachers were integrating, and what challenges they faced in the process. Therefore, a total of 25 publications were analysed to answer these questions successfully. Findings revealed that teachers showed positive perceptions and attitudes towards technology adoption in Social Sciences classrooms, even with challenges such as lack of internet services, professional development and financial constraints, which led to limited integration. Most importantly, the major finding emerging from the review was the limited literature on ICT integration in Social Sciences within the South African context. It can therefore be recommended that, firstly, future research on this phenomenon must be done within South Africa. Secondly, the government must develop policies and guidelines that ensure that teachers receive continued adequate and relevant support and professional development, along with the provision of the necessary resources. Thirdly, practitioners must not shy away from technology-related professional development opportunities available to them and must commit themselves to ongoing training. Finally, they must also be willing to adapt their instructional methods to the demands of the digital age.

References

- Adeleye, N., & Eboagu, C. (2019). Evaluation of ICT development and economic growth in Africa. *NETNOMICS: Economic Research and Electronic Networking*, 20, 31-53. <https://doi.org/10.1007/s11066-019-09131-6>
- Adeniyi, A. B., & Mojirade, A. M. (2022). Students' perception towards the use of ICT in teaching and learning of social studies in Oluyole Local Government Area, Oyo State. *IFE Psychologia: An International Journal*, 30(2), 1-10.
- Afutur, P. (2020). ICT infrastructure, ICT competencies, and teachers' workload: Critical factors that influence social studies teachers' integration of technology in the Kwahu west municipality of Ghana. *Journal of Education and Practice*, 11(14), 65-75. <https://doi.org/10.7176/JEP/11-14-08>
- Alemdag, E., & Cagiltay, K. (2018). A systematic review of eye tracking research on multimedia learning. *Computers & Education*, 125, 413-428. <https://doi.org/10.1016/j.compedu.2018.06.023>
- Anim, C. (2024). Perceptions and attitudes of social studies teachers in the usage of multimedia resources in teaching and learning of Social Studies concepts. *Open Journal of Educational Research*, 4(1), 27-41. <https://doi.org/10.31586/ojer.2024.897>
- Atubi, O. F. (2022). Information communication technology and social studies instruction in Delta State, Nigeria. *Jurnal Penelitian dan Pengkajian Ilmu Pendidikan: eSaintika*, 6(1), 1-10. <https://doi.org/10.36312/esaintika.v6i1.579>
- Bakare, O. O., & Olanrewaju, O. J. (2022). Teachers' attitude and utilisation of ICT integration into the teaching of social studies in Ile-Ife Upper Basic Schools. *Ilorin Journal of Education*, 42(2), 52-59.
- Bariham, I. (2019). Influence of teachers' gender and age on the integration of computerassisted instruction in teaching and learning of social studies among basic schools in Tamale Metropolis. *Global Journal of Arts, Humanities and Social Sciences*, 7(2), 52-69.
- Bariham, I. (2020). *Senior High Schools Preparedness for Integration of Computer-Based Instruction in Teaching and Learning of Social Studies in Northern Region, Ghana* [Doctoral dissertation]. Kenyatta University.
- Bariham, I. (2022). Senior high school teachers' and students' perception about the integration of online learning and its impact on their application of technology in teaching and learning of social studies in northern region, Ghana. *Social Education Research*, 3(1), 161-174. <https://doi.org/10.37256/ser.3120221268>
- Bariham, I., Ayot, H. O., Ondigi, S. R., Kiio, M. N., & Nyamemba, N. P. (2019). An assessment of basic schools teachers' integration of computer-based instruction into social studies teaching in West Mamprusi Municipality: Implications for further development of computer-based instruction use in Ghanaian Schools. *International Journal of Research and Innovation in Social Science*, 3(5), 2454-6186.
- Cener, E., Acun, I., & Demirhan, G. (2015). The impact of ICT on pupils' achievement and attitudes in social studies. *Journal of Social Studies Education Research*, 6(1), 190-207.
- Chirwa, C., & Mubita, K. (2021). The use of ICT in teaching of Geography in selected schools of Petauke district in eastern province of Zambia. *International Journal of Research and Innovation in Social Science (IJRISS)*, 5(10), 157-167. <https://doi.org/10.17499/jsser.67856>
- Das, P., & Barman, P. (2023). Does ICT contribute towards sustainable development in education? An overview. *International Journal of Research Publication and Reviews Journal*, 4(7), 544-548.
- David, O. O., & Grobler, W. (2020). Information and communication technology penetration level as an impetus for economic growth and development in Africa. *Economic Research - Ekonomska Istraživanja*, 33(1), 1394-1418. <https://doi.org/10.1080/1331677X.2020.1745661>
- Department of Basic Education (DBE). (2011). *Curriculum and Assessment Policy Statement (CAPS). Social Sciences Grades 4-6*. Department of Basic Education.
- Donkor, M. A., Ghanney, R. A., & Dwamena, E. (2024). Social studies teachers' challenges in applying ICT tools for effective instruction in schools for the deaf in Ghana. *International Journal of Research and Innovation in Social Science*, 8(7), 1874-1887. <https://dx.doi.org/10.47772/IJRISS.2024.807148>

- Donkor, M. A., Ghanney, R. A., Wiafe, D. A., & Dwamena, E. (2023). Social studies teachers' ICT proficiency for teaching in schools for the deaf in Ghana. *British Journal of Educational Studies*, 11, 81-98. <https://doi.org/10.37745/bje.2013/vol11n108198>
- Felix, A. A. (2021). *Integrating Geography Teaching and Learning Using Information and Communication Technology* [Doctoral dissertation]. University of the Free State.
- Felix, A. A., Condry, J., & Chigona, A. (2018). Using technology to enhance pedagogies in rural geography primary classroom in the twenty-first century. *Africa Education Review*, 15(3), 130-145.
- Ghalayini, L., Nasser, A., & Ishker, N. (2020). ICT diffusion and economic growth: A comparative study across economies. *Journal of Economics and Business*, 3(2), 768-794. <https://doi.org/10.31014/aior.1992.03.02.237>
- Gül, G. (2023). Use of technology-supported educational tools in general music education and its contribution to the process of music education. *Acta Educationis Generalis*, 13(2), 63-81. <https://doi.org/10.2478/atd-2023-0014>
- Gunzo, F. T. (2020). *Teachers' Perceptions, Experiences and Challenges Related to Using ICTs in Teaching Social Sciences in Marginalised Classrooms in the Eastern Cape Province, South Africa* [Doctoral dissertation]. Rhodes University.
- Heafner, T. L. (2013). Secondary social studies teachers' perceptions of effective technology practice. *International Journal of Computer and Information Technology*, 2(2), 270-278.
- Hong, J. E. (2016). Social studies teachers' views of ICT integration. *Review of International Geographical Education Online*, 6(1), 32-48.
- Ibrahim, A. O., Titilayo, A. A., Suleiman, Y., & Ishola, M. A. (2020). Information and communication technology (ICT) utilisation: A veritable tool for academic staff effectiveness in Nigerian polytechnics. *Humanities & Social Sciences Latvia*, 28(2), 101-120. <https://doi.org/10.22364/hssl.28.2.07>
- Karunakaran, S., & Dhanawardana, R. (2023). Integration of ICT in the teaching-learning process: Challenges and issues faced by Social Science teachers. *European Journal of Education and Pedagogy*, 4(4), 24-30. <https://doi.org/10.24018/ejedu.2023.4.4.696>
- Kiger, M. E., & Varpio, L. (2020). Thematic analysis of qualitative data: AMEE guide No. 131. *Medical Teacher*, 42(8), 846-854. <https://doi.org/10.1080/0142159X.2020.1755030>
- Kilinc, E., Tarman, B., & Aydin, H. (2018). Examining Turkish social studies teachers' beliefs about barriers to technology integration. *TechTrends*, 62, 221-223. <https://doi.org/10.1007/s11528-018-0280-y>
- Lufungulo, E. S. (2015). *Primary School Teachers' Attitudes towards ICTs Integration in Social Studies: a study of Lusaka and Katete districts* [Master thesis]. University of Zambia.
- Lufungulo, E. S. (2017). *Pupil's Attitudes Towards ICTs Integration in a Social Studies Classroom: A case of Azele Guze village Zambia* [Doctoral Dissertation]. University of Zambia.
- Martorella, P. H. (1997). Technology and the social studies or: Which way to the sleeping giant? *Theory & Research in Social Education*, 25(4), 511-514. <https://doi.org/10.1080/00933104.1997.10505828>
- Mdhlalose, D., & Mlambo, G. (2023). Integration of technology in education and its impact on learning and teaching. *Asian Journal of Education and Social Studies*, 47(2), 54-63. <https://doi.org/10.9734/AJESS/2023/v47i21021>
- Mensah, E. G., & Osman, S. (2022). Senior high schools' teachers' perception of integrating ICT into social studies Lessons in the New Juaben Municipality. *Social Education Research*, 3(1), 112-132. <https://doi.org/10.37256/ser.3120221053>
- Mwinkaar, L. (2018). *Integration and Usage of ICT by Social Studies Teachers in Teaching in Junior High Schools in the Gomoa West district* [Doctoral dissertation]. University of Education Winneba.
- Nipo, D. T., Lily, J., Idris, S., Pinjaman, S., & Bujang, I. (2022). Information and communication technology (ICT) on economic growth in Asia: A panel data analysis. *International Journal of Business and Management*, 17(12), 18-23. <https://doi.org/10.5539/ijbm.v17n12p18>
- Olatunde, F., & Okusaga, R. (2015). Relationship between information communication technology (ICT) usage and integration in social studies education and instruction in some selected secondary schools in Lagos, Nigeria. *Journal of Pedagogical Thought*, 23.

- Omokhua, C. E., & Nwanekezi, A. U. (2018). Integration of information and communication technology for teaching social studies in upper basic schools in Edo State. *AFRREV STECH: An International Journal of Science and Technology*, 7(2), 113-121. <https://doi.org/10.4314/stech.v7i2.11>
- Smadi, M. A. L. M. (2024). The support of teachers influencing technology integration in social studies teaching in Jordanian school. *Revista iberoamericana de psicología del ejercicio y el deporte*, 19(4), 406-409.
- Smadi, M. A. L. M., & Raman, A. (2020). Time factor influencing technology integration in social studies teaching in Jordanian school. *European Journal of Interactive Multimedia and Education*, 1(1), e02004. <https://doi.org/10.30935/ejimed/8351>
- Smadi, M. A. L. M., & Raman, A. (2024). Skills and knowledge impact teachers technology integration in social studies teaching in Jordanian school. *Revista iberoamericana de psicología del ejercicio y el deporte*, 19(4), 402-405.
- Tarman, B., Kilinc, E., & Aydin, H. (2019). Barriers to the effective use of technology integration in social studies education. *Contemporary Issues in Technology and Teacher Education*, 19(4), 736-753.
- Terry, G., Hayfield, N., Clarke, V., & Braun, V. (2017). Thematic analysis. In C. Willig, & W. S. Rogers (Eds.), *The SAGE Handbook of Qualitative Research in Psychology* (2nd ed.) (pp. 17-37). Sage.
- Whitworth, S. A., & Berson, M. J. (2002). Computer technology in the social studies: An examination of the effectiveness literature (1996-2001). *Contemporary Issues in Technology and Teacher Education*, 2(4), 471-508.

CHAPTER THREE

ARTICLE TWO

This article has been adapted according to the *Yesterday & Today* Journal requirements.

PERSPECTIVES OF INTERMEDIATE PHASE SOCIAL SCIENCES TEACHERS ON ICT INTEGRATION

NP Nxusa

University of the Free State

Bloemfontein, South Africa

2015054378@ufs4life.ac.za

0000-0001-6939-4202

Abstract

The teachers' perspective of Information and Communication Technology (ICT) integration is important for its success and adoption in education as this knowledge will be invaluable in enlightening audiences about how to further enhance the incorporation of technology in Social Sciences. Thus, this qualitative case study underpinned by the interpretivist paradigm sought to determine the perspectives of Intermediate Phase (IP) Social Sciences (SS) teachers on the integration of technology in the teaching and learning of Social Sciences motivated by the limited studies exploring this area. Interviews and observations were the data collection tools used to generate data from three schools in Bloemfontein in South Africa. The findings revealed that teachers had positive perspectives of ICT integration in the subject and these views showed an acknowledgement of ICT integration to be effective for a more developed SS classroom environment. Therefore, the Department of Education is recommended to allocate sufficient funding to enhance this initiative, and school management should ensure further encouragement and motivation of teachers to continue to integrate ICT into SS. The study also paves the way for future research by suggesting larger sample size using quantitative methods and looking at other aspects of focus such as learners and the senior phase.

Keywords: ICT; ICT in Education; ICT integration; Social Sciences; teachers' perspectives.

INTRODUCTION

ICT has proven to be life-changing in various fields such as education. The incorporation of ICT into education for educational enhancement has been occurring for decades, evolving from radio broadcasts to what we observe recently as virtual learning (Mdhlalose & Mlambo, 2023). ICT encompasses amongst other examples, electronic machines or devices that assist teachers efficiently achieve the set goals and objectives in teaching and learning in a short period (Ojo & Adum, 2018). Equally important to note, is that multiple definitions of integrating are available, but for the purpose of this study, the most relevant one is provided by Ergashev and Farxodjonova (2020) who state that it is the combination of parts and elements into a whole – making ICT a vital part of teaching and learning curricula to meet educational goals. Clearly, technology integration is not a concept to be neglected in education for a revolutionised system leading to global academic excellence.

The first step in salvaging the process is ensuring that teachers are on board with the notion of ICT integration into SS and that they show favourable attitudes towards this. A more relevant definition of perspective is provided by the Merriam-Webster online dictionary stating that it is “the capacity to view things in their true relation or relative importance” (Merriam-Webster Inc, 2025). This suggests that perspectives are shared based on whether teachers view technology as fitting into their teaching and learning practices and improving learning outcomes in order to make informed decisions on whether to adopt ICT or not. The outlooks exhibited by teachers can make or break the process of ICT integration (Louw et al., 2019). Thus, uncovering these views and attitudes will depict the current state of integration on aspects such as advantages, willingness and challenges, and enable teachers to be supported accordingly.

A brief overview of previous studies has shown that teachers are positive about this innovation. For example, Arhin et al. (2024) found that mathematics teachers had positive perspectives with the understanding that technology enhances student understanding of mathematics concepts. Furthermore, comfortability and confidence were highlighted popular themes in Hartman et al. (2019) study. A more focused study looked into the perspectives of primary school teachers on the use of virtual reality (VR) in their classroom and uncovered that they were both enthusiastic and hesitant due to certain drawbacks and concerns (Walstra et al.,

2024). Additionally, a literature study by Hafifah (2020) reported that studies mostly reported positive outlooks on technology integration in language education and highlighted that most of these studies were quantitative. It has also been reported that technology use in teaching was found to be easy for teachers (Nguyen, 2021).

The significance of technology integration in the Social Sciences curriculum is undeniable. This subject consists of various concepts that can be made more interactive if teachers can be resourceful (Bordoh et al., 2018). Meaning, if Social Sciences teachers can open themselves up to exploring other and more innovative ways to teach the subject that are not only limited to the traditional methods, they can also maximise acquisition of complex concepts. This was corroborated by Olokooba et al. (2018) who argue that innovative techniques such as technology are essential in the Social Sciences due to its scientific nature. Thus, Martorella (1997) emphasised that the fundamental makeup of the subject made it most suitable for the incorporation of technology within its curriculum. Hartman et al. (2019) have noted that positive perspectives are a major contributing factor in the adoption of technology in teaching and learning by educators. They further add that change for some teachers can be a challenge considering that the use of ICT in classrooms basically drives out teacher-centred environments, making teaching and learning more learner-centred and evoking the feeling of loss of power and control over the teaching process.

While the reviewed studies have assisted us in understanding teachers' perspectives on ICT integration, there is a dearth of empirical studies that explore this concept in social sciences. Therefore, this qualitative study aims to determine Social Sciences teachers' perspectives on the integration of ICT into their subject's teaching practices. These views will be invaluable in enlightening audiences on how to further enhance the incorporation of technology in Social Sciences. The rest of this article is divided into the following parts: theoretical framework, literature review, methodology, findings, discussion, and conclusion.

Problem statement

A multitude of studies have been conducted exploring the integration of technology in South African education, revealing both the challenges and the opportunities. In their study, Felix et al. (2024) explain that teachers are struggling to integrate ICT in their instruction due to the existence of associated challenges such as those related to training. Unfortunately, this leads to studies showing a minimum level of ICT integration. Additionally, the Motheo district of South Africa has been reported to witness cases of contradictory results wherein teachers are positive

and willing to integrate ICT into their classrooms, but the levels of integration are still low to non-existent (Louw et al., 2019). Another contradiction still in this district is unsatisfactory usage reports in areas such as Thaba Nchu and Botshabelo brought forth even though these areas had better access to technology than Bloemfontein (Hlalele, 2020). Even more problematic, is the fact that there are limited studies actually delving into SS teachers' perspectives of the phenomenon obscuring our understanding on how these teachers are navigating the teaching process amid the quantum leap in technology. Thus, this study aims to determine the IP SS teachers' perspectives of ICT integration in their teaching practices. This enquiry addresses the scant availability of related studies in the subject in order to assist teachers make the most of this technological innovation within their classes.

LITERATURE REVIEW

Conceptualisation of ICT integration

ICT is an acronym for Information and Communication Technology, which is an umbrella term for different computing activities. Although Lubaale (2021) states that due to its rapid daily evolution in concepts, methods, and applications there is no single definition of ICT, according to Das (2019) and Negoescu & Bostina-Bratu (2016) ICTs are an array of technological tools and resources used for information sharing, creation, and management. They make information accessible at the convenient time, place, form and for the relevant people, emphasised (Henderson, 2020), and these include radio, TV, computers and the internet (Tinio, 2003).

Thus, ICT integration in education involves a more computer-focused approach to teaching and learning. Shahid et al. (2019) define ICT integration as the incorporation of computer-based systems into everyday teaching methods and classroom routines. Villena and Caballes (2020) add that it is an educational approach relying on digital tools for teaching and learning in schools. Because it addresses the knowledge and information gaps, ICT enhances education development (Hunduma & Mekuria, 2023). Phutela and Dwivedi (2019) also add that ICT in education is being used for creativity, interaction and information sharing purposes. Moreover, students are exposed to a wide range of information and knowledge to engage with in an ICT infused classroom (Barakabitze et al., 2019). Equally important, Nuncio (2020) believes that technology-based education prepares learners to face the challenges of an ever-changing world. Interestingly, the recently emerging technological software tools such as ChatGPT which have mostly had a negative association, have been shown to also have results in assisting teachers and learners. For example, Chimbunde and Moreeng (2025) reported that this tool can be

effective, especially for written tasks as it can provide individualised feedback and reduce teachers' burdens of assessments.

Teachers' perspectives of ICT in the classroom

The perspectives of teachers towards ICT integration are crucial for its successful implementation. These perspectives and the ease with which teachers are able to incorporate ICT is what can determine the extent to which teachers use technology within their teaching. Teachers' ability to effectively integrate technology into their teaching can be easily predicted by their comprehension and awareness of ICT (Sithole, 2024).

Fortunately, the integration of technology in teaching and learning has mostly been viewed in a positive light. For example, a study by Adu and Zondo (2023) focusing on economics ICT integration found that teachers exhibited confidence in ICT's potential to positively affect teaching and learning. They further acknowledge the importance of maintaining a positive attitude for the integration to be progressive, understanding ICT to be an innovative tool that can greatly influence teaching and learning, whilst promoting learners' critical thinking as well. Within a multi-grade context, Taole (2024) reports that even though the environment of the school studied was highly disadvantaged, the teachers realised that ICT would help them. Admitting that if they could get adequate ICT resources and the relevant skills, technology would play a huge role in helping learners work independently as individuals or in groups on activities in one grade, while the teacher is focused on the other grade. However, they expressed that they did not feel that ICT was possible in rural contexts. Furthermore, a study on Motheo District classrooms by Louw et al. (2019) showed that teachers viewed ICT as an innovation that can have great impact on the learners' motivation and performance, where 53% of the participants strongly agreed and 33% agreed with the statement. Teachers portrayed a strong motivation towards the use of ICT in their teaching and highlighted its importance for administrative duties.

