UNIVERSITY OF CAPE COAST

ACCEPTANCE AND THE USE OF TECHNOLOGY FOR TEACHING DURING COVID-19 PANDEMIC AMONG SENIOR HIGH SCHOOLS IN LARTEBIOKORSHIE, ACCRA

ELIZABETH YAWA AMUZU

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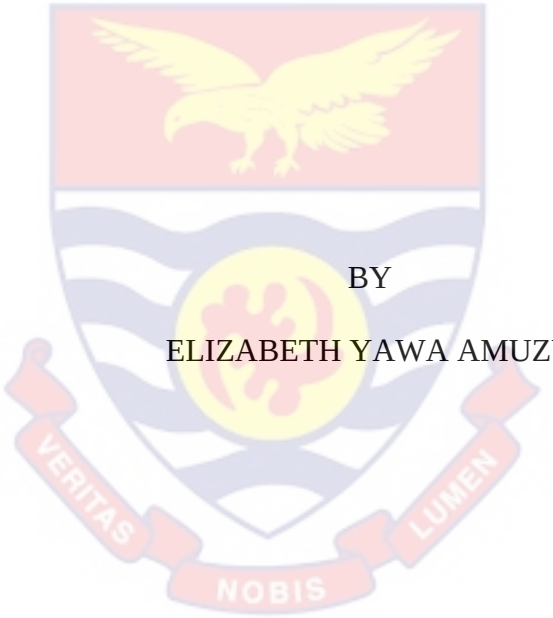

BY

ELIZABETH YAWA AMUZU

Project submitted to the Department of Math and Science, College of Distance Education, University of Cape Coast, in partial fulfilment of the requirements for the award of Master of Education in Information Technology

NOVEMBER 2023

DECLARATION

Candidate's Declaration

I hereby declare that this project work is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: ……..... Date: ……....……

Name: Elizabeth Yawa Amuzu

Supervisor's Declaration

I hereby declare that the preparation and presentation of this project work were supervised in accordance with the guidelines on supervision of the project laid down in the University of Cape Coast.

Supervisor's Signature: …… Date: ……..

Name: Prof. Paul Nyagorme

ABSTRACT

The main aim of the study was to assess Teachers' Acceptance and the use of Technology for teaching during the outbreak of the COVID-19 among Senior High schools in Lartebiokorshie, Accra. The descriptive survey methodology was used as the optimal research, the targeted population used in this study were teachers at the Senior High schools in Lartebiokorshie, Accra. The study found that teachers at Senior High schools in Lartebiokorshie accepted and were well-equipped with the necessary competencies to incorporate Technology in the classrooms. The teachers were able to use Technology regularly in their various classrooms during the outbreak of the COVID-19. The results also revealed challenges to the successful use of Technology in the Senior High schools in Lartebiokorshie. To support the inclusion of technology in the schools during the COVID-19, it was realized that most of the schools in Lartebiokorshie lack infrastructure and infrastructural support to integrate technology. The study therefore recommend that school administrations should allocate resources specifically for technology integration, budgeting for updating hardware, software licenses, and subscriptions, to educational platforms and ensuring consistent access to necessary tools. School administrations should organize training sessions, workshops, and courses tailored to enhance educators' digital skills and proficiency in using various technological tools. Again, school administrations should encourage a culture of collaboration among teachers to share best practices and innovative ways of using technology for instruction. They can again establish a support system or help desk for technical issues to aid teachers in smoothly incorporating technology into their teaching methods.

KEYWORDS

Acceptance

Use of Technology

COVID-19

Lartebiokorshie

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DEDICATION

To my entire family

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CHAPTER ONE

INTRODUCTION

Background to the Study

Education is a planned activity with certain goals, such as knowledge transmission or developing skills and moral character. According to Panchenko, Korzhov, Khomiak, Velychko, and Soloviev (2022), the social and political basis for curriculum intentions and, consequently, the nature of classroom curriculum decisions are not neutral. Education is a teaching, training, and learning process, especially in schools, colleges, or universities, to improve knowledge and develop skills (Sivan & Stebbins, 2016). These aims may include the development of understanding, rationality, kindness, and honesty. Various researchers emphasize the role of critical thinking in distinguishing education from indoctrination.

Taylor (2017) Some theorists require that education result in an improvement of the student's learning outcomes while others prefer a value-neutral definition of the term. In a slightly different sense, education may also refer, not to the process, but to the product of this process: the mental states and dispositions possessed by educated people (Cusimano & Goodwin, 2022). Education originated as the transmission of cultural heritage from one generation to the next. Today, educational goals increasingly encompass new ideas such as the liberation of learners, skills needed for modern society, empathy, and complex vocational skills (Christine & Ijeoma, 2022). The journey to intellectual greatness cannot be underestimated. Education is a major mechanism in the attainment of intellectual greatness. It is an essential part of human life.

Education brightens an individual's level of concentration and intellectual capabilities; it is a vital tool for greatness in the future. Besides, having self-confidence is always generated from education (Zapko, Ferranto, Blasiman & Shelestak, 2018). Education elevates people to a higher social rank both within their own culture and throughout the world. Education therefore becomes a social leveller, that brightens an individual's future. Everyone has a right to education as stated by Macur (2016). Human thoughts and experiences are better developed with education (Buttimer & Seamon, 2015). Education fosters critical thinking skills and helps students become part of an integrated society.

In recent times, primary education has faced significant challenges in achieving its intended importance, particularly in sub-Saharan Africa. Despite interventions like school feeding, free senior high school, and community-led reforms in Ghana, pupils still encounter numerous obstacles to receiving quality education. Those challenges have been exacerbated by the ongoing poverty in the country and the impacts of the COVID-19 pandemic.

Even if they can enter them, current classrooms are frequently inaccessible to children with impairments, and even if they can, the teachers are not equipped with the appropriate infrastructure to fulfill their needs. Education in emergencies, as in the case of the COVID-19 pandemic, generally relies on basic technological access. However, in such emergencies, poor communities are vulnerable, and access to technology for reasons other than basic survival and obtaining essential information is a luxury. Indeed, the number of South Africans newly unemployed (Manyane, 2020) due to COVID-19 has forced many to survive on food parcels from the government

and other agencies and has reduced access to education for learners from poor families.

Statement of the Problem

Technology is a major influence in education. Many teachers in Ghana are required to use technology to enhance teaching and learning (Buabeng-Andoh, 2012). Every school child is also required to have access to the necessary technological tools at school and possibly at home to aid learning. These expectations were very relevant, especially during the COVID-19 pandemic era. The use of technology in education has become indispensable with technologies such as interactive applications, computers, PowerPoint, projectors, and interactive whiteboards. Nessipbayeva, (2012) indicated that teachers educating learners in the 21st century are expected to be aware of the learning opportunities these technologies will provide.

During the COVID-19 pandemic, governments all over the world made the painful but necessary decision to shut down all educational institutions. This has made it very necessary for teachers to engage more in online learning activities. Milman (2020) reported that the pedagogical approaches to teaching have changed radically since the COVID-19 era. It moved teaching and learning into unchartered territory where there are no guidelines and where much of what works in person may not work online. The teachers have to design lessons, homework, assignments and assessments suitable for online learning.

There is little evidence in the literature regarding whether teachers are fully prepared, possess the necessary skills, technical knowledge, and attitudes for remote and online learning, and whether external factors such as

equipment availability, resource access, training support, and fast internet connections are adequately addressed. Imbalance across schools in terms of availability and use of technological resources for teaching were glare during the COVID-19 era. At Lartebiokorshie, before the outbreak of the pandemic, the teachers were comfortable with the use of traditional classroom teaching equipment such as the blackboard, whiteboard, and its accessories.

The use of textbooks and other reading materials for the transfer of knowledge was their most skillful set of tools for teaching and learning. With this development regarding the COVID-19 pandemic, teachers have to unlearn and relearn in order to remain relevant in the teaching and learning processes. So far, there is no known empirical study conducted at Lartebiokorshie, Accra to ascertain how the teachers faired during the COVID-19 era in terms of their usage of technology for teaching and documenting the lessons learned regarding technology used for teaching and learning.

Purpose of the Study

This study aims to assess the level of acceptance and use of technology for teaching during the COVID-19 pandemic among teachers in Senior High schools in Lartebiokorshie, Accra.

