UNIVERSITY OF EDUCATION, WINNEBA

THE E-LEARNING EXPERIENCES OF ACCOUNTING STUDENTS: EVIDENCE FROM TWO GHANAIAN PUBLIC UNIVERSITIES

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A thesis in the Department of Accounting, School of Business, submitted to the School of Graduate Studies in partial fulfilment of the requirements for the award of the degree of Master of Philosophy (Accounting) in the University of Education, Winneba

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DECLARATION

Students Declaration

I, James Aboagye, declare that this thesis, except quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my original work, and it has been submitted, either in part or whole, for another degree elsewhere.

Signature:……

Date:……

Supervisor's Declaration

I hereby declare that the preparation and presentation of this work were supervised following the guidelines for supervision of the thesis as laid down by the University of Education, Winneba.

Supervisor's Name: Mavis Pobbi (PhD)

Signature:……

Date:……

DEDICATION

To my mentors Charles Omane-Adjekum, PhD and Mr. Ruben Agbeli (CA), my dear wife Elizabeth Aboagye, My brother, Stephen Baffour, and my two children, Melroy Nana Benefo and Harriet Awo Yeboah for their prayers, support, and motivation during this journey.

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LIST OF ABBREVIATIONS

ILE	Innovation Learning Environment
TPB	Theory of Planned Behaviour
UTAUT	Unified Theory of Acceptance and Use of Technology
TRA	Theory of Reasoned Action
HI	Higher Institution
AOU	Alquds Open University
F2F	Face to Face
LMS	Learning Management Systems
WBL	Web-Based Learning
IR 4.0	Fourth Industrial Revolution
UGC	University Grants Commission
AIS	Accounting Information Software
AI	Artificial Intelligence
OTL	Online Teaching and Learning
ROI	Republic of Ireland
TPP	Teacher Preparation Program
TL	Traditional Learning
CL	Cooperative Learning
LAL	Laptop-Based Active Learning
ICT	Information Communication Technology
US	United States
WBT	Web-based Training
SOL	Supported Online Learning
IBT	Internet-based Training

ADL	Advanced Distributed Learning
OL	Online Learning
O/FL	Open/ Flexible Learning
VL	Virtual Learning
DL	Distributed Learning
NL	Network Learning
TEL	Technology Enhanced Learning
CSCL	Computer-Supported Collaborative Learning
CML	Computer Managed Learning
CAI	Computer-Assisted Instruction
JISC	Joint Information System Committee
PDA	Personal Digital Assistant
HTML	Hyper Text Mark-up Language
SPSS	Statistical Package for Social Science
UCC	University of Cape Coast
UEW	University of Education, Winneba
PLS-SEM	Partial Least Square Structural Equation Model
CR	Composite Reliability
AVE	Average Variance Extracted
CCA	Confirmatory Composite Analysis
CFA	Confirmatory Factor Analysis
ATT	Attitude
TA	Technology Adoption
SI	Social Interaction
U	Preferred Usage

SRMR	Standardised Root Mean Square Residual
NFI	Normed Fit Index
d_ULS	Squared Equilidean Distance
d_G	Geodesic Distance
LM	Linear Regression Model
Q^2	Predictive Relevance

ABSTRACT

The disruption caused by information communication technology (ICT) in education, and the recent outbreak of the corona virus have emphasised the need to integrate technology in teaching and learning of accounting. The aim of this study is to evaluate the current use of e-learning technology in accounting instruction and provides insight into student's perceptions regarding the level of assistance e-learning technology provides in improving academic outcome in Ghanaian public universities using the sequential explanatory mixed method. This study used purposive sampling technique to select two public universities; University of Cape Coast (UCC) and University of Education, Winneba (UEW) from the fifteen (15) Ghanaian public universities. A simple random sampling was employed to choose 331 accounting students from a population of 2,536 students. Survey questionnaires were administered to students, the close-ended questions were used to collect quantitative data and the semi-structured interview for collecting qualitative data. The results revealed high level of interactivity with technology. The findings further showed that Attitude has a significant and positive influence on technology adoption. Also, social interaction has a positive and significance influence on technology adoption. However, preferred usage has positive but insignificant influence on technology adoption. Qualitative data confirmed that students are highly familiar with e-learning technology and engage it in their accounting courses. This study contributes to the development of a pedagogical framework designed to improve e-learning experiences of accounting students, and also guide policymakers in improving educational policies and standards that lead to high-quality accounting education in Ghanaian public universities.