In addition, in an Early Childhood Education focus, Ogegbo and Aina (2020) found that teachers viewed ICT integration as a significant tool to enhance literacy skills in younger learners, which also makes learning more enjoyable and visible. This notion of interesting learning was corroborated by Gubevu and Mncube (2024) who add that it facilitates teamwork and promotes virtual learning. Teachers also view ICT as a tool that enhances creativity, promotes an inclusive environment, exposes learners to a variety of subject content, boosts confidence, and also retains learners' attention (Mahlo & Waghid, (2023). Motsoeneng et al.

(2023) looked into the perspectives of Accounting teachers on the use of Google Classroom and reported that it was found to be helpful for tasks, grading, and feedback. They also found that it was effective in improving engagement and collaboration. This is a clear indication that South African teachers have a positive view of technology in education.

On a global scale, teachers still seem to share similar notions as South African teachers. For instance, Abel et al. (2022) in their literature study found that teachers viewed ICT integration as beneficial for learning. Mahdum et al. (2019) also report that teachers thought of ICT as fostering positive attitudes and enhancing learning in Indonesia. They also associated it with increased learning motivation and teaching productivity. It was further uncovered that ICT can also help with classroom management in Pakistan, as it can improve the behaviour and focus of learners (Ishaq et al., 2023). Moreover, although there existed some challenges that lead to negative attitudes Fung and Machi (2021) found in their literature study involving Asian countries, Turkey, and the United States among others that teachers were still positive about the integration for its positive contributions in education.

From an African lens, even with the severe challenges that interrupt the successful implementation of ICT in education, teachers reportedly remain hopeful. They still associate ICT integration with improved learning and teaching and that it improves aspects such as computer literacy, participation, feedback, collaboration and motivation (Atteh et al., 2020). Teachers in Nigeria posited that technology was essential in teaching (Aminu & Samah, 2019). However, some teachers in Kenya had a different view of ICT in teaching, highlighting that in as much as it improves teacher performance, it requires more time, and they worried that the internet was not a safe place for learners (Murithi & Yoo, 2021). This shows that the positivity towards ICT integration is still accompanied by reluctance and doubt from African teachers.

Therefore, this review shows that technology in education is viewed positively as it is associated with enhanced teaching and learning practices. However, it highlights a severe empirical gap. Upon reviewing the previous findings, it became clear that studies were focused on other subjects and exclude Social Sciences. For example, Adu and Zondo (2023) focused on the Economics subject, while Gubevu and Mncube (2024) focused on high school Geography. On the other hand, other studies were focused on teachers generally. For instance, Taole (2024) investigated primary school teachers in a multigrade context. This shows that the ICT integration investigation in the Social Sciences subject has received minimal attention

which could be an indication of SS teachers' underestimation of technology potential, especially for the subject. Therefore, this is the empirical gap this research seeks to address.

THEORETICAL FRAMEWORK

This study is examined using the diffusion of innovation theory (DOI) first popularised by E.M. Rogers in 1962. According to Wani and Ali (2015) DOI is focused on understanding how, why and at what rate novel concepts and technologies disseminate in a social system. In this case, a social system would constitute of the educational institutions such as schools. Furthermore, this theory assists those responsible for ensuring that innovations are implemented to advance the utilisation and dissemination of selected technologies (Garcia-Aviles, 2020). This theory is compatible with the study because the aim is to understand how the integration of ICT in IP SS classrooms is achieved by teachers. Rogers (2003) suggests five factors that influence the adoption of an innovation: relative advantage, compatibility of the idea, complexity, trialability, and observability. These factors will be invaluable in attempts to assess the integration of ICT in Social Sciences.

To successfully comprehend the perspectives of SS teachers of ICT integration, the two factors that have been valuable are relative advantage and compatibility. According to Rogers (2003), relative advantage indicates the associated benefits of a novel idea for users in relation to the previous one. This means that if SS teachers find technology to be more advantageous for their teaching, then they are more likely to possess positive outlooks towards it than if they do not. Additionally, compatibility is the alignment between the innovation and current values, experiences and needs (Rogers, 2003). Thus, if SS teachers find technology integration effective in addressing areas of difficulty in SS teaching and learning, then it should most likely lead to more sanguine perspectives. Hence, these two factors are considered significant in this regard.

METHODOLOGY

The study location is in the interpretivist paradigm as the researcher relied on making interpretations from the participants' responses to answer the research question: What are the perspectives of Intermediate Phase Social Sciences teachers of ICT integration? The researcher visited and engaged with six Social Sciences teachers in the intermediate phase in the Free State schools through 30-50 minutes semi-structured interviews and 30-50 minutes observations, which made this a qualitative case study as data collection actively took place in the original context with more than one tool (Clough & Nutbrown, 2012). Participants were

selected purposively as the researcher had certain characteristics that made each participant a reliable source (Pandey & Pandey, 2021):

- i. Teachers must be qualified intermediate phase Social Sciences teachers
- ii. They must have a minimum of three years Social Sciences teaching experience

A total of three schools in the Motheo District in Bloemfontein were visited, and two teachers per school were interviewed and observed to comprehend their perspectives of ICT integration in the Social Sciences subject. Most of the participants had below five years of experience, from school B and C. Two of the teachers had four years' experience and the other two had three years (2.5 rounded off to three). School A had teachers with much longer experience, teacher 1 having 15 years and teacher 2 having 11. In addition, the majority of the participants were female (4), while males were only 2. School A and C had a male and female participant, whereas school B had only female intermediate phase SS teachers. The preparation for this data generation involved setting of interview questions and observation schedules. Thereafter, data was thematically analysed because it is deemed flexible for its nature of having the capability of being used among different theoretical and epistemological frameworks and being able to be used in a variety of study questions, designs and sizes of samples (Kiger & Varpio, 2020). Thematic analysis is aimed at the identification of different themes or patterns in qualitative datasets (Braun et al., 2019). Furthermore, to ensure trustworthy data, member checking was used by sending copies of transcripts to participants for confirmation. In addition, participants were provided with consent forms and discretion emphasised to address ethical concerns. Ethical clearance was applied for and obtained from the University of the Free State (Clearance number: UFS-HSD2024/2068) and the Department of Free State Education also granted the school visitation permission.

FINDINGS

This study sought to answer the research question “What are the perspectives of Intermediate Phase Social Sciences teachers of ICT integration?”. The teachers were asked to comment on what ICT/ICT integration and/or ICT in education is, the technological gadgets they have and make use of, what ICT in SS entails, if they prefer the traditional teaching style or technology infused practices, and finally how they would rate their level of technological skills - all this with the aim to solicit their perspectives.

Theme 1: ICT integration in education and Social Sciences

In determining the understanding and views that participants have about what ICT is and what it implies when integrated into the teaching of SS, the responses depicted the following sub-themes: ICT as a communication mode, timesaving measure and visualised learning.

Sub-theme 1.1. Communication

A considerable fraction of the respondents acknowledged ICT as a communication tool, and in education specifically, that it involves communicating educational information to your learners. Teacher 2 in school A stated *“Okay, it’s about being able to communicate using the latest technology”*.

Teacher 2 in school B explained,

“My understanding is that ICT has to do with communicating through technology, I think. So yeah, it’s using your visual or media tools to communicate educational content to the learners using technology.”

In school C, teacher 1 vaguely responded *“My understanding of it, yes, according to me is the use of technology, the internet”*. While teacher 2 still in school C answered *“So it’s basically how we as teachers can communicate information to learners through technology. That’s my... overall understanding”*.

This notion aligns with Phutela and Dwiveda’s (2019) position of recognising technology as an information sharing tool. Zulfiati et al (2018) explain that ICT basically refers to the different tools, techniques and methods that can be used to access information and disseminate it. In this case, teachers explore and exploit digital tools to find material that can support their teaching of SS in order to maximise learning which potentially increase motivation and achievement. This is a benefit of technology, and these responses portray the positivity of teachers of ICT’s role in education and Rogers’ (2003) theory on relative advantage explains that associated benefits lead to positive perspectives.

Sub-theme 1.2. Timesaving

Even more positive perspectives were shared that ICT was understood to also be timesaving. For example, when asked *“What do you understand by ICT/ICT integration and what it is in education*, teacher 1 in school A stated: *It speed ups learning, facilitate learning. Because teaching with paperwork and training, it’s time consuming*. Teacher 2 in school A added *“It’s saving time and it’s really effective”*. The observations also show that teachers saved time in

their lessons. For example, teacher 1 in school A displayed activity questions on the screen instead of writing them out, which would have otherwise taken more time.

From these responses it can be deduced that the teachers hold positive perspectives about the significance of technology in their teaching-learning practices. Although Murithi and Yoo (2021) shared a contradicting contribution as teachers suggested that despite its other positive functions, they found it to require a lot of time, Mahlo and Wanghid (2023) found that teachers believed teaching with technology saved them time. This is because for instance, a conventional classroom would require them to utilise the chalkboard to write notes which would be problematic in instances where they had to change classrooms and would need to rewrite the same information. On the other hand, preparing PowerPoint slides or any written document allows them to share it with different groups in different venues without having to rewrite anything, leaving them ample time to focus on actual teaching and learning. This speaks highly of the relative advantage of the guiding theory, suggesting that benefits lead to positivity.

Sub-theme 1.3. Visualised learning

Unanimously, teachers highlighted that technology in SS education implies visualised learning. According to Doyle et al. (2024) this type of learning promotes accelerated comprehension, retention and engagement. Thus, with SS, as the subject consists of various complex concepts, integration of technology makes it more accessible. Teacher 1 in school A explained,

“So I will distribute my phone to say what I was talking about on this particular chart. Like maybe, it's social science, we're talking about ~ the things in Iron Age that people were using back then. So if ever I have something, then I distribute my phone through for the learners.”

Teacher 1 in school B stated that *“Integrating ICT in teaching social science, it involves using digital tools and resources to enhance learning and the engagement”*. Furthermore, Teacher 2 in school B added *“I think it helps the learners to engage better and to grasp information easier. Because we also get some learners that learn through visual learning”*.

Teacher 1 in school C echoed this:

“I think showing them videos of how things were done in the past, how the pyramids look, how Tutankhamen look, how the Egyptians lived their lives, showing them the pictures and videos of all of this, I think gives them a better perspective or understanding of the content.”

Another more elaborate response was provided by Teacher 2 in school C

“So in most cases I tend to make use of videos. So I teach history as well as geography. So in most cases learners are not really clear as far as a topic. For example, we are kind of busy with democracy, apartheid and so forth. So we tend to show them videos about life before apartheid as well as life after. So we tend to make use of videos and pictures and so forth.”

From the observations, the display of pictures and PowerPoint slides elucidate a clear sign in improvement of teaching and learning practices.

In essence, these views display positivity among the teachers with regards the integration of technology into their teaching practices. They confirm those also shared by Atteh et al. (2020) that SS teachers found ICT integration as a tool to promote teaching and learning. This allows learners to not only attain theoretical aspects of the content but engage with it at a more visualised level heightening attainment and retainment of information. For instance, technology provides creative ways to explore historical concepts and view interactive maps (Khairi, 2024). Associated advantages confirm the notion posited by Rogers’ (2003) relative advantage factor, suggesting that teachers’ positive dispositions persist as long as advantages can be identified.

Theme 2: Gadgets/systems/programs used by SS teachers

Sub-theme 2.1. Overhead projectors and laptops

All teachers stated that they had access to overhead projectors in their classrooms, whiteboards and laptops which allow them to project information from their laptops to the class, such as pictures, videos, movies, and documentaries. One of the respondents clearly highlighted the use of MicrosoftOffice, such as Word, PowerPoint, and Excel. For instance, a response from Teacher 1 in school A said, *“Then at the moment we have, all the classes in our school, we’ve got overhead projectors.”* Teacher 2 still in school A added *“Mainly we are using the whiteboard and the overhead projector”*.

Furthermore, Teacher 1 in school B explained in more detail,

“I use laptop, I use a projector, I use videos, documentaries as I’ve mentioned and some other book apps because there are some other things that when I check in the book and I see that some information is not missing but I feel like it’s not, it’s limited.”

And Teacher 2 stated *“So the only thing we have in class is the whiteboard, projectors that we use in our classes”*.

Both teachers in school C also emphasised a similar point,

“In our classes we use our laptops to project the work for the learners. We also show them videos from the internet. We use also programs such as Word, the PowerPoint. I believe it's also a program, right? PowerPoint, what else? Excel. Excel's spreadsheet is also used”, explains Teacher 1.

Teacher 2 finished off with a hesitant response,

“In my social science, I make use of a projector, so I don't know if it serves as part of that. So I use a projector. There's obviously a laptop as well.”

Successfully identifying technological tools and programs showed that teachers understood the technological fundamentals.

These responses align with the dispositions of other scholars. Computer aided devices and projectors are among a few other critical tools emphasised by Donkor et al. (2023) in integrating technology in a SS classroom. Moreover, Ghanney (2019) also highlighted that these are the tools that can be used to teach SS. The availability and utilisation of these tools by the participants indicates the possibility that the teaching of SS is progressing accordingly. The scholars have confirmed the technologies' suitability for the subject and the respondents' detailing of how exactly these are used signals positive outlooks by teachers recognising that it is helpful to them and their learners which confirms Rogers (2003) theory on the relative advantage aspect.

Theme 3: Traditional versus technology infused pedagogy

In an attempt to gather perspectives on the teaching method preferred by the participants, the following themes emerged: Accommodates different learning styles, simplifies teaching as detailed below.

Sub-theme 3.1. Accommodates different learning styles

The participants all expressed that they preferred technology-infused teaching methods where both traditional teaching and technology teaching methods are used simultaneously to achieve learning outcomes. Two of the teachers shared how this innovation accommodates different learning styles, suggesting that through it, an inclusive teaching and learning environment is

guaranteed which, further speaks to the relative advantage implication of the guiding theory. Teacher 1 in school A posited, *“I know that with learning, other learners, listen, others visualise, others... Like, you blend, let them see, write, refer”*. In school B, teacher 1 added,

“I prefer the technology. I prefer ICT infused teaching methods because it accommodates all learners. There are learners who understand by seeing something, by listening, by touching, as much as those who learn by touching are not helped by doing this or something, thinks they understand it.”

This further shows the positive outlooks that teachers possess towards ICT integration in SS.

The finding aligns with the report by Mahlo and Waghid (2023) who found that teachers thought of technology as a tool that also promotes an inclusive environment highlighting the use of sound, video, pictures and words as parts of a lesson. Generally, in a conventional classroom a single instructional approach is used for all learners disregarding the differences in their learning styles which can affect the achievement rate. These styles are influenced by the different capabilities, skills, mental levels, academic and social backgrounds (Mahlo & Waghid, 2023). A single universal approach threatens the motivation and achievement of some learners who would otherwise learn best through other means not addressed by that approach. This indicates that the use of technology leads to maximised learning for all individuals as it accommodates almost if not all learning styles. In relation to the theoretical framework, this finding speaks to the compatibility aspects of the theory because it addresses achievement rate issues of a diverse classroom that are created by the traditional teaching method.

Sub-theme 3.2. Simplifies classroom practices

The expression of preferred technology-infused teaching methods further extended to its ability to make utilisation and teaching and learning practices easy. Teacher 2 in school A explained *“So a mixture of both, but with more emphasis on the latest technology because it makes sense to them than from where we come from”*. In school B, teacher 2 further added *“I prefer teaching with the technology. Helps. It's much easier.”* Similarly, in school C teachers 1 and 2 shared *“Technology-infused. Yes definitely. Because I believe it makes our lives easier”*, and *“For sure, the technology infused”*.

According to these responses, ICT simplifies teaching because learners in digital age can relate well since they are more technologically focused. This makes it simpler to use what they relate

to the most to teach them, consequently eliminating the unnecessary effort of explaining thoroughly concepts that they may eventually still not understand either way. In this way, learners' focus is improved, and their attention is retained which aligns with the views by Ishaq et al. (2023) and Mahlo and Wanghid (2023). Additionally, it can be argued that this easiness stems from the teachers' ability to access and expose learners to a wide range of information that is not readily available from the textbooks and immediate resources. As Barakabitze et al. (2019) explain, this is one of the characteristics of an ICT-infused classroom. This simplification therefore explains the teachers' enthusiastic perspective on teaching with technology which confirms the relative advantage factor of the guiding theory.

Theme 4: Participants' tech-skills

Sub-theme 4.1. Tech-savviness

The majority of the respondents displayed confidence in their capabilities to navigate and utilise technology in their teaching and learning with a clear acknowledgement of areas in which they could still improve. Most of them rated their skills between three and four, with only one rating themselves a two. This slant of ease-of-use accounts for Rogers' (2003) relative advantage because if they find the use of technology during the teaching process easy and simple, they are highly likely to be positive about it. For example, Teacher 1 in school A answered, *"I think it's high"* and Teacher 2 in school A said *"No, no, no. As a self-taught guy, I'm not low low low, because I worked hard. I might put myself in the middle there"*. Teacher 1 in school B detailed,

"On a scale of four to five, I can say four. Four out of five. Yeah, because I sometimes struggle with links, for example, when we are having the departmental workshops, and then I'm struggling with the link, and then I will have to call the ICT guy, and then he helps. But most of the time, most of the teachers, call me here because we have all teachers. So most of the time, the other teachers will call me and then I will help."

Teacher 2 in school B responded *"I'll say three. Three or four"*.

On the other hand, Teacher 1 in school C's response was straightforward, *"Two"*. This concerningly low rating was justified by the elucidation that she is not integrating ICT to the maximum as there are other programs she is not exposed to, and thus not using. Teacher 2 in school C stated *"I would say also like a very comfortable three. I mean, I'm not terrible, but at same time, I'm not great"*. Nonetheless, teachers exhibited confidence in their skills, and this

was evident even from the observations as teachers could easily manoeuvre to Google, display pictures and display PowerPoint slides for learners as seen for example, with teacher 2 in school B. This implies that teachers are comfortable with the use of technology, even though there is still some room for improvement.

Similar views have been previously reported where a high percentage of participants shared that utilizing technology for teaching was facile (Nguyen, 2021). Abdulai and Akaglo (2020) also reported that SS teachers were found to be ICT proficient when it came to general computer usage such as switching computers on and off, creating different types of documents, and online communication which involves the ability to utilise search engines for information. These tech-skills can be considered an advantage because it implies that usage of the tech-tools and programs is easily navigable leading to positivity, thus confirming Rogers' relative advantage aspect of the theory (2003).

DISCUSSION

The participants have displayed homogeneity in their perspectives highlighting the various ways in which technology is advantageous and compatible with their classroom dynamics, which is a positive sign for the future of the South African SS classroom as the dispositions show positivity about the integration of ICT. The low score by one of the teachers on their tech-savviness would have been a cause for concern. However, given that this was only because they acknowledged that they could be doing more and that they were merely not exposed to other tools and programs, this means that none of them reported to be struggling. Teachers' perspectives are essential because they drive the implementation in terms of the direction and the pace in which it takes place. Sithole (2024) also emphasises that effective integration is determined by the outlooks of the key integrators which are the teachers. If teachers are not welcoming of the process, success is not guaranteed, and Rogers' DOI theory has been a cornerstone in explaining the implications of the findings. The positivity in the responses has been shown to align with the relative advantage and compatibility aspects of the theory suggesting that integration will continue to take place in these contexts. These findings are proving to be a significant contributor to the discourse around ICT in Social Sciences, specifically the perspectives of teachers while also filling the gap identified in the literature review section.

Limitations

Generalisation for this study is not advised due to its nature of being small in sample size. The study only explored six Social Sciences teachers in the entire Motheo District in Bloemfontein. Furthermore, it was only restricted to intermediate phase Social Sciences, whereas the subject is offered even in the senior phase. Therefore, future studies could consider widening this spectrum by looking into the SS learners' perspectives, investigating senior phase SS, while others may possibly consider conducting the enquiry with a larger sample size using quantitative methods.

CONCLUSION

This qualitative study aimed to uncover the perspectives of SS intermediate phase teachers of ICT integration in the Motheo district. Through interviews and observations, it was found that they had positive slants of the innovation. This was concluded by the initial responses which displayed enthusiasm and confidence in ICT's role in education. Respondents agreed that it was a beneficial innovation which enhanced communication of information to learners while also saving them significant amounts of time. Furthermore, it promotes a more inclusive classroom environment by exposing learners to a pool of information through visualised learning, specifically in the SS subject. As a result, their preferred method of teaching was reportedly ICT-infused in which they shared confidence in their technological skills while still recognising that there is still room for improvement. Therefore, due to the positive outlooks of technology offering significant educational benefits, it can be guaranteed that continued integration will take place, as suggested by Rogers' Diffusion of Innovation theory (2003).