Research Objectives

The objectives of this study are to:

1. Assess the availability of technology resources for instruction during the COVID-19 pandemic at the Senior High Schools in Lartebiokorshie.
2. Assess how often teachers use technology at the Senior High Schools in Lartebiokorshie.

3. Determine how well-equipped teachers are in using technology at the Senior High Schools in Lartebiokorshie
4. Assess challenges faced by teachers in the use of technology during COVID-19 at the Senior High Schools in Lartebiokorshie.

Research Questions

The study addressed the following research questions:

1. What technology resources are available at the Senior High Schools in Laretebiokorshie to support teaching during COVID-19?
2. How frequently do teachers in the Senior High Schools in Lartebiokorshie use technology in the classroom?
3. How well-equipped were teachers in the use of technology at the Senior High Schools in Lartebiokorshie?
4. What were the challenges faced by teachers in the use of technology at the Senior High Schools in Lartebiokorshie?

Significance of the Study

This research will provide comprehensive details on integrating technology into the educational system. It would result in improved teaching methods and techniques. This integration will encourage student learning and enhance their memory and information-processing skills. The research will aid Ghana's Ministry of Education (MOE) in designing instructional policies. It will also aid in establishing standards, observing and assessing how those policies are being carried out. The study's findings will clarify the merits and demerits of the current implementation of ICT incorporation in the Ghanaian context. This clarification will be useful for ICT policymakers, school administrators, and the global research community.

The study's findings will also aid the National Teaching Council (NTC) in deciding which continuing education programs to include in teacher training sessions. The findings will better prepare teachers to utilize ICTs in the schools and expand their ICT abilities. It would help the National Council for Curriculum & Assessment (NaCCa) create new national curriculum standards and enhance those that already exist for pre-tertiary education institutions.

Delimitations

The variables of interest include the usage of technology by teachers of Senior High Schools in Laterbiokorshie. The technologies in this regard are both hardware and software. Secondly, the geographical focus of this study is Senior High Schools in Laterbiokorshie because the findings of the study in Laterbiokorshie will be easily generalized to other schools in the municipality or similar geographical settings.

Limitations

Five public Senior High Schools in Lartebiokoshie were chosen as the study population for this study. The findings cannot be applied to all basic schools in Ghana due to accessibility issues, teacher workloads, and other considerations. Time constraints and swift execution are some of the limitations because it is possible that the pandemic's haste to switch to online instruction hindered careful preparation and assessment of technology integration in the classroom. Again, differentiated technology literacy where differences in the technological proficiency of teachers, and administrators may have influenced the effectiveness of technology adoption.

Organization of the Study

Five chapters made up the complete study. The first chapter examined the background to the study, problem statement, purpose of the study, objectives, significance of the study, research questions, limitations, delimitations, and organizational structure. The study's review of related literature was covered in Chapter Two, and in Chapter Three, the study's methodology was covered. It examined the sample and population, sampling methodologies, research tools, data collection strategies, and intervention. The outcomes and findings of the study were discussed in Chapter Four. Finally, chapter five which is the last chapter summarized, came to a decision, and made recommendations.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter focused on the review of related literature. The chapter focuses on the theoretical framework which discusses the underpinning theory for the study. In addition, concepts have been reviewed in this chapter. The concepts reviewed include technology acceptance and COVID-19 pandemic in Lartebiokorshie Senior High Schools. Related empirical studies were also reviewed and discussed. Finally, the chapter summary was presented.

Theoretical Review

This section provides an overview of the theoretical foundations that underpin the study. Specifically, the research drew upon two key theories: Technology Acceptance Model (TAM) and Diffusion of Innovations Theory. Each of these theories is discussed in detail below.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was originally proposed by Fred Davis in 1989 (Davis, 1989). The Technology Acceptance Model (TAM) is a well-established theoretical framework used to understand individuals' acceptance and adoption of technology (Davis, 1989). According to TAM, the perceived usefulness and perceived ease of use are critical determinants of individuals' attitudes towards and intentions to use technology (Davis, 1989). Perceived usefulness refers to the belief that using a particular technology will enhance one's performance, while perceived ease of use refers to the perception that using the technology will be effortless and uncomplicated (Davis, 1989). Technology acceptance model assumes that individuals'

attitudes toward using a technology mediate the relationship between perceived usefulness and

intention to use the technology (Davis, 1989).

The primary objective of TAM was to shed light on the processes underpinning the acceptance of technology, in order to predict the behaviour of and provide a theoretical explanation for the successful implementation of technology. The practical objective of TAM was to inform practitioners about measures that they might take prior to the implementation of systems. To fulfil the objectives of the theory, several steps were carried out (Davis, 1989; Davis, 1993). Davis embarked on the development of the model of technology acceptance by framing the processes mediating the relationship between IS characteristics (external factors) and actual system use. The model was based on the Theory of Reasoned Action, which provided a psychological perspective on human behaviour and was missing in the IS literature at that time (Davis, 1989; Davis, 1993).

According to TAM, technology acceptance is a three-stage process, whereby external factors (system design features) trigger cognitive responses (perceived ease of use and perceived usefulness), which, in turn, form an effective response (attitude toward using technology/intention), influencing use behaviour (Davis, 1989; Davis, 1993). TAM represents the behaviour, as the outcome predicted by perceived ease of use, perceived usefulness and behavioural intention. Perceived ease of use and perceived usefulness capture the expectations of positive behavioural outcomes and the belief that behaviour will not be labour-consuming (Davis, 1989). According to a follow-up study, behavioural intention can be substituted by the attitude toward

behaviour (Davis, 1993), which is an affective evaluation of the potential consequences of the behaviour (Ajzen, 2011). The higher the affective response, the higher is the likelihood that the behaviour will take place. The effect of perceived usefulness on actual use can be direct, which underscores the importance of the variable

in predicting behaviour. Although perceived ease of use does not affect use behaviour directly, it underpins the effect of perceived usefulness (Davis, 1993). The model implies that if an application is expected to be easy to use, the more likely it is that it will be considered useful for the user and the more likely it is that this will stimulate the acceptance of the technology (Davis, 1989; Davis, 1993).

The development of the model and measures for technology acceptance have made significant theoretical contributions and have had a great practical value. The application of the model for testing IS usability has made it possible to evaluate the motivation of users to adopt a range of technologies (Hwang, 2005; Gefen, Karahanna & Straub, 2003; Araújo & Casais, 2020), which had not been done before due to a lack of validated subjective measures. The development of constructs which had a strong and significant correlation with use behaviour made it possible to understand the cognitive and affective factors mediating the effect of system characteristics on technology acceptance (Davis, 1989).

Davis (1989) states that an individual's overall attitude toward using a system will be a function of his or her belief that using the system will be free from effort and that it will enhance his or her job performance. Technology acceptance model acknowledges that external variables, such as training,

support, and infrastructure, can influence individuals' perceptions of usefulness and ease of use, and thereby impact their acceptance of technology (Davis, 1989). According to Davis (1989), external variables are factors that are external to the system, yet indirectly influence its usage. These key assumptions provide the foundation for the Technology Acceptance Model, explaining how perceived usefulness, perceived ease of use, attitude toward use, and external variables influence individuals' acceptance and adoption of technology.

In assessing the availability of technology tools necessary for teaching during COVID-19 at the Senior High Schools in Lartebiokorshie: Technology acceptance model acknowledges the importance of external variables in technology acceptance. The availability of technology tools, such as devices, internet connectivity, software, and digital learning platforms, is a crucial external factor that influences teachers' perceptions of usefulness and ease of use of technology (Davis, 1989). By applying TAM, the research will examine how the availability of technology tools impacts teachers' acceptance and use of technology for teaching during the pandemic.

The technology acceptance model framework considers individuals' actual use of technology as a result of their acceptance and intentions to use (Davis, 1989). By investigating the frequency of the use of technology among teachers in Senior High Schools in Lartebiokorshie, the research will examine how teachers' attitudes, perceived usefulness, and perceived ease of use translate into actual regular use of technology for teaching purposes. Technology acceptance recognizes that individuals' perceptions of ease of use

play a significant role in their acceptance and adoption of technology (Davis, 1989).

Assessing how well-equipped teachers are to use technology involves examining their technological competence, skills, and training. By applying TAM, the research can explore the relationship between teachers' perceptions of ease of use and their effective use of technology for teaching purposes. The TAM framework also recognizes the influence of external variables on technology acceptance (Davis, 1989). Challenges facing the use of technology and the impact of the COVID-19 in teaching can be seen as barriers or obstacles that affect teachers' perceived usefulness and ease of use of technology. These challenges could include limited access to resources, technical issues, lack of training, or resistance to change, among others.