CHAPTER ONE

INTRODUCTION

1.0 Background of the study

The remarkable advancements in digital technology have significantly transformed nearly every aspect of human life, with accounting education and the profession being no exception (Weerathunga et al., 2021; Berikol & Killi 2020; Asonitou, 2020). The emergence and integration of the internet and web technologies have begun to profoundly influence electronic modes of teaching and learning, particularly in specialized fields such as accounting. In both advanced and developing economies, the use of electronic mail and web-based platforms for instructional delivery is increasingly being recognized as essential for effective teaching and learning (Namirembe, 2019; Kononenko, Kravchenko, Nedospasova & Fedorovich, 2022; Kim, 2020). E-learning, supported by the internet, fosters interactive engagement between facilitators and students, which enhances the educational experience.

Since the mid-19th century, e-learning has evolved across various academic disciplines including Accounting, Economics, Finance, and Marketing (Choudhury & Pattnaik, 2020; Handoyo, 2024; De Nito et al., 2023). In the educational context, e-learning generally refers to the use of software-based tools and digital technologies to facilitate learning. In contrast, the corporate world often views e-learning as a form of virtual training or online professional development (Debattista, 2018; Kaizer, Sanches da Silva, Zerbini & Paiva, 2020; Souza, Motoki, Mainardes & Azzari, 2022). E-learning traditionally allows learners to access instructional materials at their own pace and convenience, often asynchronously. However, another instructional approach known as synchronous or two-way learning enables real-time interactions between facilitators and learners (Pfister & Mühlpfordt, 2023; Angelone, Warner &

Zydney, 2020; Fernandez, Ramesh & Manivannan, 2022; Phelps & Vlachopoulos, 2020). The increasing adoption of electronic learning methods in the delivery of accounting education has become particularly evident in Ghanaian public universities. One of the driving forces behind the rise in electronic learning, especially in the 21st century, is the growing demand for accessible education, which has necessitated the development of virtual universities (Lockee & Clark-Stallkamp, 2022; Mohamed Hashim, Tlemsani & Matthews, 2022; Lowenthal & Lomellini, 2023). Researchers have used a variety of terms to describe e-learning, such as correspondence education, home study, autonomous learning, virtual learning, and self-study. E-learning is widely regarded as both a pedagogical approach and a component of Innovation Learning Environments (ILEs) (Ananga, 2020; Ali & Alourani, 2021; Samoylenko, Zharko & Glotova, 2022). These environments are supported by technology and utilize diverse digital tools and learning methods ranging from portable storage devices and mobile applications to internet-based tools like Google Meet, satellite-delivered content, and virtual learning networks (Olszewski & Crompton, 2020; Luschi, Villa, Gherardelli & Iadanza, 2022; Raminpour, Weisberg, Kauffman & Fishman, 2024; Entienza, 2025).

The accounting profession plays a crucial role in driving change, especially by supporting the implementation of financial reporting reforms and helping organizations achieve strategic goals. As the global business environment evolves, the accounting profession also demands new skills to keep pace with this dynamic landscape (Dwaase, Awotwe & Smith, 2020). Accordingly, the mode of acquiring accounting knowledge and competencies must also adapt to these changes.

Prior to the COVID-19 pandemic, some universities in Asia, Europe, and parts of Africa, including Ghana, had already begun integrating online learning into their educational systems (Dwaase et al., 2020; Alshurafat et al., 2021). Although digital technology and the internet had become increasingly accessible, the adoption of e-learning in higher education institutions remained relatively limited until the global health crisis accelerated the shift in the year 2020 and beyond (Dhawan, 2020; Webb, McQuaid & Webster, 2021; Adedoyin & Soykan, 2023). Similarly, e-learning education was still at an early cycle of implementation in Ghana with most schools experiencing various challenges with its adoption and usage (Adarkwah, 2020). Before the corona virus pandemic, instructional delivery in accounting largely depended on traditional face-to-face methods, where interaction between facilitators and accounting students occurred in physical classroom settings (Foo, Cheung & Chu, 2021; Lin 2022; Ferrero & Álvarez Sainz, 2024).

However, the COVID-19 pandemic necessitated an abrupt transition to fully online teaching and learning (Adarkwah, 2020). Interactions were facilitated through digital platforms and devices, transforming the educational landscape (Ray & Srivastava, 2020). The outbreak of the recent corona virus pandemic affected over 1.5 billion students worldwide, with more than 110 countries forced to adopt online learning (United Nation Educational, Scientific and Cultural Education [UNESCO], 2020). According to UNESCO report for Global Education Monitoring on technology in education which was released in 2023, for the past two decades learners, educators and institutions have widely adopted technological tools. It is indicated in the report that the number of learners utilizing Massive Opening Online Courses (MOOCs) rose from 0 in the year 2012 to about 220 million in the year 2021. Also, the report shown that there were 20 million daily active users in 2023 for language learning application