RECOMMENDATIONS

Thus, this study recommends that the government prioritises this initiative by allocating necessary and sufficient funding towards ICT integration in order for schools to access the necessary resources and training. As technology is an ever-evolving innovation, the Department of Education should ensure that teachers are not stuck in the outdated methods of teaching with technology such as mere overhead projectors by exposing them to more recent practices such as AR and VR. Also, the SMT must continue to vouch for this process to take place in classes even with the challenges that may be present so that teachers remain encouraged and motivated. Addressing these areas of concern could assist in enhancing the IP SS teachers' perspectives of ICT integration. Unfortunately, the results of this study cannot be generalised due to its small sample size and being restricted only to intermediate phase SS teachers.

Funding

This study was funded by the National Research Foundation (NRF).

Conflict of interest

The authors declare no conflict of interest associated with this paper.

REFERENCES

- Abel, V.R., Tondeur, J. and Sang, G. (2022). Teacher perceptions about ICT integration into classroom instruction. *Education Sciences*, 12(9), pp.609.
- Adu, E.O. and Zondo, S.S. (2023). Perceptions of educators on ICT integration into the teaching and learning of economics. *EUREKA: Social and Humanities*, (1), pp.61-71.
- Aminu, M. and Samah, N. (2019). Teachers' perception on the use of Technology in teaching and learning in associate schools Zamfara state, Nigeria. *Education, Sustainability & Society (ESS)*, 2(2), pp.1-4.
- Arhin, J., Boateng, F.O., Akosah, E.F. and Gyimah, K. (2024). Perceptions and Readiness of High School Mathematics Teachers for Integration of ICT Tools in the Teaching and Learning of Mathematics. *Pedagogical Research*, 9(1).
- Atteh, E., Assan-Donkoh, I., Ayiku, F., Nkansah, E. and Adams, A.K. (2020). The use of technology among school mathematics teachers and students: The new wave of recommended instructions. *Asian Research Journal of Mathematics*, 16(5), pp.18-29.
- Bado, N. (2022). Game-based learning pedagogy: A review of the literature. *Interactive Learning Environments*, 30(5), pp.936-948.
- Bordoh, A., Kwarteng, P., Osman, S., Bakar, A., Brew, E., Ibrahim, W.A. and Bassaw, K.T. (2018). Evaluation of background knowledge of teachers using techniques and strategies in assessing Social Studies concepts in Ghana. *Open Science Journal of Education*, 6(1), pp.1-9.
- Chimbunde, P. and Moreeng, B.B. (2025). Reconfiguring History Teachers' Assessment Practices in the Context of ChatGPT: *Charting the New Terrain. TechTrends*, pp.1-11.
- Clough, P. and Nutbrown, C. (2012). A student's guide to methodology
- Das, P. and Barman, P. (2023). Does ICT contribute towards sustainable development in education? An overview. *International Journal of Research Publication and Reviews*, 4(7), pp.544-548.
- Doyle, G., Roy, I.J. and Van Wyk, J. (2024). Imagery and visualised learning in classrooms. *Open Books and Proceedings*, pp.136-146.

- Felix, A., Moreeng, B. and Mosia, M. (2024). Design Thinking: An Alternative for Educational ICT Integration Training?. *Journal of Educational Technology*, 2(2), pp.24-45.
- García-Avilés, J.A. (2020). Diffusion of innovation. The international Encyclopedia of media psychology, pp.1-8
- Gubevu, B.W.S. and Mncube, V.S. (2024). Mobile Smartphones as Tools for ICT Integration in Geography Teaching. *Education Sciences*, 14(9).
- Hafifah, G.N. (2020). Teachers perspectives of ICT integration in English language teaching: A review of literature. *Journal of English Educators Society (JEES)*, 5(1), pp.9-15.
- Hartman, R.J., Townsend, M.B. and Jackson, M. (2019). Educators' perceptions of technology integration into the classroom: a descriptive case study. *Journal of Research in Innovative Teaching & Learning*, 12(3), pp.236-249
- Hlalele, B.M. (2020). Developing the usage index for teaching with technology: A case study for Motheo district, South Africa. *TD: The Journal for Transdisciplinary Research in Southern Africa*, 16(1), pp.1-9.
- Ishaq, A., Rani, M., Abbas, F., Arif, K.M. and Zia, R.B. (2023). Teacher Perception of ICT Integration in Teaching and Learning at Elementary Level. *Al-Qanṭara*, 9(3), pp.85-95.
- Khairi, A.I. (2024). Integration of Digital Technology in Social Studies Teaching and Learning to Improve Student Motivation and Learning Outcomes. *Ghuru: International Journal of Teacher Education*, 1(1), pp.25-38.
- Kiger, M.E. and Varpio, L. (2020). Thematic analysis of qualitative data: *AMEE Guide No. 131. Medical teacher*, 42(8), pp.846-854
- Louw, J.S., Rankhumise, M.P. and Maimane, J.R. (2019). Teachers Attitude and Barriers towards The Use of Information Communication Technology in Classrooms in The Motheo district Bloemfontein South africa. *Dirasat: Human and Social Sciences*, 46(2).
- Louw, J., Rankhumise, M. and Maimane, J. (2019). Exploring the use of Information Communication Technology to advance teaching and learning in the Motheo school district. *Dirasat: Human and Social Sciences*, 46(2).

- Mahdum, M., Hadriana, H. and Safriyanti, M. (2019). Exploring teacher perceptions and motivations to ict use in learning activities in Indonesia. *Journal of Information Technology Education: Research*, 18.
- Mahlo, L. and Waghid, Z. (2023). Exploring information and communication technology integration among teachers in township public primary schools. *South African Journal of Education*, 43(1).
- Martorella, P.H. (1997). Technology and the social studies—or: Which way to the sleeping giant?. *Theory & Research in Social Education*, 25(4), pp.511-514.
- Mdhlalose, D. and Mlambo, G. (2023). Integration of Technology in Education and its Impact on Learning and Teaching. *Asian Journal of Education and Social Studies*, 47(2), pp.54-63.
- Merriam-Webster Inc. (2025). *Merriam-Webster dictionary*. <https://www.merriam-webster.com/dictionary/perspective> Accessed 10 September 2025
- Motsoeneng, T.J., Manzi, W. and Moreeng, B. (2023). An Analysis Of Teachers' Perspectives on the Use of Google Classroom to Enhance Assessment for Learning in Accounting. *E-Journal of Humanities Arts and Social Sciences*
- Murithi, J. and Yoo, J.E. (2021). Teachers' use of ICT in implementing the competency-based curriculum in Kenyan public primary schools. *Innovation and Education*, 3(1), pp.1-11.
- Nguyen, L.T.H. (2021). Teachers' Perception of ICT Integration in English Language Teaching at Vietnamese Tertiary Level. *European Journal of Contemporary Education*, 10(3), pp.697-710.
- Ojo, O.A. and Adu, E.O. (2018). The effectiveness of Information and Communication Technologies (ICTs) in teaching and learning in high schools in Eastern Cape Province. *South African Journal of Education*, 38(1).
- Olokooba, I.N., Okunloye, R.W. Abdulsalam, A.A. and Balogun, I.N., (2018). Teachers' Perceived Challenges of Using ICT in Teaching Secondary School Social Science Subjects in Ilorin, Nigeria. *NIU Journal of Humanities*, 2(2 (B)), pp.157-166.

- Özüdoğru, G. and Çakır, H. (2020). Teacher Educators as Role Models for Technology: Pre-Service Teachers' Perceptions. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, (50), pp.333-352.
- Pandey, P. and Pandey, M.M. (2021). *Research methodology tools and techniques*. Bridge Center.
- Rogers, E.M. (1962). *Diffusion of innovations* (3rd ed.). New York, NY: Free Press
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York, NY: Free Press
- Sithole, N.V., (2024). *Exploring Teachers' Understanding and Practices of Integration of Information and Communication Technology in Teaching Accounting*. Durban: University of KwaZulu Natal. (Thesis – PhD).
- Taole, M.J. (2024). ICT integration in a multigrade context: Exploring primary school teachers experiences. *Research in Social Sciences and Technology*, 9(1), pp.232-252.
- Walstra, K. A., Cronjé, J. C. and Vandeyar, T. (2024). A review of virtual reality from primary school teachers' perspectives. *Electronic Journal of e-Learning*.
- Wani, T.A. and Ali, S.W. (2015). Innovation diffusion theory. *Journal of general management research*, 3(2), pp.101-118.
- Wohlfart, O. and Wagner, I. (2023). Teachers' role in digitalizing education: an umbrella review. *Educational technology research and development*, 71(2), pp.339-365.
- Zulfiati, H.M., Suyanto, S. and Pamadhi, H. (2018). Optimizing ICT-based learning of social studies in primary schools. In Proceedings of the joint workshop KO2PI and the 1st international conference on advance & scientific innovation (pp. 77-83)

CHAPTER FOUR

ARTICLE THREE

Integration Techniques of ICT in the Teaching and Learning of Social Sciences in Intermediate Phase

NP Nxusa

University of the Free State Bloemfontein, South Africa

2015054378@ufs4life.ac.za

Abstract

South Africa, as a developing country is one that can also be witnessed persevering in the integration of Information and Communication Technology (ICT) in education across various curricula. Unfortunately, there are limited studies that have explored this in association with the Social Sciences (SS) subject in the country. Evidence has shown that the country is lagging with only two provinces out of the nine showing satisfactory progress in the adoption of Information and Communication Technology (ICT) in teaching and learning. Hence, this qualitative case study, guided by the Diffusion of Innovation theory (DOI) aimed to explore the experiences of SS teachers about how they are integrating ICT in their teaching practices. Data collection took place through interviews and observations of a total of six teachers from three different schools in the Motheo District, Bloemfontein. Findings highlight that the majority of the teachers are making use of technology for the teaching and learning of SS in diverse ways such as lesson preparation, lesson presentation, homework and research and for assessment purposes. It therefore concludes that continued adoption of ICT is highly possible and calls for the government, teachers and policymakers to each take initiative towards the advancement of education through technology.

Keywords ICT, Integration, Social Sciences, Technology.

INTRODUCTION

Technology in education is a growing and useful trend providing paradigm shifts for practitioners and granting learners a long-lasting experience with education. Learners are exposed to a vast array of information which makes their learning more meaningful and easier. For example, it has been shown that social media can be a powerful learning tool if used correctly (Mtshali, 2023; Mentjies, 2021). Clearly, if South Africa can invest generously into developing a more technologically advanced education system, it can produce not only tech-savvy learners, but also ones that are relatable with the rest of the world. Additionally, it can see a reduction in inequality gaps present between rural and urban communities in the country (Mkuzo & Govender, 2025). As such, National Education policies developed by Angola, Zimbabwe and South Africa assume that no student will be left unaccommodated from the integration of ICT in the education system, explained Mathende and Beach (2022).

Fortunately, this country refuses to be left behind from this innovation as it has introduced policies in support of this trend. The history of the ICT policy in South Africa dates back to 2004. According to Isaacs (2007), the first government policy on e-Education to be accepted as official was titled “Transforming Learning and Teaching through Information and Communication Technologies” with the goal of producing technologically capable learners by 2013. A new e-Education strategy emerged in 2013 which was informed by the 2004 paper which saw collaborations between MTN SA and Mindset Networks towards technology adoption in education (Mathende & Beach, 2022). Moreover, the year 2015 saw a 17-billion-rand project by the government providing each learner with a tablet in seven schools, which were also furnished with internet connection.

It is without a doubt that ICT leads to enhanced learning experiences. This is because, for example, there is fast and accurate feedback involved for learners (Das, 2019) and routine check-ups (Mdhlalose & Mlambo, 2023) which enables them to improve at an accelerated paces. Furthermore, ICT promotes personalised learning which allows for teachers to create lessons that suit each type of learners’ learning styles (Das, 2019) such as auditory, or visual. In addition, technology encourages motivational engagement (Carlos et al., 2022) since learners are exposed to an active source of knowledge through the use of pictures, demonstrations, simulations and the like (Marsharapouna et al.). Moreover, technology in education leads to technological skill development. According to (Das, 2019) when learners are technologically advanced, they are prepared for the workforce that is highly digitalised and

this makes them compatible with the rest of the world (Afari et al., 2023). Improved communication and resources is undeniably one other significantly positive result brought on by technology in education. This is because there is an increase in collaboration for both learners and teachers, according to Das (2019) and Carlos et al. (2022). In addition, Das (2019) highlighted the improvement in administration as a result of technology integration in education. In South Africa, schools have SASAMS as an example of administrative innovations brought on by technology.

Therefore, with all the benefits presented by ICT integration in education, it becomes vital that studies continue to explore this phenomenon until the desired integration levels are achieved. With South African already having policies in place in support of ICT adoption, it becomes clear that this is an implementation that can no longer be ignored if we do not want to have an outdated and irrelevant education system.

Reportedly, two departments showing sophistication in technology integration are the Western Cape Education Department (WCED) which developed smart classrooms in 2021 and Gauteng Department of Education (GDE) which provides tablets to learners and prioritizing teacher training (Mathende & Beach, 2022). It is concerning that only two provinces show this trend considering that SA has a total of nine provinces. Furthermore, there is limited evidence on the integration of technology into Social Sciences classrooms in SA. Studies that have been conducted that highlight integration techniques, however, these studies either focused on other subjects, or they were not from South Africa. For example, Nkosi and Ramaligela (2025), in their study, focused on the Technology subject and showed that teachers used ICT for lesson presentations such as utilising YouTube videos and presenting PowerPoint slides. Aladejebi (2023) focused on Social Studies in Nigeria and report that teachers used maps, animations, audio-visuals, slides and access the internet to gain learning material. Considering the above, it is thus, important to closely examine this, and hence the aim of this study is to investigate the experiences of Social Sciences teachers' integration techniques of ICT in the South African context.

RQ - How are Social Sciences teachers integrating ICT in their teaching and learning in the intermediate phase?

By exploring how teachers are integrating ICT in SS, this study contributes meaningfully to an ongoing discourse of ICT integration in education while closing the gap of the limited studies exploring this phenomenon in SS and hopes to encourage paradigm shifts and inform education

policy. The subsequent parts of this article include literature review, theoretical framework, methodology, findings, discussion, and conclusion.

LITERATURE REVIEW

ICT integration in the classroom

Mhlongo et al. (2023) report on the various ways in which ICT is integrated into the classroom. Firstly, there is a use of internet, which allows connections by humans and smartphone, and assists teachers in the presentation of their content subjects. Secondly, there is a use of interactive whiteboards (IWBs) from where teachers can display their lesson presentations and move away from the traditional chalkboard and chalk methods, which promotes interaction and engagement among learners. In addition, there is virtual (VR), augmented (AR) and mixed realities (MR) that further add an interesting and engaging learning environment for learners (Verhey et al., 2020). VR immerses the user to an artificial world, through head-mounted display, that has been generated by computer. While AR presents computer-generated objects or information on real life surfaces or environments, for example, GoogleGlass. Then, “MR is a digital display overlay combined with interactive projected holograms” (Mhlongo et al., 2023), an example includes fragments. These realities assist in enhancing conceptual understanding.

Ways of integrating ICT in Social Sciences

The integration of ICT in Social Sciences classroom can be observed in different techniques, also depending on the infrastructural wealth of each school. Bariham (2019) found in his study that teachers were making use of videos and DVDs in their SS lessons. This could be to present concepts to learners, expose them to diverse viewpoints and even play educational movies to learners such as snippets of events of the past. Atubi (2022) placed emphasis on the internet, social media, computers, and PowerPoint presentations as substitutes for the SS textbook. Moreover, Bariham (2020) reported that mobile phones and internet were popular technological tools utilised by learners and teachers in his study. This allows for learners to explore online content that can further explain complex concepts or open them up to new ideas. Furthermore, several reports have shown that learners make use of smartphones and the internet for research purposes when they have projects to complete.

Level of ICT integration in South African schools

The South African education system has long been challenged by inequalities (Mkuzo & Govender, 2025) from the time of Apartheid where the quality of education was determined by racial class, with the existence of Bantu education designated to the African group, to the present where we witness post-Apartheid inequalities. Without a doubt, the government has been working tirelessly to address educational issues, however the onset of ICT in education has created a wider gap for the government to address (Chomunorwa et al., 2023). Even so, the country is persevering relentlessly towards joining the trend.

Various scholars have assessed the progress of technology integration in education, in South Africa. It has been found that the effective use of ICT by teachers and learners is marked by a wide gap (Enaifoghe et al., 2021). These scholars state that there was not much evidence to show in terms of the integration of ICT in South African schools' class activities, and on the acceptance and impact of technological advancements in the education sector. Ohei et al. (2023) also pointed out the failure of the government to meet the 2013 deadline outlined by The White paper of 2004 on e-learning, of producing ICT competent learners and teachers. In light of these reports, it may seem as though South Africa is not making much progress in terms of ICT integration, especially since Mulaudzi (2024) also posit that South Africa is still far behind in terms on achieving digital equity in education.

These failures can be associated with several reasons, as previously reported by researchers. Even though the government has designed a ICT relevant curriculum and ensured provision of technological resources to a particular extent, challenges such as lack of ICT skills, lack of infrastructure, poor ICT support, and lack of efficacy leading to negative attitudes, are still plaguing this process, as found by Ohei et al. (2023) and Chimunorwa et al. (2023). In addition, Ohei et al. (2023) discovered that unlike other education related goals, South Africa has not placed the necessary priority to the integration of ICT in education. Moreover, it has been discovered that teachers also lack guidance due to the unavailability of ICT policies in schools (Molotsi, 2022). Clearly then, in order for the progress of ICT integration to be witnessed, these are the reasons to be addressed.

However, it is promising that South Africa is at the very top of the list of emerging economies in Africa. It can be argued that its education system must be doing something right and that the progress on ICT integration might not be better than expected. Baako and Abroampa (2023) conducted a bibliometric analysis on ICT integration in education on a global scale, where they investigated trends, author prominence, and institutional contributions. Interestingly, it was

found that South Africa was the leading country in Africa, followed by Nigeria and Morocco. This was after the analysis had revealed that there were 33 publications and 143 citations on ICT in education, showing a great potential in the field. Similarly, Odunga's (2024) literature study on ICT in rural sub-Saharan Africa shows that most of the studies on ICT integration were located in South Africa.

From this review, it has been shown that ICT can be integrated in different ways in order to achieve educational outcomes. In SS, specifically, videos, mobile devices and internet are the most popular. However, SA still has a long way to go when it comes to technology in education. This review made it clear that even though the integration of ICT in education has been explored in South Africa, there is no empirical evidence showing the experiences of SS teachers with integrating technology. Therefore, this study seeks to address this gap.

THEORETICAL FRAMEWORK

The Diffusion of Innovation theory is focused on understanding the mechanics behind the spread of novel ideas. According to Rogers (2003), any object, idea or practice that is viewed as new by potential adopters in a social system which may present advancements in relation to the previous idea, object or practice can be referred to as an innovation. For example, a recently developed cell-phone brand in the market comprising of features no other brand possess would be classified as an innovation. Diffusion is the communication of such an innovation within a target-context. The choice to eventually use or follow these innovations is what would be considered adoption. These concepts are the cornerstone of this popular multidisciplinary theory of novel idea-dissemination.

Rogers (2003) presents five factors that influence adoption. Firstly, relative advantage which deals with how advantageous the innovation over the prior idea is suggests that should an innovation be better than the previous one, potential adopters are most likely to adopt it. Secondly, compatibility suggests that the innovation's ability to align with the values and needs of potential adopters, and also to mitigate existing challenges puts it at a better advantage of being adopted. Thirdly, complexity is concerned with ease-of-use and ease-of-understanding and it states that if potential adopters are able to easily understand or use the innovation then they are most likely to adopt. Fourth, is an innovation's trialability which is the ability to test or preview prior to initial adoption. Finally, an innovation's observability, suggests that the results or impacts must be visible to potential adopters for successful integration.