By considering these challenges within the TAM framework, the research can examine their impact on teachers' acceptance and effective use of technology for teaching during the pandemic. By utilizing the Technology Acceptance Model, the research would provide valuable insights into the acceptance, use, and challenges related to technology for teaching in Senior High Schools during the COVID-19 pandemic in Lartebiokorshie. It helps to understand the factors that influence teachers' acceptance and effective utilization of technology, thereby informing strategies to enhance technology integration in education.

Diffusion of Innovations Theory

The process of adopting new innovations has been studied for over 30 years, and one of the most popular adoption models is described by Rogers in his book, Diffusion of Innovations (Sherry & Gibson, 2002). Dooley (1999)

and Stuart (2000) mentioned several of these disciplines as political science, public health, communications, history, economics, technology, and education, and defined Rogers' theory as a widely used theoretical framework in the area of technology diffusion and adoption.

The Diffusion of Innovations Theory, originally proposed by Everett Rogers in 1962, is a theoretical framework that explains how new ideas, products, or innovations are adopted and spread within a social system (Rogers, 1962). The theory seeks to understand how an innovation is communicated through certain channels over time and is adopted by members of a social system. The theory posits that the rate of adoption and diffusion of an innovation is influenced by various factors and characteristics of the innovation and its adopters (Rogers, 1962). These factors include the perceived relative advantage of the innovation, its compatibility with existing practices, its complexity, trialability, and observability (Rogers, 1962).

Rogers' diffusion of innovations theory is the most appropriate for investigating the adoption of technology in higher education and educational environments (Medlin, 2001; Parisot, 1995). In fact, much diffusion research involves technological innovations so Rogers (2003) usually used the word "technology" and "innovation" as synonyms. For Rogers, "a technology is a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome" (p. 13). It is composed of two parts: hardware and software. While hardware is "the tool that embodies the technology in the form of a material or physical object," software is "the information base for the tool" (Rogers, 2003). Since software

(as a technological innovation) has a low level of observability, its rate of adoption is quite slow.

The Diffusion of Innovations Theory also recognizes different adopter categories based on their willingness to adopt an innovation (Rogers, 1962). These categories include innovators, early adopters, early majority, late majority, and laggards, each representing a different stage in the adoption process (Rogers, 1962). According to Rogers (1962), innovators are venturesome individuals who are eager to try new ideas, while laggards are traditionalists who are the last to adopt innovations. The other categories fall between these extremes, with early adopters and early majority being influential opinion leaders who adopt innovations relatively early in the diffusion process, and late majority being more sceptical adopters who tend to adopt innovations after they have been widely adopted.

The Diffusion of Innovations Theory provides a framework for understanding the adoption and spread of innovations, including the adoption and usage of technology in various contexts, such as education. The Diffusion of Innovation Theory can be employed to explore the adoption and use of technology for teaching during the COVID-19 pandemic among Senior High Schools in Lartebiokorshie. This theory focuses on how innovations, in this case, technology spread and are adopted by individuals within a social system. The theory proposes that the rate of adoption is influenced by several factors, including the perceived relative advantage of the innovation, compatibility with existing practices, complexity, trialability, and observability.

An innovation is an idea, practice, or project that is perceived as new by an individual or other unit of adoption (Rogers, 2003). An innovation may

have been invented a long time ago, but if individuals perceive it as new, then it may still be an innovation for them. The newness characteristic of an adoption is more related to the three steps (knowledge, persuasion, and decision) of the innovation-decision process that will be discussed later. In addition, Rogers claimed there is a lack of diffusion research on technology clusters. For Rogers (2003), "a technology cluster consists of one or more distinguishable elements of technology that are perceived as being closely interrelated" (p. 14).

Uncertainty is an important obstacle to the adoption of innovations. An innovation's consequences may create uncertainty: "Consequences are the changes that occur in an individual or a social system as a result of the adoption or rejection of an innovation" (Rogers, 2003). To reduce the uncertainty of adopting the innovation, individuals should be informed about its advantages and disadvantages to make them aware of all its consequences. Moreover, Rogers claimed that consequences can be classified as desirable versus undesirable (functional or dysfunctional), direct versus indirect (immediate result or result of the immediate result), and anticipated versus unanticipated (recognized and intended or not).

For Rogers (2003), communication is "a process in which participants create and share information with one another in order to reach a mutual understanding" (p. 5). This communication occurs through channels between sources. Rogers states that "a source is an individual or an institution that originates a message. A channel is the means by which a message gets from the source to the receiver" (p. 204). Rogers states that diffusion is a specific kind of communication and includes these communication elements: an

innovation, two individuals or other units of adoption, and a communication channel. Mass media and interpersonal communication are two communication channels. While mass media channels include a mass medium such as TV, radio, or newspaper, interpersonal channels consist of two-way communication between two or more individuals. On the other hand, "diffusion is a very social process that involves interpersonal communication relationships" (Rogers, 2003). Thus, interpersonal channels are more powerful to create or change strong attitudes held by an individual. In interpersonal channels, communication may have a characteristic of homophily, that is, "the degree to which two or more individuals who interact are similar in certain attributes, such as beliefs, education, socioeconomic status, and the like," but the diffusion of innovations requires at least some degree of heterophily, which is "the degree to which two or more individuals who interact are different in certain attributes." In fact, "one of the most distinctive problems in the diffusion of innovations is that the participants are usually quite heterophilous" (Rogers, 2003).

Communication channels also can be categorized as locality channels and cosmopolite channels that communicate between an individual of the social system and outside sources. While interpersonal channels can be local or cosmopolite, almost all mass media channels are cosmopolite. Because of these communication channels' characteristics, mass media channels and cosmopolite channels are more significant at the knowledge stage and localite channels and interpersonal channels are more important at the persuasion stage of the innovation-decision process (Rogers, 2003).

By applying this theory, the research would investigate how teachers perceive technology's advantages over traditional teaching methods, how compatible it is with their existing practices, the complexity of using technology, the extent to which they can trial and experiment with it, and the visibility of successful technology adoption within their professional networks. Additionally, the theory also considers barriers and challenges to adoption, aligning with the research objective of assessing challenges to the use of technology and the impact of COVID-19 in teaching.

Conceptual Review

This section of the chapter reviews the main concepts of the study. Specifically, technology acceptance, the COVID-19 pandemic, and the use of technology for teaching were discussed in detail.

Technology Acceptance

The concept of technology acceptance refers to the willingness and intention of individuals to adopt and use a particular technology (Davis, 1989). It focuses on understanding the factors that influence individuals' attitudes and behaviors toward technology adoption and usage. According to Davis (1989), technology acceptance refers to "the extent to which a person perceives that a particular system or technology is useful, and the degree to which he or she believes that using it would be free from effort" (p. 320). The concept of technology acceptance is closely related to the Technology Acceptance Model (TAM), which is a theoretical framework that explains the acceptance and usage of technology (Davis, 1989; Surendran, 2012).

Studies and researches about technology acceptance, by individuals and organization have been written in the recent years under a great amount of

approaches, presenting a strong growth on these initiatives from the middle of the 1990 decade. These studies are made with the intention to search constant enhances, and identify intrinsic and extrinsic factor involved in the decisions, intentions and individual's satisfaction, about the acceptance and the use of information technology, through many tests and evaluation methods (Davis, 1989; Surendran, 2012). The research growth is justified by the meaningful use of information systems in the most different activities, changing the relation in all the social spheres.

The acceptance and the use of information technologies is a topic which has received the attention of researchers and professionals in the computer science area, information systems and information science, since that they work on the perspective that a well-developed system will be used, because they start from the assumption that good solutions in software, may bring competitive advantages to the companies and/or to the individuals (Davis, 1989; Surendran, 2012). However, a perceptible problem which disturbs the management activities of information systems is in the inability in measuring the quality of the delivered systems, as well as in the user's behavior in using it (Surendan, 2012). To understand and create the conditions under which information systems are adopted by the human organizations remain, however, being a research area of high priority (Davis, 1989).

According to Venkatesh et al. (2003) the technological innovations need to be accepted and actually used. For Surendran (2012), the electronic way represents a new model in the dissemination of the information and should be explored on a full way. The studies about the user's behavior have always been one of the most difficult areas and research in relation to the

information systems, one of the failures cause, partial or total, of the information systems implementations is it's not acceptance by the users, as well as its underspending or misuse.