known as Duolingo, and 244 million page views per day in 2021 for Wikipedia. Worldwide, it is revealed in the report that internet users increased from 16% in 2005 to 66% in 2022, with about half (50%) of the globe's second cycle institutions were connected to the internet for teaching and learning purposes in 2022. In response to the disruption, professional institutions like the Institute of Chartered Accountants of India (ICAI) rapidly digitalized their offerings (Desai, Desai, Davidyan & Litt, 2021; Vardia, Soni & Saluja, 2021; Nanjundaswamy et al., 2025). The ICAI, for instance, made its learning resources freely accessible online to accountants globally (Babakulova, 2022). The educational sector remains one of institutions which was largely affected by the pandemic (UNESCO, 2020). Universities were compelled to shut down physical operations to curb the spread of the virus, resulting in the implementation of curfews and physical distancing measures. These safety protocols gave rise to the urgent adoption of e-learning as an alternative instructional strategy (Inusah & Debrah, 2022). No country, institution, or individual remained unaffected by the global disruption caused by COVID-19 in 2020.

E-learning platforms represent an opportunity for students to acquire knowledge and skills remotely, often via internet-based applications (Cretan & Light, 2020; Nácher et al., 2021; Akhter, Javed, Shah & Javaid, 2021). In this regard, accounting students were not treated differently from their peers in other disciplines. Like others, they had to access their courses and undertake assessments through virtual learning platforms hosted on university websites. Moreover, familiarity with e-learning technologies had already become an essential component of higher education even before the pandemic. This is evidenced by the widespread use of online learning platforms and tools among accounting students, which has intensified in recent years as standards and expectations in accounting education have shifted to embrace digital learning

modes (Favale et al., 2020; Ali, Narayan & Gedera, 2022; Mardini & Mah'd, 2022; Shamsudin, Mamat, Pauzi & Karim, 2023).

The adoption of electronic learning (e-learning) in accounting education has evolved significantly before, during, and after the outbreak of the COVID-19 pandemic, revealing both substantial challenges and meaningful opportunities. Prior to the pandemic, e-learning adoption was limited in many developing economies which Ghana is included, due to infrastructural constraints and traditional pedagogical preferences (Adarkwah, 2020; Inusah & Debrah, 2022). During the pandemic, however, the urgency to maintain academic continuity propelled an unprecedented shift to virtual learning platforms. This rapid transition, while necessary, uncovered numerous impediments to effective instructional delivery in the accounting discipline. Among the most pressing challenges were inadequate access to technological devices, high costs of internet data, and inconsistent or poor internet connectivity (Owusu-Fordjour, Koomson & Hanson, 2020). Many students also faced difficulties adapting to new learning technologies due to low digital literacy (Adarkwah, 2020). These constraints made it difficult to sustain meaningful student engagement and limited the effectiveness of assessment methods in virtual environments.

Accounting, being a technical and computation-intensive subject, requires significant hands-on experience, which the virtual setting often fails to adequately replicate. As noted by Tomma, Rushwan and Garba (2022), courses with complex calculations such as accounting may not be best delivered through online-only platforms. The inherently quantitative and practical nature of accounting replete with figures, financial tables, and analytical problem-solving further complicates virtual instruction (Sangster, Stoner & Flood, 2020; Makhlouf & Alani, 2022; Ali et al., 2022). Some

scholars argue that transitioning accounting education to virtual modes may lead to diminished academic performance among students, especially when compared to traditional face-to-face learning (Alshurafat et al., 2021; Morgan, 2015). This perceived decline is attributed to limited real-time interaction, reduced opportunities for in-person guidance, and challenges in conducting practical case studies online.

Nonetheless, e-learning in accounting education also presents significant opportunities. It offers flexible access to instructional content, enabling students to engage with learning materials at their own pace and from any location. This flexibility is particularly beneficial for students balancing education with work or family responsibilities. In addition, the availability of diverse multimedia tools, interactive simulations, and case-based learning resources enhances conceptual understanding and practical application (Tratnik, Urh & Jereb, 2019; Abdullah, Yahaya & Mat Isa, 2020; Al Ghatrifi, Al Amairi & Thottoli, 2023). E-learning platforms also support collaborative learning, allowing students to interact through virtual forums, group projects, and peer discussions, fostering teamwork and critical thinking.

In the Ghanaian context: Owusu-Fordjour et al. (2020); Adarkwah, 2020; Boateng, 2023), identified technology-based instruction as a valuable alternative to traditional classroom teaching, particularly in secondary, and tertiary institutions. However, their study also emphasized key barriers, such as inadequate access to devices, the high cost of internet bundles, and insufficient technical support. The lack of parental involvement especially at the secondary school level further constrained students‘ ability to fully benefit from online learning (Adarkwah, 2020). The outbreak of COVID-19 in 2020 served as a catalyst for re-evaluating the role of technology in

education, particularly in the field of accounting. It underscored the need for institutions to invest in resilient digital infrastructures and equip both students and educators with the necessary skills and resources to thrive in a blended learning or fully virtual learning environment (Mailizar, Burg & Maulina, 2021). The pandemic did not merely expose vulnerabilities in existing systems but also highlighted the immense potential of e-learning to transform accounting education when supported by robust policy frameworks and equitable access to technology.