The Diffusion of Innovation theory is invaluable in this study as we attempt to uncover the experiences of Social Sciences teachers with regards to adopting technology in their teaching and learning practices. Trialability is compatible for this undertaking because it can be concluded that Social Sciences is still at the trial stage of ICT integration given the low levels of adoption reported in the country. Trialability is explained by Rogers (2003) as the degree to which new ideas are tried or experimented with prior to full exposure and utilisation. Therefore, the study investigates the practices of Social Sciences teachers during this trial stage. If the teachers are indeed able to attempt the use of technology in education, then it passes the trialability test which may eventually lead to continued and official integration.

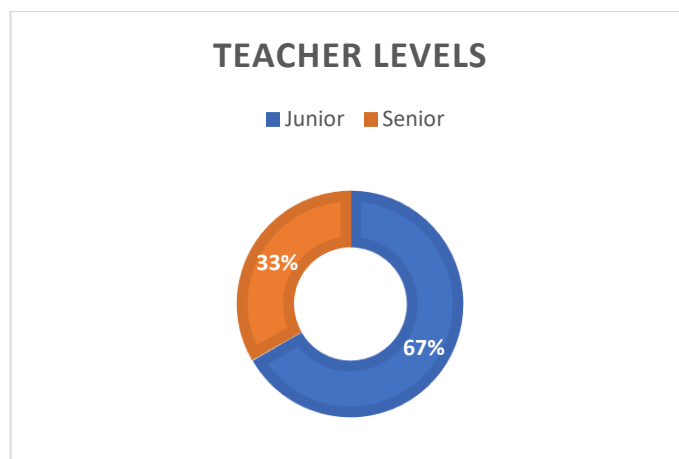
METHODOLOGY

The interpretivist perspective is the philosophical thinking decided upon because the researcher intended to gain an understanding by exploring the participants' experiences with the integration of ICT in the teaching and learning of Social Sciences. The approach followed a qualitative method since the study involved the exploration of phenomenon in the natural setting in which it occurs (Creswell, 2013). Due to its flexibility in data collection tools which allow for triangulation (Clough & Nutbrown, 2012) and the researcher's intent to engage with participants in their natural environment, the design was a case study. Data was collected through 30-50 minutes interviews and 40-50 minutes classroom observations from three quintile five schools located in Bloemfontein under the Motheo District. The choice of interviews was informed by the fact that it is a popular data generation tool in qualitative studies. In addition, the researcher was interested in collecting highly personalised data, and semi-structured interviews specifically allow this as well as for the researcher to improvise and probe during the discussion (Zhang & Wildemuth, 2016). The observations were chosen because the researcher wished to gain a deeper understanding of the phenomenon and to triangulate data from interviews. The schools were chosen because the researcher had the idea that these schools would be in a more advantageous ICT infrastructural position to successfully assist in answering the research question. The criterion for selecting participants suggested that they must be qualified teachers teaching intermediate phase Social Sciences for a minimum of three years of teaching experience. The existence of this criterion required that the selection be purposive through non-probability sampling. The selection of the teachers based on the number of teaching experience was grounded on the idea that they should be more knowledgeable about the teaching and learning dynamics of the subject and therefore, produce rich data. The

participants are named according to the school they belong to and the sequence of participation (A1, A2, B1, B2, C1, C2). For example, B1= Participant 1 in school B.

The data was thereafter analysed using thematic analysis aimed at extracting themes or patterns from the data (Braun et al., 2019). The first step was data familiarisation where the researcher engaged in-depth with the data to notice any patterns and take notes. Then code generation followed wherein patterns were connected and labelled, and excess or unnecessary data was discarded. Based on the research question, the codes were then organised into themes. From there, theme revision and definition took place which basically entailed editing. Finally, the report was produced. Thereafter, member checking was used to ensure the credibility of data and this included compiling transcripts and sending them to the relevant participants to confirm their contributions as explained by Varpio et al. (2017). To protect participants and their contributions, each were given consent forms with all the details of the study and how each of them and their contributions would be protected. Anonymity was prioritised by ensuring that identities of participants were not revealed to third parties and pseudonyms were given. In addition, the researcher applied for ethical clearance (Clearance number: UFS-HSD2024/2068) from the University of the Free State institution which was produced to the schools in order to be allowed to proceed with the generation of data.

Demographics of teachers



Graph 1: Teachers' teaching experience levels

The pie chart above shows the different levels of teachers based on their teaching experience. The majority of the teachers are still junior teachers with less than 5 years of teaching experience. On the other hand, only two of the teachers were at a senior level, with one having 11 years and the other having 15 years of experience.

FINDINGS

This enquiry explored the research question “How are Social Sciences teachers integrating ICT into their teaching and learning in the intermediate phase?”. Data were collected through semi-structured interviews and observations, from which data was then thematically analysed. The researcher reported findings on the following main themes: lesson preparation, lesson presentation, homework/research/assignment, and assessment.

Lesson preparation

The participants were asked to comment on their experiences of their use of ICT for lesson preparations and their responses produced two themes namely lesson plans and content research which were invaluable in painting a clear picture of SS teachers’ integration practices.

Lesson plans

Technology was found to assist in optimisation of teachers’ preparation processes for their SS lessons such as drafting their lesson plans on computers and creating PowerPoint (PPT) slides. A similar finding was also reported by Abedi (2023) in which teachers used technology for lesson planning and instructional material development. For an example, A1 stated, “*But I will prepare my lesson or any other thing that I want to share with the kids*”, suggesting that other than lesson plans, there were other things she prepared for using technology which could include PPT presentations. A more detailed response from B1 said “*I type my lesson plans using my laptop, prepare PowerPoint presentation for grade 6 learners when the lesson requires debate*”. Similarly, B2 added,

“We use Word document to prepare weekly lessons. There's a format that the school gives us. And then we sometimes use, I would make presentations for the learners for a certain topic.”

C1 stated “*I do use it to create my lesson plans*”. C2 mentioned “*Yeah, so preparation using my laptop to prepare slides*”. Almost all of the participants acknowledged the role of ICT in their preparation of lesson plans and PPT presentations.

Content research

As teachers prepare for their lessons, technology also assists in allowing them relevant and up to date information and resources that they will need for their lessons. Often, textbooks are limited and they do not have the option of videos and sometimes, teachers themselves have

limited knowledge on one of the two disciplines that make up the subject. ICT resolves this by providing access to ample amounts of information and visuals. A2 stated,

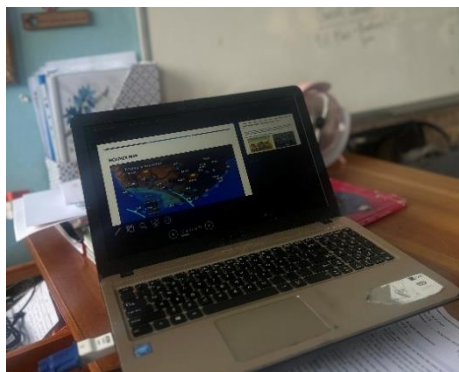
“Let's say, for instance, like we're talking about the volcanoes and the earthquakes. When you are preparing and when you are accessing information, it normally refers you to, if you want to, ~ say, give an enrichment worksheet or something, it always refers you to...you know, the next resource, the next resource, just like that.”

This participant recognises how one search can lead to various other sources of information available on the internet. B2 added *“I also use Google when I'm looking for maps, physical features, or freedom fighters, or national symbol from other countries because we don't have many posters in our classes”*. The participant shows that she is able to look for visuals that can be used in the SS lessons to enhance understanding. In addition, teachers use technology to make up for the short falls in content knowledge. Sometimes teachers are more knowledgeable in only one of the two disciplines that make up the subject, and not the other. For example, C1 voiced,

“I watch videos of or on topics that I'm going to present so that I have a better understanding and I'm prepared for questions that I might get because I know that in classes we have smart kids that can ask you any question at any time and if you don't know that question I believe that it puts a question mark in your learners because they're like, how is it that the teacher doesn't understand or know this?”

This participant emphasised that they were strong in only one of the two disciplines as the subject they did in high school which requires them to go an extra mile in the preparation of the other discipline.

Overall, in this way, teachers gain access to up-to-date information and instructional resources as reported by Abedi (2023) which might not be available from textbooks which are often times outdated. This was evident in C1's lesson observation who had a laptop in class displaying a picture of a weather map she had prepared for learners, as shown in picture 1 below. This is in line with the postulation that carefully planning instructional tasks and activities are imperative for technology integration such as developing quizzes beforehand (Ramaila & Molwele, 2022).



Picture 1

From this finding, the teachers are actively experimenting with technology for their SS lessons. This experimentation suggests that teachers are likelier to officially integrate ICT in their teaching practices as postulated by Rogers (2003) on the ‘trialability’ factor.

Lesson Presentation

Content projection

The participants utilised technology to present their SS lesson through PowerPoint slides, a show of videos and images (as shown in picture 2), including social media platforms such as TikTok. This concept of videos was also reported by Bariham (2019) as one of the lesson presentation strategies used by teachers. In addition, Atubi (2022) shared a similar finding on the growing use of social media platforms for teaching. A1 mentioned,

“So I try my level best to incorporate the pictures and videos or whether it's TikTok, if there is something good that has to do with learning for them because like I indicated earlier, our kids learn through fun, technology.”

C1 also stated,

“Like with my PowerPoints because mostly I use my laptop to project the work for them and sometimes I do show them video, but disadvantage of using the video sometimes I have a speaker and then it doesn't work or another teacher has borrowed the speaker so I cannot play the video because the audio is not.”

Furthermore, C2 finished off with *“So I'll use powerpoints. Obviously displaying of pictures as well as making use of videos as well”*. A1, C1 and C2 show the significance of PPT presentations and visuals in their SS classrooms. This therefore benefits learners by making

learning more engaging and relevant which ultimately facilitates improved understanding (Abedi, 2023).

A unique finding also emerged when A2 stated that their use of technology was situational,

“When it comes to like, say, great, grade sevens, they still, they still believe in seeing things and then, you know, it's useless for you to discuss, let's say the South African flag. When they see it there, on the board, they... It stays in their heads.”

This participant did not believe that ICT aligned with the history part of the subject but mostly for the geography part. On the other hand, B1 added in more detail,

“I project my lessons on board and handouts, we usually make handouts for them because we don't have textbooks. So what we do, you know, I have one textbook that I make copies for all of them. We call them handouts so they're in black and white. So when the handouts are more clear, I take pictures from the textbook, the one that I'm using, the one that is in color, and then I'll use the phone and send it to my laptop and then I'll project it so that they can see what I can see in my book. Then sometimes for history lessons I play the Sarafina movie, Long Walk to Freedom movies from YouTube and then so that they can see what I'm talking about and explain that.”

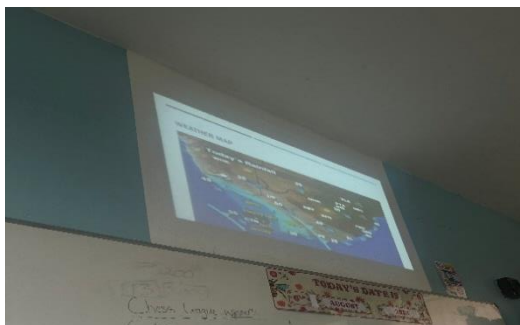
For this participant, technology assists with the challenge of shortage in textbooks and unlike A1, B1 actually finds ICT to resonate with history. Similarly, B2 also added,

“So I will explain the content, explain to them who Nelson Mandela is, what he did, his life, his background and then maybe just show them a video of what his life was or who Nelson Mandela is, how his life was and what he did for South Africa.”

This participant, like their colleague B1, found ICT to be valuable for teaching about historical leaders using videos and movies.

From observation, four out of the six participants used ICT to teach, and the other two used the traditional chalk-and-talk method of instruction (A2 and B2). B2 had an overhead projector that was broken while A1 showed no clear sign behind the lack of use except for their contribution during the interview stating “99% of a history lesson you do not really need the usage of technology” which could explain their lack of use as the topic for that lesson was on a history grade 6 topic “The Age of European Exploration”. It could be argued that this teacher might still be stuck in more traditional methods of teaching due to their seniority status. Based

on the guiding theory, for those teachers who are trying out technology for their SS lessons, they are likely to continue officially integrating ICT, whereas in cases where the two teachers are not using ICT, especially A2, chances of this official incorporation taking place are quite slim because trialability is not actively occurring.



Picture 2

Homework, research and/or assignments

ICT capabilities are also exploited to assist with homework, research and even assignments. The responses to this section provided us with two themes: WhatsApp and search engines.

WhatsApp

The popular social media platform, WhatsApp, was highly reported on as an aiding tool for homework, research and assignments. Scholars such as Mentjies (2022) and Mtshali (2023) have previously highlighted the significance of social media in education. For example, A1 detailed that there are times when unforeseen circumstances hinder them from seeing certain groups for a lengthy period and that this platform assists; she stated,

“So, we send work. And sometimes we send the memo and say, parents, you need to help us. Because if we don't catch up, we are going to fall behind.”

B1 also echoed this, with *“Firstly, we use internet for WhatsApp to send homeworks and research questions to parents. We have a WhatsApp group”*. This participant specifically points it out that they send not only homework, but research questions as well. B2 added *“Yeah, we also send all the information, all homework is sent on the whatsapp”*. C1 also added,

“I do send them the work in the WhatsApp group. We have a WhatsApp group where we take pictures of the work that was done during the day. If the learners were not done, then we send it home. Or if there's other homework that was not spoken about in the class, or not new work.”

Interestingly, the participant explained that she does not only send homework, but she also keeps parents updated about activities completed during the day. Pasaribu et al. (2023) had a similar finding in which technology was used to create and share assignments, and WhatsApp was used by teachers to send work such as assignments to parents and learners.

Search engines

Teachers' digital toolkits extend beyond WhatsApp as they also leverage search engines such as Google for homework, research and assignments. The use of internet is a popular finding among previous studies as a useful tool in the teaching and learning of SS (Bariham, 2020). A2 stated,

“Especially the grade sevens, because their content is now at the senior level where they are actually equipped with finding information themselves. There are those sections where you can refer them to actually go and research and use the gadgets.”

Although their example was focused on the grade sevens, the important thing to note is that they acknowledged ICT's role for research in the subject. Similarly, B1 mentioned *“I will also use internet to download pictures for their research to print out them”*. C1 mentioned *“We do have a project that they have to do all the way there. So they do have to also go out and do research on some of that”*. The participant also admitted encouraging learners to make use of Google for these projects. C2 also added

“So, we tend to make use of the school computers because we do have school computers. So, we ask learners to go do research. They go to Google, search about different types of political leaders and do their research on them.”

This participant highlights the school's advantageous ICT infrastructural position. This allows learners to do research at school which is beneficial for those learners who may otherwise struggle to do this at home due to not having access to the technological tools. Based on observation, A1's learners were observed to provide homework responses from Google and this shows that the use of search engines is becoming popular for homework purposes. The practice does not only assist learners in accessing information, but it also promotes learning that is self-directed while learners gain valuable digital skills (Abedi, 2023).

These responses further highlight that teachers are working tirelessly to try out technology for their pedagogy which suggests that trialability is active, and according to Roger (2003) this

positively influences the chances of ICT integration officially occurring and continuing in SS classrooms.

Assessment

An analysis of teachers' responses on integration practices provided valuable insights on technology's role for assessment. Santosa et al. (2022) report a similar notion on technology's value for assessment when they found that for instance, teachers used games to assess learners' knowledge. This shows that technology is not only beneficial for access to information, but it also helps teachers track learners' progress. The SS teachers acknowledged that ICT assisted them when they assessed learners by aiding in the projection of information and in accessing relevant resources. This acknowledgement accounts for the conclusion that the SS teachers are likely to continue with the incorporation of technology into their teaching practices as they are clearly active participants in the trial of ICT.

Projector display

Two of the SS teachers shared that they used technology to project information for assessment purposes. A1 mentioned the use of a digital timer during assessment activities,

"I give classwork to write it. It's time consuming. So it's better you give the kids there and then you put the timer. So they see for this question, there is the timer and then I must be done in this."

In this way, learners get to adjust their pace as they work. B2 added,

"So I would scan the assessment or the test that we did, scan it and then present it to them on the board so that they can also do their corrections."

This suggests that the assessment with a memo is displayed for learners to see where they went wrong. In line with these responses, A1 also showed to the rest of the class a worksheet for learners to complete using the projector, as found from the class observation.

Resource access

The other two teachers mentioned that ICT played a huge role in information access for assessment in the SS classroom. C1 said,

"Yes. We make our test papers, our rubrics on the internet... oh using our laptops and also there are pictures that we put in just to help them so that also comes from Google."

This participant did not go into much detail as to how exactly they use the internet to make their test papers and rubrics but C2 provided an extension to this response and stated

“So I would obviously go to the internet, try to search for assessments similar to what I’m teaching, try to infuse that, but also do my research on some of the possible test questions that are more similar or aligned to what we are teaching.”

Unfortunately, out of the six participants, two did not acknowledge ICT as helpful in assessment practices for Social Sciences. For example, A2 stated *“Not really. Not really. We still do it manually”*. On the other hand, B1 stated *“So I do not use it for my learners as they do not have gadgets and also do not have access to the internet”*. This suggests that for A2, formalised and sustained integration is unlikely because as Rogers (2003) states that trying out innovations increases the likelihood of adoption. For B1, it simply entails that trialability is occurring, but at a low level because this is the only section where they have shown not to leverage ICT.

DISCUSSION

South Africa as a developing country is working diligently towards modernising educational paradigms. This is accounted for by a bibliometric study that found South Africa to be leading when it came to published literature on ICT integration (Baako & Abroampa, 2023) although the literature review in the above section highlighted the lack of enquiry in the SS subject specifically. Thus, this enquiry focused on the different ways in which SS teachers are integrating ICT in their practices. From the findings it became apparent that even though the majority of the teachers are trying hard to incorporate ICT, there is still some resistance from one of the teachers. In addition, one of the other teachers was not incorporating it because efforts to fix broken tools were not extended to her, forcing her to revert to conventional pedagogical approaches.

Nonetheless, a larger percentage of participants shared in the interviews that they integrated ICT into the subject, and the observations showed this. One of the ways they did this was for lesson preparation in which they drafted lesson plans and created PowerPoint presentations. They then presented these slides and showed other visuals such as videos and pictures relevant to the content. Moreover, they utilised platforms such as WhatsApp and Goggle for homework, research and assignment purposes. Lastly, technology was shared to aid in the assessment of the subject as teachers created and searched for relevant test papers and rubrics. These findings

confirm the findings by Atubi (2022) who shared that the internet, social media, computers, and PowerPoint presentations were common integration practices in the SS classroom.

The guiding theory's 'trialability' concept postulates that if experimentation with novel ideas can be done, it increases the likelihood of continued adoption (Rogers, 2003). In this case, teachers' use of ICT suggests that experimentation is taking place which enhances the probability of teachers continuing and officially adopting technology as a part of their instructional methods. With that said, the prospects of a technology advanced SS educational setting appear remarkably promising. Thus, these findings are significant towards bridging policy and practice gaps in Southern Africa.

Limitations

Unfortunately, this study has sample size and contextual related limitations. This is because the sample size of the study was relatively small, as it only consisted of 6 intermediate phase Social Sciences teachers from the Motheo District. As a result, generalisation cannot be applied to larger populations. Thus, future studies could employ a larger sample size and perhaps, utilise a mixed methods approach that can allow larger populations to be included. Furthermore, researchers in the future could consider diversifying their study by focusing on both teachers and learners, or even parents. In addition, because for one of the two respondents who were not utilising ICT and no apparent reason for this lack of use could be accounted for, future research could investigate the possibility of age playing a role in teachers' resistance to integrate since the respondent was one of the senior teachers.

CONCLUSION

This study investigated how intermediate phase teachers integrate ICT into the teaching and learning of Social Sciences. From the enquiry, it was found that the teaching practices were seeing a shift towards a more technologically advanced environment as teachers integrated ICT in different ways and for different purposes presented under four key themes: lesson preparation, lesson presentation, homework/research/assignments, and assessment. Although not all teachers were actively utilising ICT in their teaching during observations, interviews revealed all teachers integrated ICT at some point. This suggests that as teachers are willingly integrating ICT, but at a less advanced level. When we consider that technology is an ever-evolving concept and currently modern technologies such as VR and AR are gaining traction (Verhley et al., 2020) the trialability aspect of Rogers' (2003) Diffusion of Innovations is active and therefore, continued integration to a more advanced level is guaranteed eventually. The

significance of this study stretches beyond South Africa to other developing countries showing the various ways technology can be used to ease pedagogy.