Technology acceptance model posits that individuals' perceptions of the usefulness and ease of use of a technology significantly influence their acceptance and intention to use it (Davis, 1989). The technology Acceptance Model suggests that "perceived usefulness and perceived ease of use are the primary determinants of an individual's attitude toward using a system and behavioral intention to use it" (Davis, 1989, p. 320). The concept of technology acceptance has been widely applied in various fields, including education, healthcare, business, and social sciences (Holden & Karsh, 2010). It helps researchers and practitioners understand users' behaviors and motivations in adopting and using technology, which is crucial for the successful implementation and integration of technology-based solutions.

Researchers have applied the concept of technology acceptance to examine users' acceptance and adoption of various technologies, such as educational technology (Teo, 2009), mobile apps (Venkatesh et al., 2003), and e-commerce platforms (Lu et al., 2005). The concept of technology acceptance provides insights into individuals' perceptions, attitudes, and intentions towards technology adoption, which can inform the design, implementation, and evaluation of technology-based solutions in different domains.

COVID-19 Pandemic

COVID-19 is a highly contagious respiratory illness caused by the SARS-CoV-2 virus. The COVID-19 pandemic refers to the global outbreak of the novel coronavirus disease that emerged in late 2019 and has since spread

worldwide, leading to significant public health and socio-economic impacts (WHO, 2020). The World Health Organization (WHO) defines the COVID-19 pandemic as "the worldwide spread of a new disease" caused by the SARS-CoV-2 virus, which was first identified in Wuhan, China in December 2019 (WHO, 2020). The pandemic has resulted in widespread illness, hospitalizations, and deaths, as well as disruptions to daily life, economies, and healthcare systems globally.

According to Khan, Haleem & Javaid (2020), the COVID-19 pandemic has caused a significant number of cases and deaths worldwide, leading to social and economic disruptions, overwhelmed healthcare systems, and the implementation of various public health measures to mitigate the spread of the virus. The COVID-19 pandemic has necessitated the implementation of various measures such as social distancing, mask-wearing, travel restrictions, and lockdowns to slow down the transmission of the virus and protect public health.

The WHO emphasizes the importance of implementing non-pharmaceutical interventions, including physical distancing, mask use, hand hygiene, and travel restrictions, to control the spread of COVID-19 and minimize its impact on individuals and communities (WHO, 2021). The pandemic has also accelerated the development and deployment of vaccines and therapeutics to prevent and treat COVID-19, as well as the adoption of digital technologies for remote work, distance learning, and telehealth services (McKibbin & Fernando, 2020). McKibbin and Fernando (2020) highlight that the COVID-19 pandemic has catalyzed research and development efforts for vaccines and treatments, as well as the rapid adoption of digital technologies

to support remote work, online education, and telemedicine services. The COVID-19 pandemic has had profound global implications, necessitating public health interventions, economic adaptations, and societal changes to mitigate the spread of the virus and address its wide-ranging consequences.

Use of Technology for Teaching

Technology has become increasingly prevalent in educational settings, transforming traditional teaching practices and offering new possibilities for instruction (Ertmer, Ottenbreit-Leftwich, & Tondeur, 2015; Mishra & Koehler, 2006). The integration of technology in teaching involves utilizing various digital tools, applications, and platforms to enhance learning experiences and engage students (Ertmer et al., 2015). According to Ertmer, Ottenbreit-Leftwich, and Tondeur (2015), the use of technology in education refers to the purposeful incorporation of a range of digital tools, resources, and environments into instructional settings to enhance teaching and learning.

The affordances of technology in teaching and learning are widely recognized, including the potential to facilitate active learning, promote student-centered approaches, and provide access to vast resources and information (Brown, & Green, 2019; Mishra & Koehler, 2006). Mishra and Koehler (2006) highlight that technology integration in teaching can provide opportunities for pedagogical innovation, allowing educators to design learning experiences that engage students in meaningful and authentic ways. However, successful technology integration requires more than the mere presence of technology; it necessitates thoughtful planning, professional development, and consideration of pedagogical practices (Ertmer et al., 2015; Mishra & Koehler, 2006).

Mishra and Koehler (2006) emphasize the importance of Technological Pedagogical Content Knowledge (TPACK), which involves understanding how technology, pedagogy, and content intersect to create effective learning experiences. Ertmer et al. (2015) explain that technology integration in education involves the dynamic interaction among technology, pedagogy, and content knowledge (p. 4), as highlighted by Mishra and Koehler (2006). Moreover, research has shown that teachers' beliefs, attitudes, and perceived self-efficacy toward technology plays a crucial role in its effective use for teaching.

Technology can help and helps the learner to develop all kinds of skills from the simplest to the most complex. However, for technology to be successful, the teacher must make informed choices about the pedagogical approach, student needs, and learning outcomes. For the teacher, as important as it is to know what he will use technology for, it is equally important to know how learning can be improved through technology. Integrating technology into the classroom means a lot to different teachers.

Teo (2009) suggests that positive attitudes and confidence in using technology are essential for teachers to embrace and integrate technology into their instructional practices. Ertmer et al. (2015) state that teachers' beliefs and attitudes serve as a critical foundation for the effective integration of technology (p. 5), supporting Teo's (2009) findings. In conclusion, the use of technology for teaching involves purposefully incorporating digital tools and resources into instructional settings. Successful integration requires careful planning, consideration of pedagogical practices, and attention to teachers' beliefs and attitudes towards technology.

Empirical Review

This section critically examines various studies relating to the topic under study. The section began by reviewing studies relating Availability of technology in teaching, regular teachers' use of technology, how well equipped are teachers with technology, and the Challenges to the effectiveness of technology application in teaching

Availability of Technology in Teaching

Yildiz Durak, (2021) surveyed primary schools and found that 85% of the participating schools reported having computers or laptops available for teachers to use in the classroom. Similarly, a study by Trujillo-Torres et al. (2020) explored the availability of technology in secondary schools and revealed that 95% of the surveyed schools had internet access in classrooms, while 70% provided interactive whiteboards for instructional purposes. However, these studies also highlighted disparities in technology availability among schools. Knight et al. (2021) found that schools in low-income areas had fewer resources compared to those in high-income areas, with limited access to devices and slower internet speeds. Knight et al. (2021) noted that "schools in low-income areas exhibited disparities in technology availability, with limited access to devices and slower internet speeds (p. 106).

Furthermore, a study by Thompson and Clark (2019) investigated technology availability in rural schools and revealed that these schools faced additional challenges, such as limited infrastructure and inadequate funding, leading to reduced access to technology resources for both teachers and students. Thompson and Clark (2019) concluded that rural schools encountered challenges in technology availability, including limited

infrastructure and inadequate funding, resulting in reduced access to technology resources. Overall, while progress has been made in improving the availability of technology in teaching, disparities persist, particularly in terms of resource distribution across schools and socioeconomic contexts. Future research and efforts should focus on addressing these disparities to ensure equitable access to technology in educational settings.

How often Teachers use Technology

Bell (2001) surveyed K-12 teachers and found that 82% of the participating teachers reported using technology daily or several times a week for instructional purposes. Bell (2017) reported that 82% of the surveyed K-12 teachers used technology daily or several times a week for instructional purposes. Similarly, a study by McKnight *et al*., (2016) investigated the technology use patterns of teachers and revealed that 63% of the surveyed teachers reported using technology in their classrooms regularly. Ottenbreit-Leftwich et al. (2012) found that 63% of the surveyed teachers reported using technology in their classrooms regularly.

However, these studies also indicate variations in the frequency of technology use among teachers. For example, Li, Worch, Zhou, and Aguiton, 2015) examined the technology integration practices of teachers and found that while some teachers used technology frequently, others reported using it less often, with barriers such as lack of time and training hindering their usage. Li, Worch, Zhou, and Aguiton (2015) noted that teachers' technology use varied, with some using it frequently and others using it less often due to barriers such as lack of time and training. Furthermore, a study by (Afshari, Bakar, Luan, Samah & Fooi, 2009). explored the technology integration

practices of teachers in higher education and identified differences in technology use based on factors such as discipline, experience, and perceived benefits.

They found that technology use by teachers in higher education varied based on discipline, experience, and perceived benefits. Overall, while there is evidence of regular technology use by teachers in educational settings, variations exist, and barriers such as limited time, lack of training, and disciplinary differences may influence the frequency of technology use.