Recommendations

Therefore, this study has a few recommendations to ensure continued use. Firstly, the government ought to support schools throughout the process of ICT integration by constantly following up with them to investigate areas that are still problematic and that prevent seamless incorporation. Secondly, teachers must also make it their responsibility to discover novel ways of making their teaching practices more enticing with technology such as finding programs and platforms relevant to the curriculum and then collaborate among themselves. Lastly, policymakers should actively see to their responsibility to develop an evaluation framework that assists in tracking the progress of ICT adoption. In this way, all those involved would be taking part in the initiative meaning continued utilisation is inevitable in this way.

Conflict of interest

The authors declare no conflict of interest in relation to this study.

Funding

This study has been funded by the National Research Foundation (NRF).

References

- Abedi, E.A. (2024). Tensions between technology integration practices of teachers and ICT in education policy expectations: implications for change in teacher knowledge, beliefs and teaching practices. *Journal of computers in education*, 11(4), pp.1215-1234.
- Afari, E., Eksail, F.A.A., Khine, M.S. and Alaam, S.A. (2023). Computer self-efficacy and ICT integration in education: Structural relationship and mediating effects. *Education and Information Technologies*, 28(9), pp.12021-12037.
- Atubi, O.F. (2022). Information Communication Technology and Social Studies Instruction in Delta State, Nigeria. *Jurnal Penelitian dan Pengkajian Ilmu Pendidikan: e-Saintika*, 6(1), pp.1-10.
- Baako, I. and Abroampa, W.K. (2023). Research trends on ICT integration in Education: A bibliometric analysis. *Cogent Education*, 10(2), pp.2281162.
- Bado, N. (2022). Game-based learning pedagogy: A review of the literature. *Interactive Learning Environments*, 30(5), pp.936-948
- Bariham, I. (2019). Influence of teachers' gender and age on the integration of computer assisted instruction in teaching and learning of social studies among basic schools in tamale metropolis. *Global Journal of Arts, Humanities and Social Sciences*, 7(2), pp.52-69.
- Bariham, I. (2020). Senior high schools preparedness for integration of computer based instruction in teaching and learning of social studies in Northern Region, Ghana.
- Chomunorwa, S. and Mugobo, V.V. (2023). Challenges of e-Learning Adoption in South African Public Schools: Learners' Perspectives. *Journal of Education and E-Learning Research*, 10(1), pp.80-85.
- Clough, P. and Nutbrown, C. (2012). A student's guide to methodology.
- Creswell, J.W. (2009). *RESEARCH DESIGN: Qualitative, Quantitative, and Mixed Methods Approaches*. California: SAGE publications.
- Das, K. (2019). The role and impact of ICT in improving the quality of education: An overview. *International Journal of Innovative Studies in Sociology and Humanities*, 4(6), pp.97-103.

- Das, P. and Barman, P. (2023). Does ICT contribute towards sustainable development in education? An overview. *International Journal of Research Publication and Reviews*, 4(7), pp.544-548.
- Enaifoghe, A. (2021). Digitalisation of African Economies in the Fourth Industrial Revolution: Opportunities for Growth and Industrialisation. *African Journal of Development Studies*, 11(2).
- Isaacs, S. (2007). Survey of ICT and education in Africa: Angola country report. www.infodev.org
- Mathende, A. and Beach, J. (2022). The Integration of Information Communication Technology in Education: A Review of Policies and Practices in Angola, South Africa, and Zimbabwe. *Journal of Special Education Preparation*, 2(1), pp.80-89
- Mdhlalose, D. and Mlambo, G. (2023). Integration of Technology in Education and its Impact on Learning and Teaching. *Asian Journal of Education and Social Studies*, 47(2), pp.54-63.
- Meintjes, H. H. (2021). Learner views of a facebook page as a supportive digital pedagogical tool at a public South African school in a grade 12 business studies class. *International Journal of Smart Education and Urban Society*, 12(2), 32-45. <http://dx.doi.org/10.4018/IJSEUS.2021040104>
- Mhlongo, S., Mbatha, K., Ramatsetse, B. and Dlamini, R. (2023). Challenges, opportunities, and prospects of adopting and using smart digital technologies in learning environments: An iterative review. *Heliyon*, 9(6).
- Mkuzo, L. and Govender, I. (2025). The quest for social justice through ICT access and inclusion for rural schools and communities: The South African case of Urglobal. *African Journal of Science, Technology, Innovation and Development*, 17(1), pp.19-31.
- Molotsi, A.R. (2022). The use of ICT resources to transform teaching at secondary schools in the Bojanala district, Northwest province. *South African Journal of Education*, 42(1).
- Mtshali, T. I. (2023). The impact of TikTok videos in creative designs of house plans in civil technology's practical assessment tasks. *INSANIA: Journal of Educational Alternative Thinking*, 28(1), 115-132.

- Mulaudzi, L. (2024). Evaluating impact: South Africa's e-education white paper on digital equity and post-COVID education leadership. *Cogent Education*, 11(1), pp.2415749.
- Mwinkaar, L. (2018). Integration and usage of ICT by social studies teachers in teaching in junior high schools in the Gomoa West district (Doctoral dissertation, University of Education Winneba).
- Odunga, J.O. (2024). Information and Communication Technology (ICT) Interventions for Enhancing Access to Education in Rural sub-Saharan Africa: A Systematic Review. *Journal of the Kenya National Commission for UNESCO*, 4(1), pp.1-19.
- Ohei, K., Mantzaris, E., Ntshangase, B.A. and Olutade, E.O. (2023). Incorporating new technologies into teaching in South Africa. *International Journal of Research in Business and Social Science* (2147-4478), 12(6), pp.286-295.
- Pasaribu, G.R., Daulay, S.H. and Saragih, Z. (2023). The implementation of ICT in teaching English by the teacher of MTS Swasta Al-Amin. *English Language and Education Spectrum*, 3(2), pp.47-60.
- Ramaila, S. and Molwele, A.J. (2022). The Role of Technology Integration in the Development of 21st Century Skills and Competencies in Life Sciences Teaching and Learning. *International Journal of Higher Education*, 11(5), pp.9-17.
- Rogers, E.M. (1962). *Diffusion of innovations* (3rd ed.). New York, NY: Free Press
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York, NY: Free Press
- Santosa, M.H. and Dang, T.T. (2022). ICT integration in English foreign language class: Teacher's voice in perceptions and barriers. *Pedagogy: Journal of English Language Teaching*, 10(2), pp.183-202.
- Timotheou, S., Miliou, O., Dimitriadis, Y., Sobrino, S.V., Giannoutsou, N., Cachia, R., Monés, A.M. and Ioannou, A. (2023). Impacts of digital technologies on education and factors influencing schools' digital capacity and transformation: A literature review. *Education and information technologies*, 28(6), pp.6695-6726
- Verhey, J.T., Haglin, J.M., Verhey, E.M. and Hartigan, D.E. (2020). Virtual, augmented, and mixed reality applications in orthopedic surgery. *The International Journal of Medical Robotics and Computer Assisted Surgery*, 16(2), pp.e2067.

Zhang, Y. and Wildemuth, B.M. (2016). Unstructured interviews. Applications of social research methods to questions in information and library science, pp.000-06

CHAPTER FIVE

ARTICLE FOUR

Challenges and Possible Solutions in the Integration of ICT in Intermediate Phase Social Sciences Teaching and Learning

Authors:

Nokulunga Phathiswa Nxusa - University of the Free State

205 Nelson Mandela Drive, Bloemfontein, 9300

2015054378@ufs4life.ac.za

Orcid ID: 0000-0001-6939-4202

Abstract

Information and Communication Technologies (ICT) integration is progressing at an interesting rate in South Africa. However, issues are still reported with this process. This qualitatively approached case study involving interviews and observations as data generation tools, with six intermediate phase Social Sciences (SS) teachers from three quintile five schools in Bloemfontein, Free State shed light into the challenges these teachers are battling with, and possible solutions towards eliminating them. Findings indicate that common challenges are linked to internet access issues, inadequate technological skills, and malfunctioning or broken tools. Participants proposed solutions that could help mitigate challenges such as professional development, parental involvement, collaboration, and resource provision. Addressing challenges interfering with this process remains the ultimate solution towards a more digitalised South African SS intermediate phase classroom.

Keywords: Challenges, ICT, Solutions, Technology

1. INTRODUCTION

Paradigm shifts are continuously witnessed in education worldwide due to the emergence of instructional technologies. According to Nyakito et al. (2021), teachers ought to embrace the existence of ICT in order to address the 21st century demands. “Information and communication technologies (ICTs) are broadly defined as technologies used to convey, manipulate and store data by electronic means. This can include e-mail, SMS text messaging, video chat (e.g., Skype), and online social media (e.g., Facebook, mixit). It also includes all the different computing devices (e.g., laptops, desktops and smart phones) that carry out a wide range of communication and information functions” (Mathevula & Uwizeyimana, 2014). The introduction of these technologies as a part of education have been widely associated with improved teaching and learning. For instance, it has enabled both teachers and learners to have easy access to information, to collaborate and to engage in teaching and learning anywhere and at any time (Chisango et al., 2020). This recalibration of pedagogy presented by technology emphasises that this innovation is not to be underestimated.

Scholars have however, reported on concerns related to technology in education. One such concern is cyber security as more young learners are exposed to the online world (Saeed, 2023). This, especially, is a huge concern because younger learners may not be aware of the existence and dangers of these cyber-attacks. A CheckPoint research data from 2023 revealed that there had been a 8% increase in cyber-attacks globally, which was 33% more attacks compared to 2022 (Koziel et al., 2024). This shows the seriousness of cyber-security awareness for learners, because the more they access online platforms, the more at risk they are than ever before. Furthermore, problems such as intrusion of unsolicited messages, epileptic power supply, expensive digital devices, lack of experts, and network issues are commonly reported (Okoye & Ezeaku, 2025). Even with the positive benefits brought about by technology in education, problems continue to be reported.

According to Olokooba et al. (2018) Social Sciences is a branch of knowledge focused on the study of society, individuals and groups, basically focusing on the relationships and the way they live. In South Africa, the Social Sciences subject is a combination of history and geography. History is the study of records or accounts of past events and developments, while geography is the study of earth’s physical features and the people, plants, and animals in different regions of the world (Olokooba et al., 2018). The education policy clearly recommends ICT as an integral part of this subject’s instruction; however, it has been noted

that teachers are generally rejecting this innovation in education due to intrinsic and extrinsic factors (Albahiri & Alhaj, 2023). Nii Akai Nettey et al. (2024) clearly posit that developing countries are faced with numerous challenges in their attempts to reform education. Thus, this study found it crucial to investigate the challenges experienced by SS teachers in integrating ICT in their instruction, as well as possible solutions especially in the South African context. The study explores the following research questions:

- i. What are the challenges experienced by IP teachers when integrating ICT in SS?
- ii. What strategies can be used to enhance integration of ICT in the teaching and learning of IP SS?

Exploring areas of ICT integration prove indispensable in an improved education system which ultimately results in economic growth. By exploring challenges experienced by teachers and possible solutions to these problems, this undertaking seeks to assist towards informing policy and decision-making, encouraging ICT integration, and contribute to a growing body of knowledge in this area. In this way, the education system may be enhanced.

2. THEORETICAL FRAMEWORK

The manner in which novel ideas, technologies and products disseminate in society is best explained by the Diffusion of Innovations (DOI) theory and this framework is relevant towards understanding the adoption of ICT in the teaching and learning of Social Sciences. The theory was introduced by Everett Rogers in 1962 and was thereafter used across various fields, including education. Elements of the theory include innovation, communication channels, time, and social system.

The suitability of this theory for the present study is grounded on the notion that it provides a comprehensive understanding of innovation adoption by explaining adopter behaviour and factors affecting adoption, which is what this study is based on. From the five factors that Rogers suggested to affect adoption which are relative advantage, compatibility, complexity, trialability, observability; complexity and observability are most relevant for this undertaking. The complexity-simplicity continuum is the degree in which the idea is perceived to be easy or difficult and this study set out to investigate if there are challenges teachers faced with the integration of technology into their practices which may negatively influence their willingness to continue with the integration. Observability suggests that adopters are more likely to continue with adoption of new ideas if its results are visible to the adopters than if they are not.

Based on the contributions by participants on possible solutions for challenges, this will shed light on whether or not the integration of ICT is received and viewed positively in terms of its impact on education and eagerness to continue use.

3. LITERATURE REVIEW

Factors hindering teachers from integrating ICT in their teaching

The incorporation of technology in teaching is faced with some challenges which hinder successful ICT integration. Literature has revealed issues such as lack of resources, ICT skills and competencies, and ICT professional development as some of the most challenging that slow down the integration of ICT in teaching.

Inadequate resources

A Nigerian study by Jacob and Dahir (2021) reported that teachers complained about not having adequate ICT facilities such as computers, laptops, printers, and internet. Another by, Alharbi (2021) looked at external and internal factors affecting ICT integration from which it was found that ICT provision support was among the external factors hindering technology integration. Furthermore, Mogwe and Balotlegi (2020) in Botswana discovered that teachers were unable to use ICT due to insufficient computers and inadequate technical support in sampled primary schools. Similarly, Atambeogo (2020) found that 92% of the respondents were challenged with inadequate ICT facilities in Ghana, this was a major hindrance even though 82% of the respondents expressed willingness to integrate ICT into their teaching. Msafiri et al. (2023) added to this unfortunate finding when they added that the ICT from the sampled secondary schools was not only inadequate, but inaccessible, unreliable and insecure. A Kuwait study reported that 83% of the teachers did not have any technological tools to use in their classrooms and 75% reported to have no access to the schools' computer labs and if ever they wanted to use technology in their teaching, they had to bring their own (Algasab et al., 2020).

In South Africa, Kimanzi (2021) reported results that showed that ICT in the teaching and learning of EMS was threatened by a lack of resources. Additionally, Khan (2023) found that out of the four sampled schools, three had a similar problem of inadequate technological resources and in one of the schools a teacher made mention of the fact that they had had to purchase their own digital projector, similarly to Algasab's et al. (2020) finding. On a similar note, Mnisi (2024) reported similar findings on the inadequacy of technological resources.

Skhephe and Caga (2019) also added to this with their findings showing that internet related issues were a huge hindrance in ICT integration in the schools studied. Thus, Munje and Jita (2020) uncovered that this inadequacy in ICT resources is as a result of theft and lack of funding, which negatively affects the learners' learning aspirations as they are shut out of the benefits of technology-based learning.

Inadequate ICT skills and competencies

In addition to inadequate ICT resources, scholars have also reported on the inadequacy of teachers' technological skills and competencies. Timotheou et al. (2022) from their literature study found that this was the most commonly reported hindrance by scholars. Jacob and Dahir (2021) found that in cases where technological resources were available, teachers were not using them due to being unskilled. Teachers were also found to lack basic ICT skills such as operating Microsoft Word, PowerPoint and/or Excel (Mongwe & Balotlegii, 2020). Moreover, Algasab et al. (2020) found that 81% of the participants in his study had problems when utilizing technology, and 78.9% had no knowledge of how to integrate ICT in their teaching.

In South Africa, Khan (2023) places emphasis on finding from teachers that learners were also not taught how to use ICT and this slowed teachers down. The lack of ICT skills by teachers is reported by Kimanzi (2021) who noted that teachers did not even receive any ICT related support from school management in this regard. Furthermore, Molotsi's (2022) findings are similar to Jacob and Dahir (2021) in that even where ICT resources were available, teachers did not use them due to low confidence in their technological skills

Inadequate ICT professional development

Teachers' training needs should be developed at regular intervals to help assist them with successful integration of ICT into their teaching and scholars have reported some disparities in this regard as well. Atambeogo (2020) found that 81.2% of his respondents actually agreed that the lack of training they received was a major setback in their integration. Similarly, Msafiri et al. (2023) reported that teachers did not have adequate access to high quality and frequent professional development that they required to sharpen their technological skills. Teachers reported having to engage in informal workshop as a result of lack of formal training (Algasab et al., 2020). Timotheou et al. (2022) explain in their study that a lack of professional development affects the impact of ICT in education. In South Africa, the issue of inadequate ICT training programs was reported by Mnisi et al. (2024) and Kimanzi (2021) among others, as another severe setback for teachers integrating ICT in their teaching.

Solutions to address these challenges

Infrastructure development

It has been suggested that since several reports have brought forth the issue of a lack of technological tools and equipment, the government should aid in the development of this (Msafiri et al., 2023; Algasab et al., 2020; Alharbi, 2021; Atambeogo, 2020; Jacob & Dahir 2021; Mongwe & Balotlegi, 2020). This means ensuring that schools are equipped with efficient internet speed and connection that will enable them to utilise a variety of educational applications and access websites. Furthermore, provision of tools such as computers, projectors, and smartboards should be prioritised. In addition, ICT laboratories should be built in schools to create an adequate technology-based education environment. If the infrastructural issue can be addressed, a major part of the problem will have been eradicated.

Training and professional development

Scholars have reported on the inadequate training and development of teachers for ICT which leads to low confidence in its use, and it has been suggested that the government address this problem (Msafiri et al., 2023; Algasab et al. 2020). This means that teachers should have the opportunity to attend continuous workshops that introduce different ways of technology integration into their classes, and new applications that are being developed for educational purposes. Furthermore, collaborative communities should be encouraged to allow teachers to share different and new strategies in technology integration in their classrooms. It is crucial that even when technology tools have been provided, that teachers undergo the necessary training and development to allow them to utilise these tools to the best of their potential.

Policy frameworks

There have also been reports that suggest that teachers have not been using technology in their teaching due to lack of policies to guide them, and it was proposed that there should be a development of ICT policies (Alharbi, 2021; Jacob & Dahir, 2021; Atambeogo, 2020; Adu & Zondo, 2023; Mnisi et al., 2024; Skhephe & Caga, 2019; Msafiri et al., 2023). These scholars suggest that there should be a clear policy on the integration of ICT across all school subjects to assist teachers with the process using a clearly developed guideline. Furthermore, policy should focus on funding designated for the integration of technology, including purchase of tools, provision of maintenance of the tools and any other required support. A clearly defined policy framework will help ease the load of challenges that teachers experience.

Monitoring and evaluations

Because it is important that the government is aware of the progress of technology adoption in teaching and learning, it is critical that they arrange monitoring and evaluation programs (Adu & Zondo, 2023). This can occur through regular assessment visits that aim to gather detailed information as to how teachers are using technology in their teaching, their experiences and attitudes and identifying the existing challenges setting the process back. In addition, there could be feedback programs that allow teachers, learners, SMTs, and even parents to share progress and any recommendations enabling them to be a huge contributing part of future initiatives. This information can also be invaluable in informing the development of upcoming policies as policymakers will have a clear idea of what is currently taking place in classes, the strengths and the challenges of the integration process.

Security and privacy measures

Technological infrastructure is costly and its availability in schools can invite unfavourable attention and visitors; however, it has been reported that it is important for the government to develop and provides the necessary security and schools, privacy measures (Jacob & Dahir, 2021; Skhephe & Caga, 2019). Especially, in township and rural school, it is easier for criminals to be drawn to schools for possible breaks ins. There have already been a number of reports about theft in schools. Therefore, it is important that when the technological tools have been provided to schools, there are means to also protect them.

The findings of this review shed significant light on the issues faced by teachers globally with ICT integration, while also highlighting possible ways to mitigate these challenges. The most important piece of information to emerge from this review, is the knowledge gap. Unfortunately, it is still unknown what challenges SS teachers in South Africa face because none of the studies have explored this aspect, according to the researcher's knowledge following a thorough search. Therefore, this study aims to bridge this gap.

4. METHODOLOGY

Positioned in the interpretivist paradigm, this qualitative case study embarked on a journey to gather, analyse and interpret the experiences of the participants in their natural environments in order to gain understanding on their integration of ICT in the intermediate phase Social Sciences subject. Purposive non-probability sampling was used in this study to select suitable participants. The sample is chosen in accordance to the criterion decided upon by the researcher

as important (Pandey & Pandey, 2021). The insights were gathered through 30-50 minutes semi-structured interviews of six SS teachers in the Motheo District followed by classroom observations after the University of the Free State and Free State Department of Education granted permission to the researcher. The three schools visited by the researcher were all quintile 5 schools, making them more suitable for the study as they are more resourceful. Letters P and S are used to represent the participants and the schools. For example, participant two in school one will be referred to as “P2:S1”



Figure 1: Map of Free State districts

ACCESSED FROM: <https://www.degruyter.com/document/doi/10.1515/opag-2022-0119/html>

The thematic analysis of data was utilised because the researcher intended to understand the experiences and thoughts of Social Sciences teachers with the integration of ICT in their classroom, as Braun and Clarke (2012) emphasised that this method is useful for researchers with this kind of intention. For trustworthiness assurance, it became critical for the researcher to send to participants the transcripts in order for them to verify the information provided and to ensure interpretations are accurate.