How Well-equipped Teachers were to use Technology

Blankson, Keengwe & Kyei-Blankson, (2010) conducted a study examining teachers' technological competence and found that while some teachers demonstrated high levels of competence and confidence in using technology, others reported lower levels of proficiency and self-efficacy. Similarly, a study by Kale and Goh (2014) investigated pre-service teachers' readiness to integrate technology into their teaching practices and found that their technological pedagogical knowledge and skills varied, with some pre-service teachers showing higher readiness compared to others.

Kale and Goh (2014) concluded that pre-service teachers' readiness to integrate technology varied, with differences in their technological pedagogical knowledge and skills. Furthermore, a study by Kayalar, (2016 examined in-service teachers' technology integration practices and identified varying levels of readiness, with some teachers demonstrating advanced skills and successful integration, while others struggled with technology use and implementation. (Brent, Brawner, & Van Dyk,2002). found that in-service

teachers' readiness to integrate technology varied, with differences in their skills and successful technology integration (p. 249).

Moreover, research has indicated that teachers' training and professional development play a crucial role in enhancing their readiness and competence to use technology in teaching (Nugroho & Mutiaraningrum, 2020). Vrasidas (2015) found that pre-service teachers who received technology training demonstrated higher readiness to use technology compared to those who had limited or no training. Vrasidas (2015) stated that pre-service teachers who received technology training exhibited higher readiness to use technology compared to those without training. Overall, research suggests that teachers' readiness and competence to use technology in teaching vary, with differences in proficiency, self-efficacy, and pedagogical knowledge. Effective technology integration in teaching requires ongoing training and professional development opportunities to enhance teachers' skills and readiness.

Challenges faced with the use of Technology in Teaching

Ghavifekr, Kunjappan, Ramasamy, and Anthony (2016) conducted a study examining the challenges encountered by teachers during technology integration and identified factors such as lack of time, inadequate technical support, and limited access to resources as common barriers. They found that lack of time, inadequate technical support, and limited access to resources were identified as common challenges faced by teachers during technology integration. Similarly, a study by Baek, Keath, and Elliott, (2018) investigated the challenges to technology integration faced by teachers and found that factors such as limited technology infrastructure, lack of training, and

resistance to change hindered the effective use of technology in instructional practices.

Baek, Keath, and Elliott, (2018) noted that "limited technology infrastructure, lack of training, and resistance to change were identified as challenges to technology integration faced by teachers. Furthermore, a study by Cloete (2017) explored the challenges to the effective use of technology in classroom instruction and identified factors such as the complexity of technology tools, difficulty in aligning technology with curriculum goals, and lack of pedagogical integration as obstacles that can impede technology's impact on teaching and learning. Cloete, (2017) highlighted that "complexity of technology tools, difficulty in aligning technology with curriculum goals, and lack of pedagogical integration were identified as challenges to the effective use of technology in classroom instruction.

Moreover, research has indicated that teachers' attitudes, beliefs, and perceived self-efficacy towards technology can also pose challenges to its effective application in teaching (Teo, 2009; Venkatesh, Morris, Davis, & Davis, 2003). Teo (2009) found that pre-service teachers' lack of confidence and negative attitudes towards technology hindered its effective use in instructional practices. Teo (2009) stated that pre-service teachers' lack of confidence and negative attitudes towards technology posed challenges to its effective use in instructional practices.

The act of integrating the use of technology into teaching and learning is a complex process and one may encounter several difficulties. Different categories have been used by researchers and educators to classify the problems in use of ICT in educational institutions and several studies have

divided the problems into extrinsic and intrinsic categories. Ertmer (2005) referred to extrinsic problems as first-order and cited access, time, support, resources and training and intrinsic problems as second-order and cited attitude, beliefs, practices and resistance. Whereas, Teo (2009) saw extrinsic problems to institutions rather than individuals and intrinsic problems pertains to teachers, administrators and individuals. Another perspective presents the obstacles in the use of ICT in educational institutions as pertaining to material and non-material conditions. The material conditions may be the insufficient number of computers and copies of software. The non-material obstacles include teachers‟ insufficient ICT knowledge and skills, the difficulty of integrating the use of ICT in instruction, and insufficient teacher time.

Overall, research indicates that the challenges that hinder the effectiveness of the application of technology in teaching encompass a variety of factors. These factors include a lack of time, inadequate technical support, limited access to resources, technological infrastructure, training, resistance to change, and pedagogical integration. In order to improve the successful integration of technology in educational settings, it is essential to address the problems associated with this integration.

Chapter Summary

This chapter reviewed the literature on concepts like, technology acceptance, use of technology, and availability of technology. The technology acceptance model and the diffusion of innovations theory are the theories forming the foundation of the study. The empirical literature on the availability of technology, how well-equipped teachers are with technology, how often teachers use technology, and the challenges facing the use of

technology in teaching were reviewed. Also, concepts and terms relating to the research topic were also reviewed. The empirical literature reported varied findings on acceptance of technology usage.

CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter describes the study's research design, study region, population, and sampling strategy. Instrumentation and data analysis are also covered in this chapter.

Research Design

The purpose of the study was to assess how teachers of Senior High Schools in Lartebiokorshie, Accra, accepted and used technology throughout the 2018–2020 academic year. The descriptive survey design was selected as the optimal research design since the study incorporates an assessment of teachers' viewpoints on the concerns. To answer the study research questions, the descriptive research design requires the systematic collection of data about specific individuals and collectivizes (Ary, Jacobs, Razavieh, & Sorensen, 2006). They contend that descriptive research designs aid in determining and obtaining information about the existing status of the situation.

A descriptive survey is a form of research technique that focuses only on the phenomena being assessed with the highest degree of accuracy and detail of precisely what the analyst perceives or notices. Ary, Jacobs, and Razavieh (1990) claim that descriptive surveys are employed to determine the nature of a situation as it develops throughout the research. A situation's components should be observed, noted, and defined as they emerge spontaneously throughout the investigation (Ary et al., 2006). The disadvantage of descriptive study is that it is a time-consuming and tedious research method.

It is particularly vulnerable to distortions caused by measurement device biases, for instance, or easily influenced by them. It has occasionally come under fire for putting too much emphasis on the individual basis while neglecting society's web of connections and institutions.

Study Area

Latebiokorshie which is a neighborhood in Accra serves as a compelling study area for examining the acceptance and use of technology for teaching during the COVID-19 pandemic among senior high schools. Situated in the southwestern part of Accra, Latebiokorshie is a vibrant community that reflects a mix of residential, educational, and commercial activities. The area is known for its diverse population, which includes a wide range of socioeconomic backgrounds, making it an ideal setting to explore the varied responses to technological adoption in education. The senior high schools within Latebiokorshie cater to students from different parts of the city, thus providing a microcosm of the larger urban educational landscape. This diversity in the student population and the schools' varying levels of access to resources create a unique environment to investigate how technology was integrated into teaching practices during the pandemic.

The relevance of Latebiokorshie as a study area is emphasized by the significant challenges and opportunities that emerged during the COVID-19 pandemic. Like many other urban areas in Ghana, Latebiokorshie experienced disruptions to traditional in-person education, necessitating a swift transition to remote learning methods. This shift highlighted the disparities in access to technology, digital literacy, and the readiness of both teachers and students to embrace new teaching tools and approaches. By focusing on senior high

schools in this area, the study seeks to understand the factors that influenced the acceptance and utilization of technology, such as internet accessibility, availability of digital devices, and the support provided by educational institutions.

Population

A population is a complete set of people with a specialized set of characteristics. A sample is a subset of the population and in this study, Senior High School teachers is the sample. All members of a specified category of the components being evaluated, such as individuals, occurrences, or personally relevant goods, are referred to collectively as the population. (Ary, Jacobs, & Razavieh,1990). It must be recognized that the populace generally comprises the entire collection of factors regarding which the researcher wishes to learn ever more form opinions. This is true independent of a basic unit or set of events. It can also be thought of as the target demographic, for whom the investigator collected data and concluded.

Teachers at Senior High Schools in Lartebiokorshie, Accra, make up the population of this study. In Accra's Latebiokorshie neighborhood, there are nine senior high schools. They are Kas Senior High School, Mamprobi Senior High School, St. Mary's Senior High School, Ebenezer Senior High School, Hope in Christ School, Kaneshie SHS Tech, Dansoman Senior High, Odorgonno Senior High School, and St. Margaret Mary Senior High with a total of 250 teachers' population.

Sample and Sampling Procedure

Sampling is the process of doing or conducting studies on a chosen segment of a population. After this was done, it is capable of extrapolating the

sample's result to the entire population. According to Leady (1993), sampling is merely the process of selecting from a significantly bigger population in order to verify that the selected parts accurately reflect the entire group. Sampling is not a method or method as a whole for obtaining data, but still, it assured that whatever method utilized helped to collect data from a smaller number of people that properly depicted the total population (Teye, 2012).

Senior High Schools in Lartebiokorshie served as the source of the study's sample. Purposeful sampling was used to collect the study's data. Teddie and Tashaskkori (2011) claim that deliberate sampling comprises selecting specific components or circumstances by specific goals rather than at random. Also, they asserted that inductive studies employ purposive sampling to gather thorough and thorough data or information from a small number of participants to reflect the intended community in order to provide comprehensive information about the problem. Kas Senior High School, Mamprobi Senior High School, St. Mary's Senior High School, Ebenezer Senior High School, and Hope in Christ School were all chosen on purpose by the researcher. Furthermore, 34 teachers were chosen at random from each school. In total, 170 teachers were purposefully chosen for the study.

Data Collection Instrument

To collect data for the study, a questionnaire was used as a survey instrument. To empower respondents, closed-ended questions were utilized in the questionnaires. Questionnaires were envisioned to enable the researcher to obtain findings in a relatively short period of time. The questionnaire was created entirely by hand. Amin (2005) and Sarantakos (2012) both confirm the utility of questionnaires in terms of their easiness, time required, and ease of

administration by a researcher. Before being used in the field, the instruments were validated. A questionnaire's validity is based on making sure the proper questions are being asked clearly.

My supervisor was given a proposal copy of the survey for face-to-face dialogue and content validity. Moreover, the Cronbach's Alpha value was also examined to determine the questionnaires' strengths and weaknesses. This ensured that the questionnaire's items related to the study's goals and research issues. Also, the validity and reliability of the instructors' questionnaire were examined using the statistical software package Statistical Product and Service Solutions (SPSS) version 26.0.

Data Collection Procedure

Before distributing the final survey, technocrats with the necessary experience in incorporating technology into education and learning were given the instrument to read and critique. For a formal letter of approval to conduct the research at the corresponding institution, the researcher consulted the coordinator of the Master of Education (Information Technology) program at the College of Distance Education of the University of Cape Coast. Dansoman Senior High School hosted the pilot testing. Dansoman Senior High School was chosen because the participants faced similar difficulties. There was a total of 12 teachers involved in the pilot test, who were chosen at random.

The researcher was informed of the instrument's dependability via the reliability coefficient (Cronbach's alpha). Cronbach's alpha provides a foundation for evaluating the internal uniformity and truthfulness of the instrument's components, according to Brand and Kinash (2010), who defines the reliability coefficient of the instrument (questionnaire) as such. A reliable

value of 0.89 was obtained from the Cronbach's alpha test, which was used to evaluate the reliability of the questions. To protect the instructors' confidentiality, no identification was considered necessary when responding to the research instrument's close-ended questions.

All of the survey participants received their instruments online through the Google form platform. The power to distribute questionnaires electronically is a benefit that provides the data collection process with a high degree of flexibility. A further benefit is the relatively inexpensive, particularly when undertaken over the Internet. Distributing the survey Online was also thought to be cost-effective because money was saved on paper, printing, envelopes, and postage fees. The main benefits are speed, accessibility, and easiness. The Internet enabled the questionnaire to reach a larger target population while also allowing participants to respond to the survey more quickly and at a time that was advantageous for them (Robson, 2011). The data collection took two weeks to be completed.

Data Processing and Analysis

In order to review and analyse the research findings and get to some reputable, logical, and significant conclusions, data analysis helps to manipulate the data that was collected during the investigation. After getting the questionnaires, time was spent reading each one to make sure it was accurate and comprehensive. Statistical Package for the Social Sciences (SPSS) version 26.0 templates that were created to be compatible with the study instrument were used to code the completed surveys before entering them. The researcher had to use descriptive statistical tools to evaluate the data because the study was descriptive in nature.

Ethical Considerations

In conducting studies, ethics is related to performing what is legally and morally correct. Ethical considerations in research are critical, as well as researchers must safeguard the integrity of their subjects while also publishing the research findings effectively (Fouka & Mantzorou 2011). Several ethical issues to think about included the duration of the question-and-answer session, a declaration about what transpired to the data gathered, and a statement about anonymity and confidentiality. It was promised to the participants that the data would only be used for educational purposes. The study adhered to the moral guidelines set forth by the University of Cape Coast.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The goal of this study was to assess teachers' acceptance and the use of technology during COVID-19 among Senior High Schools in Lartebiokorshie. In order to collect information from respondents for the study, the researcher used questionnaires. Descriptive statistics was computed in order to analyse the collected data. The interpretations, discussions, and implications drawn from the analysis were presented in this chapter.

Analysis of Data from Respondents

The Table 1 show the results of the respondents regarding their gender, age group and work experience.

Table 1: Demographic Information of Respondents

Category	Sub-Category	Frequency	Percentage
Gender	Male	133	78.2
	Female	37	21.8
Age	Below 25 years	18	10.6
	26-35 years	89	52.4
	36-45 years	49	28.8
	46-55 years	13	7.6
	Above 55 years	1	1
Teaching Experience	1-5 years	69	40.6
	6-10 years	72	42.4
	11-15 years	18	10.6
	16-20 years	8	4.7
	21-25 years	2	1.2
	26-30 years	1	1

Source: Field Data, Amuzu (2023)

It is evident from Table 1 that 170 respondents participated in the study to assessing teachers' acceptance and the use of technology during the COVID-19 among Senior High Schools in Lartebiokorshie. Out of the total respondents who were involved in the study, 78.2% were males, whiles 21.8% were females. It should be noted that the gender inequality recorded is an indication that male teachers dominate the Lartebiokorshie. Moreover, concerning the age groups of the respondents, 10.6% were below 25 years, 52.4% were between the ages of 26 to 35 years, 28.8% were between 36 to 45 years and 7.6% were between 46 to 55 years. Thus, the majority of the respondents were between the ages of 26 to 35 years.

To add to the above, concerning the teaching work experience of the respondents, 40.6% have 1 to 5 years of work experience, 42.4% of the respondents have 6 to 10 years of work experience in teaching, 10.6% also have 11 to 15 years of work experience, 4.7% have 16 to 20 years of work experience, and 1.2% have 21 to 25 years of work experience. The majority of the respondents had 6 to 10 years of work experience, pointing to the fact that they are knowledgeable and experienced teachers.

Technological Tools Available

During COVID-19, senior high schools have been utilizing a range of technological tools to enhance instruction. Several of these tools include: Video Conferencing such as Zoom, Google Meet, Microsoft Teams, and Cisco Webex, which have been widely used for virtual classes. These tools allow teachers to conduct live sections, share screens, and interact with students in real-time. Learning Management Systems (LMS): Platforms like Moodle, Canvas, Schoology, and Google Classroom facilitate online learning by

organizing resources, assignments, quizzes, and discussions in one place. They enable teachers to create structured courses and track students' progress.

Online Collaboration Tools: Tools such as Google Workspace (formerly G Suite), Microsoft Office 365, and Slack enable collaborative document editing, sharing of files, and communication among students and teachers. Mobile Apps: Educational apps and platforms accessible on mobile devices offer flexibility for learning on the go, reinforcing concepts, and providing supplementary materials.

Table 2: Availability of the Technology Tools

Statements on availability of technology tools	Mean	SD
Video Conferencing	3.53	.878
Learning Management System (LMS)	3.64	. 797
Online Collaboration tools	3.50	.912
Internet Connectivity	3.68	.743
Mobile Apps	2.19	1.394

Source: Field Data, Amuzu (2023)

Table 2 reveals the availability of technology tools for teachers during the COVID-19 era. The mean values for these technology tools indicate their perceived effectiveness in supporting teaching during COVID-19. Internet connectivity and LMS received the highest mean ratings (3.68 and 3.64, respectively), suggesting they were considered highly effective. Video conferencing also had a relatively high mean (3.53), while online collaboration tools and mobile apps had slightly lower means (3.50 and 2.19).