5. FINDINGS

From interviews and observations, the researcher was able to identify the challenges that SS teachers are faced with when integrating ICT in their practices, as well as the possible solutions

that may be employed in efforts to mitigate the said challenges. The findings were organised according to the main topics of lesson preparation and presentation, learner related challenges and the most demotivating of these challenges. In the solutions section the findings produced the following themes: professional development, resource provision, collaboration, and parental involvement

5.1.Challenges

Preparation and presentation

The participants were asked about the challenges they experienced with regards to preparation and presentation of lessons using ICT and they identified issues related to internet access, lack of tech-support and malfunctioning tools.

Inadequate internet access

Most technology functions require one to be connected to an internet, and without this, limitations are created. It is unfortunate that the participants reported issues with internet connection in their attempts to integrate ICT in the teaching and learning of Social Sciences. As such, they experience a barrier towards maximised digital information access. The hindrance was reported to be created by two factors, no data and network problems.

“Normally, the network, we struggle with network as well. It's either on or it's off or it's slow. So I always struggle with network, especially when I have to look up something. The learners ask me, ma'am, what is this? And I have to look it up and show them on the board. It takes a long time because we have network problems.” [P2:S2]

This entails that they struggle to look up information on the spot should there be any questions on anything they have not prepared for the day.

“It frustrates you when we don't have network. Because knowing that everything is there and you don't have anything, you know, hardcopy and it becomes a problem in that sense only.” [P2:S1]

The participant extends onto this by highlighting that even though a teacher may be prepared they cannot manage presenting the work because of problematic internet connection. This suggests that a backup hardcopy preparation is required. Upon observation, one of the participants' SS lesson [P1:S3] was to follow after break time, and they had to start setting up

during break-time because of slow internet, highlighting the desperate measures teachers have to resort to as a means of coping with the challenges.

Inadequate technological skills/support

Operating technological tools and functions requires an individual to possess the necessary skills. Once again, participants shared sentiments about the inability to maximally integrate technology in teaching SS because they had average skills and the necessary support was not availed to them, such as an IT person or relevant training.

“Unfortunately, we don't have like an IT person. So, if ever as a teacher you can only use what is on the desk. You cannot connect and do whatever. Then it means you're stuck.” [P1:S1]

This participant highlights that given certain challenges that according to their own knowledge of technology they cannot solve, they are left without a way forward except to teach traditionally because of no available IT technicians that could have been otherwise summoned to aid.

“I still feel I can maneuver my way through, but I feel if one can get a formal training kind of a thing, one can be more efficient and effective in terms of utilisation ~ of technology.” [P2:S1]

The participant emphasises that their technological skills sometimes are not adequate even though they are able to do the basics and thus feels that they still require formalised training since he was self-taught. These responses highlight a need for interventions as stated by the participants, because teachers, if not assisted with adequate training and support, despite their willingness to integrate ICT, may end up going back to conventional teaching methods.

Malfunctions of technological tools

Although the participants had technological tools in their classrooms, such as overhead projectors, laptops, computers and speakers they shared concerns over these tools being problematic such as breaking down or being slow. This was especially an issue because even gaining assistance with the malfunctions was a tedious process leaving them to struggle for long periods. One participant even noted that they did not have an IT technician in their school.

“Okay, currently my challenge is that my whiteboard is not working. So last term, it just gave in so it's not working. So I think that is a big challenge. And especially now

with all the holidays we're in. It's a struggle to catch up. So now I have to go back using a chalkboard and I have a very small chalkboard so there's not enough space to write down all the content on that board.” [P2:S2]

This participant’s lesson observation proved that the overhead projector was broken forcing the teacher to rely on the traditional way of teaching during that period and unfortunately, it had been a long period of time since this happened.

“Also, that yes, my laptop sometimes will switch on and off, so sometimes it's not as good, so doesn't really work on its fullest function” [P2:S3]

It was observed in one classroom [P1:S3] that a speaker was broken and their laptop was also very slow and the participant reported that this has been the case for a while. These malfunctions bring a sense of complexity in the integration of ICT in these classrooms which may negatively affect the future direction of this implementation.

Learner-related challenges

Teachers were also requested to share contributions on the challenges experienced by learners that affect their experiences with ICT integration in their teaching practices. The responses produced the following themes: Inadequate resources and inadequate tech-skills.

Inadequate resources

It was observed that none of these schools had a supply of devices such as tablets for learners to use. Participants also expressed that because they relied on WhatsApp messaging to communicate with learners and parents about homework and they also gave them research which would require them to make use of technological devices, it was a problem for learners who did not have these devices at home. One of the participants noted that sometimes the solution is to keep learners after school so she can borrow them her phone and laptop to do the work.

“And sometimes when I, for example, I send something in the group and whatnot and then some of them, “my mum doesn't have a phone, I don't have a phone” and whatnot. So, I have to send in the group and also make copies for all of them in case they didn't see it.” [P1:S2]

Once again, this proves the lengths teachers have to go just to cope under these adverse situations.

“So, I believe that can also be a challenge for them because, mam, my dad doesn't have a phone, or I don't have a phone. Then how, if you give them a research project, they don't know how to go about it.” [P1:S3]

Both these participants highlight the issue of parents and learners not having access to technological devices. This becomes a problem because it is manageable when it is only the learners who do not have a device, because it is a given that the parents will be of aid. Considering this in line with the guiding theory, teachers may end up reverting to traditional practices due to burnout and having to go the extra mile in some cases.

Inadequate tech-skills

Technology integration does not only require teachers to have tech skills but also the learners in order to execute the ICT related tasks provided by the teachers. Unfortunately, the participants voiced that this was not the case for their learners especially in cases where they had to give them homework, research or assignments. P1:S3 stated *“Not all of them have equal understanding of how to use the internet for your schoolwork”* and P2:S3 also added that *“Like a lot of them are still not really okay with the use of technology.”* These show that even if teachers can receive training, the problems related to tech-skills will persist because even the learners require the necessary skill development to utilise technology effectively.

Demotivation

The participants were asked which challenges they identified as most demotivating and half of them identified these to be in relation to complexity and lack of tech-support. The other half, however, did not and they emphasised that the existing challenges did not demotivate them but propelled them to want to seek solutions in recognition to the remarkable transformations brought on by technology in their practices.

Complexity

Technology avails access to ample amounts of educational programs and information which may end up overwhelming users. The participants unfortunately, also highlighted this on their responses.

“I'd say sometimes technology can be a bit complicated, like it has a lot of things. So me, on my side, I feel like I struggle a lot with also technology as I rated earlier on like a 3. So I feel like I'm not as good, but there's room for improvement. So yeah, not so good with it.” [P2:S3]

This notion reveals a level of complexity experienced by the participant when they use words like “complicated” and also “it has a lot of things” which may be a threat to their willingness to continue with this process.

“I believe there are so many programs that one discovers. Me, myself, I don't have a TV at home, so I'm constantly on my phone. So I go through my phone and I see on TikTok, there's this, there's this, I'm following teachers. So there's a lot of information that I'm learning. Sometimes it's just too much.” [P1:S3]

This participant also shares the notion that technology can be “too much” which causes frustration and unfortunately, in this case it even demotivates the teachers. As previously noted, this may have negative impacts on the participant’s willingness to continue to officially integrate technology in their practices.

Lack of tech support

It is essential that technological support is availed to teachers for seamless integration because the tools can be problematic and they break down in some cases. Lack of attention to these issues sees lengthy periods passing of teachers struggling with integration.

If ever maybe I run out of the one of the, maybe, the gadgets it means then if ever maybe like I have a problem with the overhead projector it takes time it's frustrating it will be like now you go back to prior technology. [P1:S1]

The participant basically emphasises that when they experience problems, they do not receive immediate assistance such as fixing tools or solving of tech-related problems which forces them to revert to conventional pedagogical approaches.

5.2. Possible solutions

Professional development

Given that a majority of the participants shared moderate skills to operate technology, they suggested that the SMT and the government take initiative to assist them in acquiring these skills. The participants proposed continuous technology related workshops where they would gain relevant and up-to-date tech knowledge and skills.

“So, the SMT would send us to workshops where they actually deal with the use of technology and how we can max it to its fullest level.” [P2:S2]

An even more innovative suggestion highlighted the significance of self-learning programs that are self-paced.

“Something that you can also, a program that you can also go in into and teach yourself in the meantime. You know, go through it and then it grades you like that, it grades you and then it puts you, it's sharpening whatever that is there, the skills, it sharpens your skills so that at least by the time you have to work, you don't have the gaps.” [P2:S1]

Such innovative solutions accommodate even those individuals that cannot physically attend workshops as often as they desire to due to certain factors.

Resource provision

As teachers already shared that their devices were slow and/or constantly breaking down, it was suggested that the necessary resources should be provided to schools; they shared that these can be provided as tools themselves as suggested by P1:S1 that *“They must offer; offer teachers the laptops.”* Or they could offer or create initiatives for financial support that can assist in purchasing or fixing the tools.

“I feel like they can invest in these things. So, I feel like they do have power to create initiatives to help teachers with that so they can put funding to that.” [P2:S3]

Observations also revealed that the available technological tools could improve by ensuring that learners themselves are provided with devices to promote a more digitalised classroom. In addition, emphasis was placed on quality human resource such as IT technicians as required in schools as P1:S1 stated *“I believe every school has to have an IT person”*. Another participant further added onto this.

“And also, the ICT guy I think we should find someone who's more experienced because some of the time we find someone who's just, they are being hired by the school because of they charge less but they are less experienced.” [P1:S2]

This participant shows that even though there was an IT technician, they were not experienced enough for the needs of the teachers.

Parental involvement

Parents were also suggested as key role players in this technology integration process. Participants highlighted that parents ought to borrow learners their mobile devices to do work. In addition, they could invest in actually purchasing the devices for their children and ensuring internet access.

“Maybe parents can help their kids make use of the phone but responsibly. So they have to know what is it that they're getting into, what else are they getting into. They also have to limit their screen time, but they have to the child. Okay, you have a research project, please borrow me your phone, let me do my research. Because other parents, say, my phone is my phone, I don't have, I'm not gonna give you my phone.” [P1:S3]

In addition to borrowing and purchasing the devices, they could also encourage their children to leverage them responsibly for educational purposes. *“I would say encouraging learners to use digital devices at home, especially when they have homework”* suggested P2:S2. This involvement would be invaluable in supporting teachers and learners carry-out homework and assignments.

Collaboration

While the SMT, government and parents work towards supporting teachers with the implementation, teachers themselves can also assist each other work through the challenges. Participants suggested that they could help each other by ensuring that they collaborate by means of sharing. This involves sharing of resources when one teacher's device is broken or malfunctioning.

“So, with the challenge of the projector is not working, there are some teachers that also allow us to use their classes. So, if we really have to show the learners something on a whiteboard, then we can just ask one of the teachers to use their classes.” [P2:S2]

In addition, teachers could also share knowledge or skills to do with technology operations.

“We can work together as teachers to say how do you use it, how can I use it. So, for sure if we collaborate, make use of conversations, so we talk. I think that would help us get to where we need to go.” [P2:S3]

This area highlights the spirit of humanity as indispensable in all scenarios. Unfortunately, not all participants shared the same sentiments. One teacher felt that such collaborative strategies were only possible for close groups of friends.

“So, it's a bigger challenge to say, what can we do as a staff to deal with problems that we have technologically speaking because others they play their cards like this. They don't want to expose their weakness and all that to say, no, I'm fine. My methods are fine. I don't need, you know, upliftment in technology and all that. So, we are more focused now on who is better than who, than the actual thing that we are here for.”
[P2:S1]

This suggests that some teachers are not willing to be transparent about their struggles which could lead to failed collaborative attempts. Nonetheless, the majority of teachers believe that this could work perfectly.

DISCUSSION

This study investigated the challenges experienced by intermediate phase SS teachers with ICT integration and the possible solutions to mitigate these challenges. SS teachers were found to face a number of challenges with ICT integration. The first challenge was the issue of internet access due to a slow network or no data. This is a major hindrance considering that many of the technological platforms and programs teachers may need to use such as Google, rely on internet access and without it, almost nothing can be done. A similar case in SS has been reported by Atubi (2022) in that teachers used educational websites, but due to poor internet, they were not able to do this on some days. In addition to internet issues, ICT related skills are required for teachers to effectively integrate ICT into their classrooms, and the findings revealed that SS teachers believed they still needed to be supported in this regard. Previous research confirms that African countries are faced with challenges such as lack of trained and certified teachers who can effectively integrate technology into their classrooms (Chimbunde & Moreeng, 2023). Similarly, learners in this study were reported to have problems of lack of ICT skills in addition to inaccessibility to technological tools, and Khan (2023) also found this and shares that this slowed teachers down. A concerning discovery was made when the one and only recently graduated participant also shared their lack of technological skill, raising an eyebrow on the current state of teacher education programmes in preparing preservice teachers for a more digitalised teaching and learning environment.

Additionally, this study found that teachers struggled with malfunctioning or broken tools such as slow laptops. This inadequacy of resources has been widely reported as one of the most problematic hindrances in this process (Mogwe & Balotlegi, 2020; Atambeogo, 2020). Also, Msafiri et al. (2023) found similar cases and suggested that even though ICT tools are available, they can be inaccessible, insecure or unreliable. Lastly, another key finding to emerge was that teachers found ICT to be complex in that there were too many programs and a lot of information to keep up with which easily lead to a feeling of overwhelm.

Therefore, in line with these issues, teachers emphasised a need for professional development, parental involvement, collaboration and resource provision by ensuring financial aid as Munje & Jita (2020) indicate that this was a major contributing factor towards inadequacy of resources in schools. These proposed solutions have been widely suggested in previous studies. For example, the need to address resource issues and availability of professional development are repeatedly reported in literature as shared concerns (Msafiri et al., 2023; Algasab et al., 2020; Alharbi, 2021; Atambeogo, 2020; Jacob & Dahir 2021; Mongwe & Balotlegi, 2020). Parental involvement is also encouraged in the study by Algasab et al. (2020) who propose that parents needed to be assisted in developing positive perspectives of technology integration since their resistance to allow learners to use technology outside the classroom had negative impacts on the integration. Lastly, collaborative strategies have been reported significant by Khasawneh et al. (2023) who believe that collaboration among teachers was essential for teachers' professional development and towards attainment of learning outcomes.

Therefore, the highlighted challenges suggest that the possibility of continued use is negatively affected. This is because the DOI theory (2003) posits that the perceptions of participants in terms of difficulty/ease of use of a new idea influence the decision to continue use or not. The findings indicate that the SS teachers are experiencing a sense of difficulty with the integration of technology because of the problems associated to it. On the other hand, the solutions they have proposed indicate that they are aware of its benefits which has a positive influence on their decision to continue with the adoption as Rogers' (2003) observability suggests that if results are clear to the adopter, continued use is more likely. Thus, for SS teachers to continue with the integration of technology, the above challenges need to be addressed in accordance with the solutions brought forth. This means that failure to successfully eliminate the challenges teachers are faced with could lead to teachers eventually succumbing back to traditional teaching and learning practices.

Limitations

As meaningful as the results have proven to be, some limitations are critical to note. There was inconsistent ICT access because of broken technological tools for one of the teachers, and varied use among participants as another one of them did not utilise ICT during their observed lesson. This limited the ability of the researcher to actively observe challenges related to teaching with technology. Also important to note, the study was limited to one phase, the intermediate phase which may result in the inability to apply these findings to the senior phase SS. Thus, it can be suggested that future research should explore SS in the senior phase.

CONCLUSION AND RECOMMENDATIONS

The aim of this study was to investigate the challenges intermediate phase SS teachers face with the integration of technology, as well as possible solutions to assist in mitigating these challenges. The challenges reported include issues with access to internet, inadequate technological skills and malfunctioning tools. The solutions proposed were focused on teachers' professional development of ICT skills, resource provision, collaboration between teachers, and parental involvement to support learners. The grounding framework suggests that for continued use, challenges need to be addressed, otherwise witness an unpleasant trend of a decline in technology use in SS intermediate phase classrooms which would ultimately lead to an outdated education system. Unfortunately, a country like South Africa, still developing, cannot afford to have an education system that is not relevant to the rest of the world and the digital age, hence priority should be focused towards gradually transforming it and effectively addressing any challenges hindering progress.

The study, therefore, further recommends that:

- Teacher professional development is prioritised
- Consistent resource provision and maintenance is ensured
- Quality IT specialists are availed to schools
- Teacher training at university level should be continuously adapted to meet the demands of the digital world
- Development of policies inline with the everchanging technological advances is important

Funding

The National Research Foundation (NRF) funded this study as a means of a master's scholarship for the main author.

Declarations

No known competing interests are declared by the authors that have influenced the outcomes of the paper.

Acknowledgements

Gratitude is extended to the supervisors for their unwavering support throughout the journey. A special thanks also goes to the participants of this study for their contributions.

References

- Adu, E.O. and Zondo, S.S. (2023). Perceptions of educators on ICT integration into the teaching and learning of economics. *EUREKA: Social and Humanities*, (1), pp.61-71.
- Alghasab, M.B., Alfadley, A. and Aladwani, A.M. (2020). Factors Affecting Technology Integration in EFL Classrooms: The Case of Kuwaiti Government Primary Schools. *Journal of Education and Learning*, 9(4), pp.10-27.
- Alharbi, A. (2021). A review of the internal and external factors affecting teachers' ICT use in Classroom. *International Journal of Education and Research*, 9(12), pp.105-116.
- ATAMBEOGO, P.A. (2020). CHALLENGES OF INTEGRATING ICT IN TEACHING AND LEARNING IN THREE SELECTED SENIOR HIGH SCHOOLS IN PRANG DISTRICT, BONO EAST REGION, GHANA.
- Atubi, O.F. (2022). Information communication technology and social studies instruction in Delta State, Nigeria. *Jurnal Penelitian dan Pengkajian Ilmu Pendidikan: e-Saintika*, 6(1), pp.1-10.
- Braun, V. and Clarke, V. (2012). *Thematic analysis*. American Psychological Association.
- Chisango, G., Marongwe, N., Mtsi, N. and Matyedi, T.E. (2020). Teachers' perceptions of adopting information and communication technologies in teaching and learning at rural secondary schools in eastern cape, South Africa. *Africa Education Review*, 17(2), pp.1-19.
- Jacob, O.N. and Dahir, N. (2021). Challenges preventing public primary school students from using information communication technology for learning in Nigeria and the way forward. *Electronic Research Journal of Social Sciences and Humanities*, 3, pp.45-52.
- Khan, Y. (2023). ICT integration in four schools situated in poor socio-economic contexts in the Western Cape (Doctoral dissertation, Stellenbosch: Stellenbosch University).
- Khasawneh, Y.J.A., Alsarayreh, R., Al Ajlouni, A.A., Eyadat, H.M., Ayasrah, M.N. and Khasawneh, M.A.S. (2023). An Examination of Teacher Collaboration in Professional Learning Communities and Collaborative Teaching Practices. *Journal of Education and e-Learning Research*, 10(3), pp.446-452.

- Kimanzi, M.K. (2021). Integration of ICT in teaching and learning of economics and management sciences: student teachers 'perspectives in South Africa. In social sciences international research conference (pp. 592-604). Potchefstroom, South Africa: North West University.
- Mathevula, M.D. and Uwizeyimana, D.E. (2014). The challenges facing the integration of ICT in teaching and learning activities in South African rural secondary schools. *Mediterranean Journal of Social Sciences*, 5(20), pp.1087-1097.
- Mnisi, B.R., Mtshali, T.I. and Moses, M. (2024). Moving beyond the challenges of learning through technologies: The current status of ICT integration in South African schools. *Journal of Education and e-Learning Research*, 11(1), pp.128-134.
- Mogwe, A.W. and Balotlegi, P.A. (2020). Barriers of information of Botswana.
- Molotsi, A.R. (2022). The use of ICT resources to transform teaching at secondary schools in the Bojanala district, Northwest province. *South African Journal of Education*, 42(1).
- Msafiri, M.M., Kangwa, D. and Cai, L. (2023). A systematic literature review of ICT integration in secondary education: what works, what does not, and what next?. *Discover Education*, 2(1), pp.44.
- Munje, P.N. and Jita, T. (2020). The impact of the lack of ICT resources on teaching and learning in selected South African primary schools. *International Journal of Learning, Teaching and Educational Research*, 19(7), pp.263-279.
- Nii Akai Nettey, J., Osei Mensah, R., Asafo-Adjei, R. and Adiza Babah, P. (2024). Analyzing the challenges basic school teachers face in integrating Information and Communication Technology into teaching and learning activities in a developing country. *Cogent Education*, 11(1), pp.2364544.
- Nyakito, C., Amimo, C. and Allida, V.B. (2021). Challenges of integrating information and communication technology in teaching among National Teachers' Colleges in Uganda. *East African Journal of Education and Social Sciences*, 2(3), pp.157-171.
- Okoye, A.C. and Ezeaku, S.N. (2025). Digitalization in Teaching and Learning and The Challenges Hampering Its Smooth Flow. *African Journal of Educational Management, Teaching and Entrepreneurship Studies*, 14(1).

- Pandey, P. and Pandey, M.M. (2021). *Research methodology tools and techniques*. Bridge Center.
- Rogers, E.M. (1962). *Diffusion of innovations* (3rd ed.). New York, NY: Free Press
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York, NY: Free Press
- Skhephe, M. and Caga, N.P. (2019). Chronicling factors affecting technology integration in accounting classrooms: A case of secondary schools in the Eastern Cape. *Journal of Human Ecology*, 68(1-3), pp.213-221.
- Timotheou, S., Miliou, O., Dimitriadis, Y., Sobrino, S.V., Giannoutsou, N., Cachia, R., Monés, A.M. and Ioannou, A. (2023). Impacts of digital technologies on education and factors influencing schools' digital capacity and transformation: A literature review. *Education and information technologies*, 28(6), pp.6695-6726.

CHAPTER SIX

BRIDGING THE ARTICLES

6.1. INTRODUCTION

This section, which is the final chapter, provides a summary of the research articles and proceeds to outline the recommendations based on the findings. Thereafter, it details the implications of the findings as well as the limitations. Finally, a conclusion is provided. The aim of this study was to explore the integration ICT in the teaching and learning of SS in IP and four research objectives were invaluable in realizing this aim. Data was generated in a form of interviews and observations of six SS IP teachers from three schools in the Motheo District, Bloemfontein. The study was guided by the Diffusion of Innovations theory which is popular in contexts of tracking the adoption of novel ideas.

6.2. ARTICLE SUMMARY

6.2.1. Article 1

This article was a systematic literature review aimed at revealing the progression and level of ICT integration in the SS subject teaching and learning responding to the first objective of this undertaking. Its objectives were to identify the attitudes and perceptions of the SS teachers, the extent of integration and to report on the challenges they experience with the process. The article investigated and reported on almost all of the research questions of this entire project, with only the possible solutions left out. The search for data was not restricted to one country but was worldwide. Guided by the PRISMA guidelines, a total of three search engines were explored: Google Scholar, EBSCOhost, and Sabinet, from which a total of 66 records were extracted, but only 25 were relevant and analysed. A majority of the studies were published between the years 2018 and 2019 using qualitative and quantitative methods equally. Most of the publications were located in Ghana with prominent authors including Smadi and Ghanney. The review's findings revealed that at most, SS teachers had positive attitudes and perceptions towards the integration ICT in their

teaching and learning practices. However, it was found that teachers were not actually integrating at a satisfactory level, due to the challenges that were thereafter, identified. The most important discovery from the analysis was the lack of empirical studies from within South Africa, as the only two closely related studies focused only on the geography aspect of the subject and left out the history part. This study proved invaluable for pointing out areas for future research as it revealed gaps in existing literature and gave clarity on the current state of knowledge in the area of ICT integration justifying the need for more research.

6.2.2. Article 2

This second article was set on determining the perspectives of SS IP teachers on the integration of ICT in teaching and learning which was the second objective of this study. Through semi-structured interviews and observations, it was uncovered that teachers had positive outlooks on this implementation. The key findings were that teachers were positive about ICT integration and found it to be useful and essential for enhancing pedagogical practices. The teachers agreed that it was a communication tool that saved time and promoted visualised learning. In addition, they acknowledged that it accommodates different learning styles and simplifies teaching and learning practices. Lastly, the study showed that their tech-savviness was accompanied by confidence but with an admission that there was room for improvement. They also pointed out that it saves them time that could have otherwise been wasted with traditional teaching and learning methods. Additionally, it accommodates different learning styles and is user friendly. The article concludes by suggesting that priority be given to funding this initiative, exposing teachers to recent technologies and SMT's encouraging the exploitation of technology in SS practices. While the previous article set the stage by broadly focusing on ICT integration in SS, this article built on the contributions of the previous one by adding onto specifically, the perspectives of SS teachers on ICT integration but with a focus on the context of a South African intermediate phase SS classroom.

6.2.3. Article 3

This third article addressed the third objective of this project on the discussion of ways in which SS teachers are integrating technology in their pedagogies. The key findings highlight that most teachers use ICT for lesson preparation which involves typing of lesson plans, creating PowerPoint slides and visuals such as videos and pictures to show to learners, as well as research relevant content in preparation for these lessons. They also used ICT to present their lessons such displaying the slides, videos and pictures. In addition, it is used for homework, research and other assignments. For instance, WhatsApp allows teachers to send work to be done, and search engines such as Google enable learners to conduct research and do assignments. Lastly, assessment is another way in which technology was utilised in a SS classroom by means of content displays and research and typing of question papers and rubrics. This article concludes by suggesting that all those involved must take initiative, including the government, teachers, parents and policymakers towards a more technology infused SS classroom and curriculum. This article connects to the second one in that it clearly highlights the actual practices that teachers have shared to be positive about. Additionally, it builds on the findings of the first article but in the context of South African SS classrooms.

6.2.4. Article 4

The fourth and fifth objectives of this research project were addressed by this fourth article which investigated the challenges experienced by IP SS teachers with the incorporation of ICT as well as proposed the possible solutions that could assist in mitigating or eliminating these challenges. Numerous challenges could be identified and were addressed under four key themes. Firstly, there were issues of internet access. Secondly, inadequate technological skills were also an issue that teachers addressed as a prominent concern. Thirdly, it became clear that teachers experience lack of technological support. Fourthly, the malfunctioning or broken tools posed serious challenges for integration. The solutions were fortunately proposed and were grouped under four key themes. One of them was the need for professional development of teachers. Also, it was suggested that there must be adequate resource

provision for schools. Furthermore, the significance of collaborative strategies between the teachers is crucial, as well as the key role to be played by parents as well in their involvement. In addition to the possible solutions brought forth, the article also suggests that teacher training at universities is adapted to meet the demands of the digital age. Additionally, the need for development of policies that keep up with the recent tech trends and advancements is shown to be of importance. This article connects to the third article in that it highlights the underlying issues of the integration practices reported. Moreover, it explains some of the perspectives reported in article 2 such as the justifications on the ratings of teachers' levels of tech-savviness, while it adds to the first article by introducing possible solutions that are relevant in context.

6.3. ANSWERING THE RESEARCH QUESTIONS/OBJECTIVES

6.3.1. To identify and report on the research that has been conducted on ICT integration in SS

To respond to this research objective, the research question '*What research has been done on the integration of ICT in SS?*' was formulated and the first article responded to this in the form of a systematic literature review following the PRISMA guidelines. The findings revealed that even though teachers were positive about the integration of ICT, their integration levels were low, and these were possibly informed by the reported challenges. This review was significant in highlighting the scant availability of ICT integration in recent research around SS in South Africa. It thus successfully laid a foundation and paved way for future research.

6.3.2. To determine the IP SS teachers' perspectives of ICT integration

To respond to this research objective, the research question '*What are the perspectives of SS IP teachers on ICT integration?*' was in place and article two answered this question. It is essential to understand the perspectives of teachers with ICT integration because that is what drives the whole process, and if they have negative perspectives the process will not proceed as anticipated as it would if

teachers possessed positive perspectives. From the findings of this study, it was clear that the teachers were confident and positive about the incorporation of technology as they associated it with enhanced teaching and learning practices.

6.3.3. To discuss the ways in which IP SS teachers are integrating ICT in the teaching and learning of SS

In addressing this research objective, the question '*How are SS IP teachers integrating ICT in their teaching and learning practices?*' was set and article three answered the question. The manner and level in which integration is taking place in class provides a clearer idea of the progress being made with this process. From the findings, teachers showed themselves to be integrating technology in various ways other than just for lesson presentations and yet, still acknowledged that there was more they could be doing, such as exploration of other programs in existence.

6.3.4. To investigate the challenges that IP teachers experience when integrating ICT in the teaching of SS

The research question '*What are the challenges experienced by SS IP teachers in integrating ICT?*' was formulated to answer this objective and article four responded to this. It is important that challenges experienced are highlighted in order for the necessary interventions to be extended. It was found that there were still several challenges that interfered with the smooth integration of ICT in SS classrooms. These challenges threaten the future of a technologically advanced SS learning environment.

6.3.5. To explore strategies that can be used to enhance the integration in the teaching and learning of IP SS

The research question '*What are the possible solutions to mitigate the challenges in ICT integration?*' was set to respond to this research objective and article four also answered this. Identification of possible solutions allows for the relevant stakeholders

to have an idea of how they can be of aid – they are basically met halfway. The study found that teachers recognised that there were multiple possible solutions that could help them with smooth and effective integration. This includes not just the government but even themselves as teachers, as the importance of parents in playing their part towards successful ICT integration.

6.4. REALISING THE RESEARCH AIM/QUESTION

The main research question of this undertaking was *‘How is the integration of ICT executed in SS IP?’* and to realise this question, the aim was *‘To investigate the integration of ICT in the teaching and learning of SS in IP’*. The study deployed an interrelated article approach from which a total of four research articles were produced based on the research objectives and sub-questions.

Article one (see chapter two) answered the first sub-question and showed that there is some research from recent years worldwide focusing on SS ICT integration although it was sparse. Most research was conducted in the African country of Ghana and mostly published in the years 2018 and 2019 with the most prominent theoretical framings of TAM and DOI. It was found that teachers had positive outlooks yet showed relatively low levels of ICT integration with problems stemming from inadequate internet access, lack of ICT facilities, lack of professional development, time constraints, financial constraints, and lack of technological support. As insightful as these findings were, they still did not provide clarity on what has been happening in South African SS classrooms.

Article two (see chapter three) answered the second sub-question of this study. The perspectives of SS teachers were mostly positive and indicated that teachers recognised the positive transformations brought about by ICT for themselves and for the learners. The responses were homogenous, not one participant was against or negative towards ICT integration. This symbolises the great impact of technology for education. The guiding theory showed that there was high relative advantage suggesting that ICT was perceived to be advantageous based on their experiences with it and there was high compatibility highlighting that ICT aligned with the teachers’ and learners’ current needs and values.

Article three (see chapter four) answered the third sub-question and highlighted the various ways in which teachers are integrating ICT in SS. Almost all of the teachers were found to be integrating ICT in their lesson, except for two. One of them had broken ICT tools and the other simply did not integrate even though there were ICT tool available. However, the latter participant's responses to the interviews did suggest that they integrated ICT at some point. According to the guiding theory, trialability was actively taking place and continued implementation was highly possible for these teachers.

Article four (see chapter five) responded to the fourth and fifth sub-research questions on challenges and possible solutions. It was unfortunate to find that SS teachers still encountered some challenges with ICT integration mostly centred on support. Nonetheless, teachers were still optimistic about the role of ICT and proposed a number of solutions that could assist them seamlessly integrate technology in their practices. According to DOI, there was an element of complexity experienced by teachers adopting technology which could be a threat to official and continued integration. However, given that teachers were still positive even with the challenges, the consequences may not be dire for the future of technology in SS given that the proposed solutions are indeed managed accordingly.

Overall, it was found that ICT integration in SS IP is achieved in various ways. The positive perspectives of teachers proved significant for the transition from traditional teaching methods to technology-infused practices. Teachers prepared for their lessons and presented the same lessons using ICT. They also leveraged ICT for homework, research, assignment and assessment purposes. Based on the guiding theory, the future of ICT in the IP SS classroom is looking bright as findings indicate that these teachers are most likely to officially integrate and continue with the adoption of technology for teaching and learning.

6.5. RECOMMENDATIONS

This research project offers a variety of recommendations focused on teachers, parents, the government and policymakers. Firstly, as the vanguard practitioners of the integration of technology, teachers ought to actualise their professional roles and

responsibilities towards optimal technology infusion. This calls for them to attend professional development opportunities availed to them frequently. Additionally, they must prioritise supporting one another in times of challenges such as borrowing and information sharing. Moreover, they must actively assume their responsibility of exploring recent technologies to keep up with the times. Secondly, government entities and policymakers are the principal stakeholders that drive the process of ICT integration, which requires them to proactively take charge of their role in support of the teachers. This requires them to ensure that they keep up with reports on what is happening at schools and which areas still need support. It may require that financial support towards this initiative is continuously provided and increased where necessary, and that programmes to support teachers are provided for. Thirdly, this study also recognises parents as key role players towards the success of a technologically infused SS curriculum. For one, they can ensure that the learners have access to technological devices by either borrowing them or purchasing them. They can also ensure to help the learners with ICT related homework such as having to do research on Google and ensuring responsible use of the internet.

6.6. IMPLICATION OF FINDINGS

The findings of this study provide implications for policymakers, teachers, schools and the rest of the department of education that are paramount to the development of ICT in the SS classroom. Because the study provides valuable insights into the experiences of teachers with this phenomenon, informing those concerned of the status of ICT integration, it thus provides a point of reference for policymakers towards informed decision-making is enabled, such as in the case of budget allocation. It further encourages teachers and schools to maximally utilise technology to advance their teaching and learning practices as the study reveals the benefits of a technology infused curriculum. Equally important, is that the study's findings meet the department of education halfway by providing possible solutions to mitigate existing challenges. This means it leaves the rest of the job of adopting and implementing these solutions to them.

6.7. LIMITATIONS

The study does, however, have a few limitations. Firstly, the sample size of the study is relatively small thus limiting the generalisation of the findings to other phases such as the senior phase, and also to the rest of the province or even country. Secondly, the set minimum years of teaching experience of participants was three years, but in one of the schools, not both of the two IP SS teachers had three full years. The other one had only two and a half years. Lastly, one of the participants had a broken overhead projector which limited evidence to be observed when it came to ICT usage.

6.8. IMPLICATION FOR FUTURE RESEARCH

Based on the findings and limitations of this study, directions for future research can be suggested. For much more meaningful and rich data, future research could expand the sample size by involving learners and parents, exploring all phases and research could take place in more than one district, and possibly the quantitative methods could provide further insights. Also, future research could probe into the professional development of preservice teachers in higher education institutions to ensure that they are ready for an ICT infused curriculum; rather than being generic, it should be SS focused. Additionally, it would be significant to figure out if there is any influence between willingness to integrate ICT and the seniority status of a teachers.

6.9. REFLECTION

Embarking on this research journey was not always easy but it was meaningful with various lessons such as those concerned with the main concept of ICT integration. It is easy to underestimate the integration of ICT as merely using your computer and overhead projector to teach and I also initially had these perceptions. However, this study showed me that there is a whole lot more that goes into it and there are various factors at play. Factors such as teacher training and resource availability direct the progress of the process. I also got to understand where exactly South Africa is when it comes to technology in education in relation to other countries, especially how

sidelined SS has been over the years. Overall, the study was invaluable in showing me the impact of technology in SS education.

Other lessons were aligned with the grounding theory, the Diffusion of Innovations (DOI). The motivation for choosing this theory specifically was based on its prominence in previous studies of this nature and I found it to align well with this study's aim. At first, it was difficult to align it with the research objectives but after prolonged engagement with it I eventually understood how especially the factors affecting adoption aligned to my research objectives and initial aim. This theory taught me how novel ideas disseminate generally and I got to understand areas to focus on when one introduces a new idea to society.

Also important to note are research design, data collection and analysis skills that were enhanced. Firstly, delving deeper into the qualitative methods prior to actually collecting data enhanced my understanding of all elements involved which prepared me for the field. Initially, when it came to data collection, I experienced a challenge of not receiving feedback from some of the schools I had requested to participate in this study, and some not reaching out during the time period that would have fit into my initial plans. However, when the process began, it was enjoyable and insightful where I got to understand the complexities associated with ICT integration. Thereafter, I had to navigate my way on thematic analysis, which proved difficult, but once I got the hang of it with the assistance of my supervisors and with research, I got it right. These lessons contribute immensely to my ability to conduct qualitative research in future.

The article writing option was another one extremely important lesson from this undertaking. This study did not follow the traditional style, but it utilised the article option and it was an intimidating idea at first looking at the standard of published articles that I had engaged with prior and the number of articles I would also need to produce. However, it eventually grew on me especially when I started writing the systematic literature review and my supervisors were impressed at first glance. This served as motivation that I am capable of producing publishable articles. Moreover, my writing skills improved significantly as I committed myself to learning more about writing academically pleasing texts. This option taught me the importance of writing precisely, clearly and coherently. Having had an opportunity to present my systematic literature review article in the South African Society for History Teachers, it was both

interesting and encouraging to receive feedback from the audience that appreciated the study focus as they acknowledge how the SS typically does not receive much attention compared to other subjects in the country. All these experiences and lessons fuel my confidence on my capability to continue to contribute to academic discourse in my field.

6.10. CONCLUSION

The main aim of this research project centred on investigating the integration of ICT in the teaching and learning of Social Sciences in the intermediate phase by conducting qualitative research methods. The five factors that influence adoption by Rogers' Diffusion of Innovation theory proved profound as a lens for the findings. Relative advantage was evident in the teachers' recognition of digital technologies' potential to visualise historical and geographical concepts and save time, while compatibility was shown in cases where varied learning styles were present. On the other hand, complexity emerged as a primary barrier due to the reported challenges such as broken tools, lack of support and internet issues. Trialability was evident but limited as teachers were integrating but at low and varied levels, while observability emerged from teachers' ability actively propose solutions to enhance the integration process. It can thus, be concluded that all factors need to be addressed, specifically complexity by mitigating said challenges.

Data generated from semi-structured interviews and observations portrays a clearer visual of where South Africa is when it comes to ICT integration, specifically in the Social Sciences subject that has previously been neglected in related studies. It empirically demonstrates positive and favourable outlooks by teachers even with the existing challenges they continue to experience. Teachers are determined to find and implement solutions which can be seen in a positive light for the future of ICT infusion into the subject. It also highlights that the solutions are not only directed at the government but also at teachers themselves, parents and SMTs of schools. These collaborative strategies are significant for a more digital-age relevant Social Sciences classrooms, which eventually may contribute to an improved education system that produces learners that can relate to the rest of the world, ultimately contributing to an improved economic position of the country.

The study contains significant theoretical contributions. It offers a contextual extension to the theory given that it focuses on an under-researched context of Intermediate Phase Social Sciences in South Africa. Moreover, it provides an extension to the conceptualisation of complexity which was initially associated with the ease-of-use. In this study, the factor is exposed as a dual-layer where ease-of-use that is associated with the skills and knowledge of technology is coupled with technical complexity, highlighting that addressing only one of these layers does not erase the existence of the other. For example, teachers may be sufficiently skilled and knowledgeable at operating digital tools, but if technical problems such as broken tools and lack of resources are present, complexity persists.