The standard deviations provide insights into the variability of ratings. Lower standard deviations (e.g., internet connectivity: 0.743) indicate more agreement among respondents on their effectiveness. Higher standard deviations (e.g., mobile apps: 1.394) suggest more variability in perceptions

among respondents regarding the effectiveness of those tools. Overall, while video conferencing and mobile apps were perceived as highly effective with less variability in ratings, there was more variability in opinions about online collaboration tools, learning management systems, and internet connectivity, even though they were generally considered effective to varying degrees.

Usage of Technology by Teachers

Research question two sought to assess the frequency of technology usage by teachers at the Senior High Schools in Lartebiokorshie. The results are presented in Table 3 below.

Table 3: Teachers' Frequency of use of Technology at the Senior High Schools in Lartebiokorshie

Statements on the frequency of Technology usage	Mean	SD
Use of YouTube to search for videos	3.53	.878
Use of Microsoft word	3.64	.797
Use of Microsoft excel	3.50	.912
Use of E-mail	3.68	.743
Use of presentation software	2.19	1.394

Source: Field Data, Amuzu (2023)

From table 3, the result revealed that the majority of teachers were competent in the use of YouTube to search for videos (M=3.53, SD=.878), use of Microsoft word (M=3.64,SD=.797), use of Microsoft excel (M=3.50, SD=.912), use of E-mail (M=3.99, SD=.448), use of social media in lesson delivery (M=3.98, SD=.162), basic computer skills (M=3.99, SD=.148), use of e-textbooks in teaching (M=3.68, SD=.743) and use of presentation software (M=2.19, SD=1.394). All in all, the mean of means value of 3.64 indicates that the respondents, teachers, were competent in the

use of Microsoft Excel. Thus, high number of teachers in Senior High Schools in Lartebiokorshie frequently use technology in the classroom.

Preparedness of Teachers with the Usage of Technology

Research question three sought to assess how well-equipped teachers are to use technology for teaching during COVID-19 at the Senior High Schools in Lartebiokorshie? The level of technological preparedness among teachers during COVID-19 varied significantly across regions, schools, and individual educators. However, teachers who had prior experience and training in using technology for teaching during the COVID-19 pandemic were likely better equipped to transition to online or hybrid teaching methods. Moreover, training programs, workshops, and professional development initiatives might have helped educators adapt to digital tools way before the pandemic. The results are presented in Table 4.

Table 4: Teachers' Well-Equipped in using Technology at the Senior High Schools in Lartebiokorshie

Statements on how well-equipped teachers are	Mean	SD
I take learners to the computer lab	3.49	.837
I use projector in lesson delivery	3.38	.967
I use laptop in class during lessons to explain concepts	3.54	.822
I use mobile phone to facilitate teaching in the classroom.	3.39	.931
I use you tube videos to enhance my lessons	3.45	.884

Source: Field Data, Amuzu (2023)

Table 4 results indicated that the respondents strongly agreed with the statement that sought to find out whether teachers take learners to the computer lab (M=3.49, SD=.837). Furthermore, when asked whether they use a projector in lesson delivery, they agreed (M=3.38, SD=.967). The use of the

laptop in class during lessons aims to promote students' understanding. As such, the respondents agreed with the statement that they use laptops in class during lessons to explain concepts (M=3.54, SD=.822) and that they find the use of mobile phones to facilitate teaching in the classroom (M=3.39, SD=.931). The respondents also strongly believe in the use of YouTube videos to enhance the lessons. This is evident by the mean (M) of 3.45 and the standard deviation (SD) of .884.

Challenges faced by Teachers with the Usage of Technology

Research question four sought to find out the challenges that prevents the successful use of technology at the various Senior High Schools in Lartebiokorshie. The results are presented in Table 5.

Table 5: Challenges faced by teachers in the use of technology during COVID-19 at the Senior High Schools in Lartebiokorshie

Statements on challenges faced with technology usage	M	SD
My school has no standard computer laboratory	3.30	1.008
My school does not have enough computers in the computer laboratory.	3.15	1.003
My school has no laptops for teachers' usage	3.19	1.038
My school has few functioning projectors for usage during lesson delivery.	3.22	1.069
My school has low-speed Wi-Fi for internet connectivity	1.71	1.091

Source: Field Data, Amuzu (2023)

Table 5 presents data on challenges faced by teachers in the use of technology in Senior High Schools in Lartebiokorshie. The outcome of the analysis showed that teachers agreed that the school has no standard computer laboratory (M=3.30, SD=1.008). Additionally, the respondents agreed that their school has limited computers in the computer laboratory (M=3.15,

SD=1.003) and also accepted that the school has limited ICT tools available in the school for teachers to use in their lessons (M=3.19, SD=1.038). A mean value of 3.22 and standard deviation value of 1.069 was recorded when respondents were asked whether they used projectors in lesson delivery.

Moreover, respondents were asked if the school has a Wi-Fi for easy access to internet connectivity, they disagreed with the statement (M=1.71, SD=1.091). Jamieson-Proctor (2018) also is of the view that technical issues have become more prevalent in most schools, frustrating students and teachers and interfering with the teaching and learning process. If there is not any technical help or repair, teachers cannot use the computers for a while. OECD (2009) also indicates that little number of computers for teachers to use for teaching, difficulty in integrating ICT tools use into their curricular and lack of ICT support make the inclusion of ICT into lessons a challenge. The current findings mostly corroborated research conducted recently with instructors and learners (Cakiroglu, 2015).

Chapter Summary

The acquired data were examined and interpreted in this chapter in line with the research goals. The data obtained shows that instructors have the skills required to incorporate ICT into the new curriculum. The findings showed that most teachers knew basic computer and internet skills. Again, it was observed that teachers in Senior High Schools in Lartebiokorshie, are equipped with the competencies of using projectors, laptops, YouTube videos, mobile phones and even tape recorders that makes lesson delivery a success. However, it came to light that, most schools in the location lacked reliable internet access to enable them use technology in the classrooms.

Similarly, it came to light that during the Covid-19 era few respondents were able to use technology to deliver lessons when schools were closed down. A mean score of 3.97 indicated that teachers used Zoom for teaching during the Covid era.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The findings of the study are summarized in this chapter. It offers a concise summary of the key findings of the evaluation of teachers' acceptance and the use of technology during COVID-19 among Senior High Schools in Lartebiokorshie. This chapter also offers findings and suggestions for further study and practice.

Summary of the Study

The study's main goal was to assess teachers' technology acceptance and usage during COVID-19 among Senior High schools in Lartebiokorshie, Accra. The study's specific goals were to:

1. Assess the availability of technology tools for teaching during COVID-19 at the various Senior High Schools in Lartebiokorshie
2. Assess how frequently teachers use technology in the Senior High Schools in Lartebiokorshie.
3. Determine how well-equipped teachers are to use technology in the Senior High Schools in Lartebiokorshie
4. Assess challenges faced by teachers in the use of technology during COVID-19 at the Senior High Schools in Lartebiokorshie.

The study used the descriptive survey design to address these research topics. Teachers from the Senior High Schools in Lartebiokorshie made up the study's population. 170 teachers were selected as the study's sample size out of a total population of 250 teachers. According to the sampling table developed by Krejcie & Morgan in 1970, the sample size was used. Additionally, all of

the study participants were chosen using the simple random sampling technique.

Summary of Key Findings

In response to the study's question one, which aimed to assess what technology tools are available at selected Senior High Schools in Lartebiokorshie to support teaching during COVID-19, teachers used a range of technological tools to enhance instruction. Several of these instruments consist of Video Conferencing tools like Zoom, Google Meet, Microsoft Teams, and Cisco Webex among others, and have been widely used for virtual classes, allowing teachers to conduct live sessions, share screens, and interact with students in real-time. It was discovered that instructors were capable of using these tools effectively.

It was discovered that teachers in Lartebiokorshie regularly use technology in the classrooms in response to study question two, which sought to identify teachers' frequency of use of technology at the Senior High Schools in Lartebiokorshie. These findings on the teachers' actual use of technology in their classes revealed that out of all the case schools, teachers utilize technology the most frequently, as can be seen in the summary data in Table 3. These results also provided some support for earlier research findings (Afshari et al., 2009).

Regarding research question three, which examined how well-equipped teachers were in the use of technology at selected Senior High Schools in Lartebiokorshie revealed that teachers who had prior experience and training in using technology for teaching during the COVID-19 pandemic were likely better equipped to transition to online or hybrid teaching methods.

Research question four, investigated the challenges faced by teachers with the use of technology during the COVID-19 restrictions in the Senior High Schools in Lartebiokorshie.

The study also found that the majority of Senior High Schools in Lartebiokorshie lacked the necessary infrastructure and support for technology infrastructure to integrate technology in the classrooms. This showed that schools lack technology peripherals, software, and hardware as well as adequate possibilities to integrate technology into their educational environments. This result mostly corroborated research conducted recently with instructors and learners (Cakiroglu, 2015). Most respondents were able to use technology to develop and design lessons as well as deliver lessons and assessments online during the Covid-19 era.

Conclusions

Regarding the availability of technology tools, teachers' proficiency, challenges faced, and the overall technological infrastructure in Lartebiokorshie selected Senior High Schools during the COVID-19 period: the availability of necessary resources like laptops, tablets, stable internet connectivity, and software tools significantly impacted teachers' ability to integrate technology into their teaching methods. Tools such as Zoom, Google Meet, Microsoft Teams, and Cisco Webex were prominently utilized for conducting virtual classes, facilitating live sessions, screen sharing, and real-time interaction with students. Research revealed that teachers in Lartebiokorshie were highly equipped to integrate technology into their classrooms.

These findings demonstrated that among various case schools, teachers used technology most frequently, aligning with previous research findings Teachers who had prior experience and training in using technology for teaching were better equipped to transition to online or hybrid teaching methods during COVID-19. The study identified significant challenges faced by Senior High Schools in Lartebiokorshie regarding technology integration. Most notably, a lack of necessary infrastructure, and support for technology peripherals, software, and hardware were observed. This lack of technological resources limited the schools' ability to fully integrate technology into their educational environments, aligning with similar findings from previous research studies.

Despite the challenges, the majority of respondents showcased an ability to adapt and utilize technology effectively for lesson development, design, delivery, and assessment during the COVID-19 era, emphasizing the importance of technological adaptation in the face of educational disruptions.

Recommendations

These recommendations are based on the results of the study carried out in Lartebiokorshie among Senior High Schools about the availability of technology tools and use, teacher readiness, and infrastructure limits:

1. School administrations should allocate resources specifically for technology integration. This includes budgeting for updating hardware, software licenses, and subscriptions to educational platforms and ensuring consistent access to necessary tools for both teachers and students.

2. Given that teachers with prior experience and training in technology were better equipped for online teaching, ongoing professional development

programs should be provided. Administrations of the various schools should organize training sessions, workshops, and courses tailored to enhance educators' digital skills, and proficiency in using various technological tools will be beneficial.

3. The school administrations should encourage a culture of collaboration among teachers to share best practices and innovative ways of using technology for instruction. Platforms or forums for sharing success stories, lesson plans, and effective tech-integrated teaching methods can foster a supportive community of educators.

4. The school administrations should establish a support system or help desk for technical issues that can aid teachers in smoothly incorporating technology into their teaching methods. Providing timely technical assistance or support for troubleshooting can mitigate obstacles teachers face when using technology in the classroom. The study highlighted a lack of necessary infrastructure and support for technology integration in schools. The school administrations should prioritize investing in technology peripherals, software, hardware, and internet connectivity to create an environment conducive to effective technology use in classrooms. This might involve government initiatives, partnerships with tech companies, or fundraising efforts.

5. The administrations of schools, those who make decisions about education policy, and other key stakeholders should work together to develop long-term plans and policies that give more importance to the incorporation of technology in educational settings. Continual technology advancement within the educational system should be incorporated into these plans, which should include sustainable management practices.

6. Policymakers should perform regular assessments and evaluations of the success of technology integration in order to ensure that it is being used effectively. This can assist in determining areas that require improvement and measuring the impact of changes that have been done over a period of time. The implementation of these recommendations has the potential to considerably improve the technological landscape in the Lartebiokorshie Senior High Schools that have been chosen. This will result in the creation of an atmosphere in which instructors are well-equipped to make effective use of technology in order to increase the quality of teaching and learning experiences.

Suggestions for Further Studies

By using a technique known as purposive sampling, there were significant drawbacks associated with it. One of these drawbacks was that it restricted the capacity to generalise the data. On the other hand, the method did offer excellent directions for the study and offered insights that could be used in subsequent research. On top of that, the reliability of the findings is dependent on the responses that were provided by the educators who took part in the experiment. This is yet another restriction of the study. In addition, schools in Lartebiokorshie that were part of the Second Cycle were studied for this particular research project.

Instructors frequently tend to overstate their own degrees of expertise in their respective fields. It is necessary to do additional research that makes use of a variety of methods of information gathering, such as surveys, in order to develop a more comprehensive analysis of this conclusion. This is because the degree of knowledge that has been revealed here is quite high. Due to the

fact that it was a survey that was designed by researchers and was being carried out in collaboration with a research panel that had its headquarters in Europe, the questionnaire had not been evaluated in advance. The results of this poll, unfortunately, do not adequately portray the intricate connections that exist between instructional perspectives, attitudes, and the application of technological instruments. It is essential that, in subsequent research, adequate data be taken into consideration in order to facilitate a comparison between elementary schools and secondary schools.

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APPENDIX

UNIVERSITY OF CAPE COAST

COLLEGE OF DISTANCE EDUCATION

MASTER OF EDUCATION IN INFORMATION TECHNOLOGY

QUESTIONNAIRE

Dear Respondent,

This study seeks to assess teachers' acceptance and the use of technology during Covid-19 among Senior High schools in Lartebiokorshie, Accra. I will therefore solicit your cooperation and consent to participate in this study. The confidentiality of your response is assured. Thank you.

SECTION A: Demographic Information

1. **Gender**: Male ☐ Female ☐
2. **Age:** Below 25years ☐ 26-35 years ☐ 36 – 45years ☐
   46-55years ☐ Above 55 years ☐
3. **Teaching experience:** 1-5 years ☐
   6-10 years ☐
   11-15 years ☐
   16-20 years ☐
   21-25 years ☐
   26-30 years ☐
   31-35 years ☐
   Above 36 years ☐

Please indicate whether the following infrastructure is Very-Much Available (VA), Available (A), Somehow Available (SA) Not Available (NA)

What technology tools are available at the Laretebiokorshie Senior High Schools to support teaching during COVID-19?	**VA**	**A**	**SA**	**NA**
4. My school has a computer laboratory				
5. My school has enough computers in the computer laboratory.				
6. My school has ICT tools available in the school for teachers to use in their lessons				
7. My school has a projector for usage during lesson delivery.				
8. My school has a Wi-Fi for easy access to internet connectivity.				

SECTION B: Teachers' use of technology in the Senior High Schools in Lartebiokorshie. Please indicate whether you are Very-Much Competent (VC), Competent (C), Somehow Competent (SC) Not Competent (NC) in the following:

Teachers' use of technology in the Senior High Schools in Lartebiokorshie.	**VC**	**C**	**SC**	**NC**
9. Use of you tube to search for videos				
10. Use of Microsoft word				
11. Use of Microsoft excel				
12. Use of Email				
13. Use of presentation software				

SECTION C: Teachers' skills in using technology in the Senior High Schools in Lartebiokorshie. Please indicate the extent to which you agree or disagree to the following statements: Always (A), Sometimes (S), Rarely (R), and Never (N).

Teachers' skills in using in the Senior High Schools in Lartebiokorshie.	**A**	**S**	**R**	**N**
14. I take learners to the computer lab.				
15. I use projector in lesson delivery.				
16. I use laptop in class during lessons to explain concepts				
17. I use mobile phone to facilitate teaching in the classroom.				
18. I use you tube videos to enhance my lessons				

SECTION D: Challenges to the successful use of technology in the Senior High Schools in Lartebiokorshie.

SECTION E: The impact of the Covid-19 restrictions on the use of technology in the Senior High Schools in Lartebiokorshie. Please indicate the extent to which you agree or disagree to the following statements: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD).

The impact of the COVID-19 restrictions on the use of technology in the Senior High Schools in Lartebiokorshie.	**SA**	**A**	**D**	**SD**
19. I used Zoom for teaching during the covid era				
20. I use google meet for teaching during the covid era				
21. I access more apps and websites than I have previously.				
22. I have solely relied on technology to continue producing and presenting content for my students during the covid era.				
23. Students adjusted and easily used technology during the covid era.				

Thank you.