REFERENCES

- Adu, E.O., and Zondo, S.S. (2023). Perceptions of educators on ICT integration into the teaching and learning of economics. *EUREKA: Social and Humanities*, (1), pp.61-71.
- Ahmed, S. K. (2024). The pillars of trustworthiness in qualitative research. *Journal of Medicine, Surgery, and Public Health*, 2, Article 100051. <https://doi.org/10.1016/j.glmedi.2024.100051>
- Alkahtani, A. (2017). The challenges facing the integration of ICT in teaching in Saudi secondary schools. *International Journal of Education and Development using ICT*, 13(1).
- Almithqal, E. A., and John, T. (2024). Exploring Barriers and Facilitators of ICT in English Pronunciation Instruction: Perspectives from Jordanian Tertiary Education. *Pedagogical Research*, 9(4).
- Alvi, M. (2016). *A manual for selecting sampling techniques in research*. MPRA Paper No. 70218. Available at: <https://mpra.ub.uni-muenchen.de/70218/> (accessed 30 March 2023).
- Bhattacharjee, A. (2012). Social science research: Principles, methods, and practices. Textbooks Collection, Book 3.
- Bhattarai, L.N. (2019). ICT Integrated Pedagogy in a Multicultural Classroom: Experiences of Mathematics Teacher. *Interdisciplinary Research in Education*, 4(1), pp.9-18.
- Botha, N., and Atkins, K. (2005). An assessment of five different theoretical frameworks to study the uptake of innovations.
- Chen, B. (2015). Exploring the digital divide: The use of digital technologies in Ontario public schools. *Canadian Journal of Learning and Teaching*, 41(3), 1–22.
- Coe, R., Waring, M., Hedges, L. V., and Day Ashley, L. (Eds.). (2021). *Research methods and methodologies in education* (3rd ed.). London: SAGE Publications.
- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). London: SAGE Publications.

Creswell, J. W., and Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Los Angeles: SAGE Publications

Dearing, J. W., and Cox, J. G. (2018). Diffusion of innovations theory, principles, and practice. *Health affairs*, 37(2), pp.183-190.

Department of Basic Education. (2012). *Social sciences CAPS curriculum and assessment policy Statement for social sciences*: Government printers, Pretoria

De Sousa, L., Richter, B. and Nel, C. (2017). The effect of multimedia use on the teaching and learning of Social Sciences at tertiary level: A case study. *Yesterday and Today*, (17), pp.1-22.

Downs, G. W., and Mohr, L. B. (1976). Conceptual issues in the study of innovation. *Administrative Science Quarterly*, 21, pp.700–714.

Dube, B.A., Nhamo, E. and Magonde, S. (2018). Factors affecting ICT integration in the teaching and learning of physical education in South Africa: A case of Johannesburg East cluster primary schools in the Gauteng Province. *International Journal of Sport, Exercise and Health Research*, 2(1), pp.88-92.

Dynneson, T. L., and Gross, R. E. (1999). *Designing effective instruction for secondary social studies* (2nd ed.). Upper Saddle River, NJ: Prentice Hall/Merrill Prentice Hall.

García-Avilés, J.A. (2020). Diffusion of innovation. *The international Encyclopedia of media psychology*, pp.1-8

Gonfa, M. H., Birhanu, A. L., & Gendo, K. M. (2024). Review on practice and challenges of ICT integration as pedagogical tools in Ethiopian primary school curriculum implementation. *Discover Education*, 3(1), 88.

Graham, M.A., Stols, G. and Kapp, R. (2020). Teacher Practice and Integration of ICT: Why Are or Aren't South African Teachers Using ICTs in Their Classrooms. *International Journal of Instruction*, 13(2), pp.749-766.

Gray, D. E. (2004). *Doing research in the real world*. London: SAGE Publications.

Guba, E. G., and Lincoln, Y. S. (1989). *Fourth generation evaluation*. Newbury Park, CA: SAGE Publications.

- Haleem, A., Javaid, M., Qadri, M.A. and Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, 3, pp.275-285.
- Hancock, D. R., and Algozzine, B. (2016). *Doing case study research: A practical guide for beginning researchers*. New York, NY: Teachers College Press.
- Henderson, D. (2020). Benefits of ICT in Education. *IDOSR Journal of Arts and Management*, 5(1), pp.51-57.
- Jackson, E. M. (1996). Teaching. *Journal of Toxicology: Cutaneous and Ocular Toxicology*, 15(1), 83-84.
- Jita, T. and Munje, P.N. (2020). Teaching science through information and communication technologies: 'enablers' and 'constraints'. *The Independent Journal of Teaching and Learning*, 15(2), pp.107-120.
- Kawulich, B. B. (2012). *Doing social research: A global context*. McGraw-Hill Higher Education.
- Khan, Y. (2023). *ICT integration in four schools situated in poor socio-economic contexts in the Western Cape* (Doctoral dissertation, Stellenbosch: Stellenbosch University).
- Khan, S., Ullah, S., and Nobanee, H. (2024). ICT diffusion, E-governance, and sustainability in the digital era. *Sustainable Futures*, 8, 100272.
- Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development* (2nd ed.). Upper Saddle River, NJ: Pearson/FT Press
- Kwayi, A.M. (2022). *Challenges experienced by grade 6 Social Sciences teachers when teaching map skills* (Doctoral dissertation, Johannesburg: University of Johannesburg).
- Liamputtong, P. (2019). Qualitative inquiry. In P. Liamputtong (Ed.), *Handbook of research methods in health social sciences* (pp. 9-25). Singapore: Springer.
- Lincoln, Y. S., and Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: SAGE Publications

Lloyd, M. (2006). Towards a definition of the integration of ICT in the classroom. *AARE'05 Education Research Creative Dissent: Constructive*, pp.1-18.

Machmud, M. T., Widiyan, A. P., and Ramadhani, N. R. (2021). The Development and Policies of ICT Supporting Educational Technology in Singapore, Thailand, Indonesia, and Myanmar. *International Journal of Evaluation and Research in Education*, 10(1), pp.78-85.

Maluleke, M.J. (2024). English first additional language teachers' attitudes on using e-learning in rural schools in the Vhembe East district in the Limpopo province. *South African Journal of Education*, 44(1), pp.1-9.

Manzi, W.I. and Moreeng, B. (2024). Economics Teachers' Integration of ICT for Enhanced Economics Curriculum Implementation. *Journal of Curriculum Studies Research*, 6(1), pp.22-43.

McCready, W. (2006), "Applying sampling procedures," In F. Leong, & J. Austin (Eds.), *The psychology research handbook: A guide for graduate students and research assistants*. (2nd ed., pp. 147-161), Thousand Oaks, CA: SAGE Publications, Inc., doi: 10.4135/9781412976626.n10

Merriam, S. B. (1998). *Qualitative research and case study applications in education* (Rev. and expanded ed.). San Francisco: Jossey-Bass.

Miao, F., Hinostroza, J. E., Lee, M., Isaacs, S., Orr, D., Senne, F., ... and Vergel de Dios, B. (2022). *Guidelines for ICT in education policies and masterplans*. UNESCO.

Mohamad, S.N.M., Sazali, N.S.S. and Salleh, M.A.M. (2018). Gamification approach in education to increase learning engagement. *International Journal of Humanities, Arts and Social Sciences*, 4(1), pp.22.

Mooketsi, B.E. and Chigona, W. (2014). Different shades of success: Educator perceptions of government strategy on E-Education in South Africa. *The Electronic Journal of Information Systems in Developing Countries*, 64(1), pp.1-15.

Motsoeneng, T.J., Manzi, W. and Moreeng, B., 2023. An Analysis Of Teachers' Perspectives on the Use of Google Classroom to Enhance Assessment for Learning in Accounting. *E-Journal of Humanities, Arts and Social Sciences (EHASS)*, 4(12) pp.43-54.

Munje, P.N. and Jita, T. (2020). The impact of the lack of ICT resources on teaching and learning in selected South African primary schools. *International Journal of Learning, Teaching and Educational Research*, 19(7), pp.263-279.

Mwapwele, S.D., Marais, M., Dlamini, S. and Van Biljon, J. (2019). Teachers' ICT adoption in South African rural schools: a study of technology readiness and implications for the South Africa connect broadband policy. *The African Journal of Information and Communication*, 24, pp.1-21.

Ngao, A.I. and Sang, G., 2024. How teachers enhance ICT integration practices within professional learning communities: a qualitative study in Tanzania. *Journal of Professional Capital and Community*, 9(4), pp.377-397.

Ojo, O.A. and Adu, E.O. (2018). The effectiveness of Information and Communication Technologies (ICTs) in teaching and learning in high schools in Eastern Cape Province. *South African Journal of Education*, 38(1).

Onyema, E.M. (2020). Integration of emerging technologies in teaching and learning process in Nigeria: the challenges. *Central Asian Journal of Mathematical Theory and Computer Sciences*, 1(11), pp.35-39.

Pehar, A. (2019). Interactive whiteboards. TTEM, p.69.

Pritchard, A. (2017). *Ways of learning: Learning theories for the classroom*. Routledge.

Rajagopalan, I. (2019). Concept of Teaching. *Shanlax international journal of Education*, 7(2), 5-8.

Rizk, J. and Davies, S. (2021). Can digital technology bridge the classroom engagement gap? Findings from a qualitative study of K-8 classrooms in 10 Ontario school boards. *Social Sciences*, 10(1), pp.12.

Rogers, C. (2002). The interpersonal relationship in the facilitation of learning. *Supporting lifelong learning*, 1, 25-39.

Rogers, E.M. (1962). *Diffusion of innovations* (3rd ed.). New York, NY: Free Press

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York, NY: Free Press

Salam, S., Zeng, J., Pathan, Z.H., Latif, Z. and Shaheen, A. (2018). Impediments to the Integration of ICT in Public Schools of Contemporary Societies: A Review of Literature. *Journal of Information Processing Systems*, 14(1).

Salem, N. and Mohammadzadeh, B. (2018). A study on the integration of ICT by EFL teachers in Libya. *EURASIA Journal of Mathematics, Science and Technology Education*, 14(7), pp.2787-2801.

Saxena, A. (2017). Issues and impediments faced by Canadian teachers while integrating ICT in pedagogical practice. *Turkish Online Journal of Educational Technology-TOJET*, 16(2), pp.58-70.

Shavelson, R. J. (1973). What is the basic teaching skill?. *Journal of teacher education*, 24(2), 144-151.

Shinghavi, C. and Basargekar, P. (2019). Barriers Perceived by Teachers for Use of Information and Communication Technology (ICT) in the Classroom in Maharashtra, India. *International Journal of Education and Development using Information and Communication Technology*, 15(2), pp.62-78.

Schmeck, R. R. (Ed.). (2013). *Learning strategies and learning styles*. Springer Science & Business Media.

Siyaya, M.C. (2023). The impact of information and communication technology (ICT) in teaching accounting in secondary schools: a case of iLembe district (Doctoral dissertation, University of Zululand).

Taole, M.J. (2024). ICT integration in a multigrade context: Exploring primary school teachers experiences. *Research in Social Sciences and Technology*, 9(1), pp.232-252.

Utaminingsih, E. S. (2023). Social Science Learning in Primary School Responding to The Challenges of 21st Century Education. *Edueksos Jurnal Pendidikan Sosial & Ekonomi*, 12(2).

Wani, T.A. and Ali, S.W. (2015). Innovation diffusion theory. *Journal of general management research*, 3(2), pp.101-118.

Wilson, V. (2014). Research methods: Triangulation. *Evidence Based Library and Information Practice*, 9(1), pp. 74–75. Available at: <https://doi.org/10.18438/B8WW3X>

Zou, Y., Kuek, F., Feng, W., & Cheng, X. (2025, March). Digital learning in the 21st century: trends, challenges, and innovations in technology integration. In *Frontiers in Education* (Vol. 10, pp. 1562391). Frontiers Media SA.

APPENDICES

Appendix 1

Proof of registration



Telephone: +2751 401 9111
 Enquiries: Student Academic Services
 Our reference: 2015054378
 E-mail: studentadmin@ufs.ac.za
 27 January 2025

PROOF OF REGISTRATION
IT IS HEREBY CERTIFIED THAT
NXUSA
Campus ID: 2015054378
National ID: 9807200445087

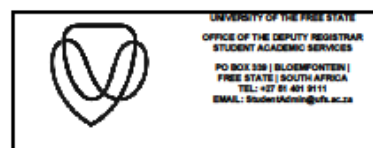
is a full-time registered student at the University of the Free State for 2025. The student is registered for the following qualification and modules:

BC780088-Master of Education with specialisation in Subject Education in Social Sciences					
Module	Class	Year : Session	Description	Campus : Location	Status
ECSA8900	4136	2025 : Year Full	Subject Education in Social Sciences Publishable Manuscripts/ Published Articles	Bloemfontein Campus : Bloemfontein	Enrolled

It is your responsibility as student to ensure that the information on this document is correct.

Last date for cancellation of modules:

- 31 March 2025: First Semester and Year Modules
- 15 August 2025: Second Semester Modules



MR A NAIDOO
 DEPUTY REGISTRAR: STUDENT ACADEMIC SERVICES

Appendix 2

Title registration



22 July 2024

APPLICATION FOR TITLE REGISTRATION

Applicant: Nxusa, NP

Student Number: 2015054378

Discipline: Master of Education with specialization in Subject Education in Social Sciences

Study Code: BC780088(EDCS8900)

Dear Ms Nxusa

Your registered title is as follows: ***"INVESTIGATING THE INTEGRATION OF ICT IN THE TEACHING AND LEARNING OF SOCIAL SCIENCES IN INTERMEDIATE PHASE"***

All of the best with your studies.

Yours sincerely,

Prof LC Jita
Chair: CTR committee

Ms CS Duvenhage
Secretary: CTR committee



Appendix 3

Ethics approval



GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)

Registration Number: REC-112922-058

15-Mar-2025

Dear Ms Noklunga Nxusa

Application Approved

Research Project Title:

Investigating the Integration of ICT in the teaching and learning of Social Sciences in Intermediate Phase

Ethical Clearance number:

UFS-HSD2024/2068

We are pleased to inform you that your application for ethical clearance has been approved. Your ethical clearance is valid for twelve (12) months from the date of issue. We request that any changes that may take place during the course of your study/research project be submitted via an Amendment on RIMS to the ethics office to ensure ethical transparency. Furthermore, you are requested to submit a Final Report on RIMS for your study/research project to the ethics office once the project has concluded. Should you require more time than the allotted 12 months to complete this research, please apply for an extension by submitting a Continuation/Report on RIMS. Thank you for submitting your proposal for ethical clearance. We wish you success with your research.

Yours sincerely,

Dr Tatenda Marange

Chairperson: General/Human Research Ethics Committee

206 Nelson P.O. Box 338
Mandela Drive Bloemfontein 9300
Park West Tel: +27 (0)51 401
Bloemfontein 93013513
South Africa MhlangaT3@ufs.ac.za
www.ufs.ac.za



Appendix 4

Free State Education Approval

Enquiries: M.Z. Thango
 Ref: Research Permission; N. P. Nxusa
 Tel. 061 404 8338
 Email: MZ.Thango@fseducation.gov.za



99 Basembos Avenue
 Pellissier
 Bloemfontein
 9301

Dear Ms. N. P. Nxusa

PERMISSION TO CONDUCT RESEARCH IN THE FREE STATE DEPARTMENT OF EDUCATION: MOTHEO DISTRICT

This letter serves to inform you that you have been granted permission to conduct research in the Free State Department of Education within the Mofheo district. The details in relation to your research project with the University of the Free State are as follows:

Topic: Investigating the integration of ICT in the teaching and learning of Social Sciences in Intermediate Phase.

1. **List of schools involved:** Brandwag Primary School, Fauna Primary School, Jim Fouche Primary School, Roseview Primary School and Wilgehof Primary School.
2. **Target Population:** Six teachers teaching Social Sciences in grade 4 to 6 at the selected schools.
3. **Period of research:** From the second week of February 2025 until 30 September 2025. Please note that the department does not allow any research to be conducted during the fourth term (quarter) of the academic year. Should you fall behind your schedule by three months to complete your research project in the approved period, you will need to apply for an extension. The researcher is expected to request permission from the school principals to conduct research at schools.
4. The approval is subject to the following conditions:
 - 4.1 The collection of data should not interfere with the normal tuition time or teaching process.
 - 4.2 A bound copy of the research document should be submitted to the Free State Department of Education, Room 101, 1st Floor, Thuto House, St. Andrew Street, Bloemfontein or can be e-mailed to the above-mentioned email address.
 - 4.3 You will be expected, on completion of your research study to make a presentation to the relevant stakeholders in the Department.
 - 4.4 The ethics documents must be adhered to in the discourse of your study in our department.
5. Please note that costs relating to all the conditions mentioned above are your own responsibility.

Yours Sincerely,

Mr. MZAMANE, JACOBS
 DIRECTOR: QUALITY ASSURANCE, M&E AND STRATEGIC PLANNING

DATE: 14/11/2024

Appendix 5

Language editing



28 November 2025

To whom it may concern,

Certification of language editing and proofreading

This letter hereby certifies the language editing and proofreading of the Master's Dissertation by Nokulunga Nxusa (student number: 2015054378). The Dissertation is entitled "**Investigating the Integration of ICT in the Teaching and Learning of Social Sciences in Intermediate Phase**". The constructs of academic discourse were adhered to during the editing process.

Yours Faithfully,

Linda Sparks

Language practitioner and editor
Lecturer/Researcher/Coordinator
BA Hons (English), MA (Gender Studies),
PhD Candidate (English)

Linda Sparks: Lecturer/Researcher and Coordinator
Academic Language and Literacy: Centre for Teaching and Learning
University of the Free State
Email: SparksLA@ufs.ac.za / Tel: 0514019312



Appendix 6

Turn-it in report

ICTDISSERTATION-NXUSA.docx			
ORIGINALITY REPORT			
10%	8%	9%	2%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS
PRIMARY SOURCES			
1	Nokulunga Phathiswa Nxusa, Boitumelo Benjamin Moreeng, Pfuurai Chimbunde. "A Systematic Review of ICT Integration in the Teaching and Learning of Social Sciences", <i>Acta Educationis Generalis</i> , 2025 Publication	1%	
2	hdl.handle.net Internet Source	<1%	
3	uir.unisa.ac.za Internet Source	<1%	
4	scholar.ufs.ac.za Internet Source	<1%	
5	Submitted to Midlands State University Student Paper	<1%	
6	library.up.ac.za Internet Source	<1%	
7	Fenni, Sajini. "An Exploration of the Integration of ICT in Life Sciences Lessons: A Case of Teachers in Merafong City", University of the Witwatersrand, Johannesburg (South Africa) Publication	<1%	
8	stax.strath.ac.uk Internet Source	<1%	
9	researchspace.ukzn.ac.za Internet Source	<1%	

Appendix 7

Data generation tools: Interview and observation schedules

Student : NP Nxusa

Student number: 2015054378

INTERVIEW SCHEDULE

Interview questions in accordance with the objectives of the study.

1. Research Q1: What are the IP SS teachers' understandings of ICT integration?

1. What do you understand by ICT? – what is ICT in Education?
2. What ICT (gadgets/systems/programmes) do you and your SS learners have access to?
3. What does integrating ICT in teaching SS entail?
4. Do you regard it as a life changing innovation?
5. What teaching and learning challenges do/did you experience? Do you think technology can improve/has improved these challenges?
6. Do you prefer strictly the traditional teaching style or the technology infused teaching methods? Why?

2. Research Q2: How are the IP SS teachers integrating ICT in the teaching and learning of SS?

1. How do you use the above mentioned ICT gadgets/systems/programmes for teaching?
2. How do you use ICT to prepare for your SS lessons?
3. How do you use it to present lessons?
4. In the SS classroom, how is ICT used for research, homework, and assignment?
5. Do you use for assessment – self assessment or peer assessment and other forms of assessment ? How?

3. Research Q3: What are the challenges experienced by IP teachers when integrating ICT in SS?

1. What challenges do you as a teacher experience with regards to preparation and presentation of lessons?
2. And challenges with regards to assessment?
3. What challenges do learners experience?
4. What challenges can you identify as most demotivating?
5. Does this make you propel yourself towards finding solutions or does it discourage your willingness to continue use?

4. Research Q4: What strategies can be used to enhance integration of ICT in the teaching and learning of IP SS?

1. What would you suggest the SMT could do to assist you with the challenges?
2. How do you think the department of Education/Government could assist in mitigating the challenges?
3. What can you and other teachers do to make the integration more manageable?
4. Is there any role learners and parents can also play in this regard?

OBSERVATION SCHEDULE

RQ 1

1. Are teachers positive with the use of ICT?
2. Are SS teachers finding it easy to use ICT in their classes?
3. Are their teaching methods improved by ICT?

RQ 2

1. To what extent is technology used in SS classrooms?
2. How assessments are conducted using technology in SS classrooms?
3. How learners respond to ICT?

RQ 3

1. Everyday challenges experienced by SS teachers with technology
2. How they manoeuvre the challenges?
3. What forms of intervention are present?

RQ 4

1. Opportunities for the teachers, SMT, and government to assist in mitigating challenges.
2. Possible roles by learners and parents to make the integration more manageable.