1.1 Statement of the problem

The advancement in information communication technology and expected future disruptions in education calls for renew strategy on accounting education to train students to acquire soft skills required by the job market (Weerantunga et al., 2021; UNESCO, 2020). Many universities and colleges are now touting the efficiencies of technology-based learning and rapidly implementing it to solve the needs of students (Cretan & Light, 2020). Despite the numerous benefits of online learning, some academic institutions basically adopted this mode of learning for the purpose of continuity during the period of disruption. Academics and practitioners still doubt the efficacy of online learning environment. Also, during the outbreak of recent coronavirus pandemic e-learning education in Ghana was in its infancy stage of implementation with most schools experiencing various challenges on adoption and usage (Adarkwah 2020). To address these associated challenges and ensure successful implementation and adoption, it is relevant to investigate the key factors that influence technology adoption in Ghanaian public universities.

Empirical research has found that socio-economic, political, socio-cultural and differences in other resources significantly impact the adoption of technology (Al-

Okaily et al., 2023). Infrastructure in developed countries is far better, facilitates the smooth adoption of technology than in developing countries such as Ghana. Among the developing countries there exist differences in economic development, political structures, and cultural diversity. The culture of some ethnic groups can create a positive or adverse behavior towards the interactivity of e-learning technology platforms.

It is revealed from previous literature: Olaniran and Maphalala (2020); Brink (2023); Adarkwah (2020), that most studies on e-learning have employed qualitative research design to investigate the state of e-learning technology and learning spaces in comprehensive university, the researchers recommended future studies should expand data collection to other universities. Studies such as (Al-Fraihat, Joy, Masadeh & Sinclair 2020; Al-Okaily et al., 2023; Pallavi, Ramachandra & Chinnasam 2022; Ali & Anwar, 2021) adopted quantitative research methods and recommended future studies should expand data collection to other universities in developing countries such as Ghana, future studies should also utilize large and culturally diverse samples, and also integrate qualitative research method to investigate the experiences of students. It is shown that most of the online learning studies either employed quantitative or qualitative research method analyzing data using regression, variance, and thematic analysis (Olaniran & Maphalala 2020; Al- Fraihat et al., 2020; Al-Okaily et al., 2023; Pallavi et al., 2022). As stated by Creswell and Creswell (2017), no single research method is capable of providing adequate findings for research problem involving human experiences.

Moreover, few researchers including (Adarkwah 2020; Owusu-Fordjour et al., 2020; Inusah & Debrah 2022; Amos et al., 2025) have provided important evidence on

technology adoption in Ghana. However, they failed to investigate the e-learning experiences of accounting students. Specifically, Owusu- Fordjour et al., (2020) conducted their study on senior high schools in Ghana, and failed to consider accounting students in Ghanaian Public Universities. A blanket assumption that all academic disciplines respond similarly to e-learning may be misleading. Accounting as a discipline, differs significantly from theoretical fields such as English, Political Science, Sociology, and Psychology. The course structure of accounting is computational, practical, and quantitative in nature, and therefore, its instructional demands are distinct. Also, Ansong, Boateng, Boateng, and Anderson (2017) assessed the adoption of e-learning in Ghanaian universities and found that its usage was still relatively limited. Their study reported that e-learning platforms were mostly used for accessing academic results rather than for robust teaching and learning purposes. They recommended that future research should include more universities and employ mixed-method research approaches to generate deeper insights. As such, it is imperative to investigate e-learning experiences of accounting students, particularly within the context of Ghana.

This study addresses those identified critical gaps by assessing students‘ level of interactivity with e-learning technology in teaching and learning of accounting courses, evaluating the impact of e-learning experiences on technology adoption, and further explore the perception of accounting students towards adoption of e-learning. The findings from this study aim to enrich existing literature and provide deeper understanding on e-learning technology adoption in accounting education for educational institutions, policymakers, and stakeholders. Specifically, the study offers evidence-based recommendations on improving the delivery of e-learning technology-

based accounting education through e-learning platforms, ensuring that technological integration enhances rather than hinders student learning outcomes.

1.2 Purpose of Study

This study evaluates the current use of e-learning technology in accounting instructional delivery and provides insight into students‘ perceptions regarding the level of assistance e-learning technology provides in improving academic outcomes of accounting students in Ghanaian public universities.

1.3 Research Objectives

The following specific research objectives are formulated to guide the study.

1. To assess the level of interactivity with e-learning technology in the teaching and learning of accounting courses in Ghanaian public universities.
2. To evaluate the influence of e-learning experiences on technology adoption of accounting students in Ghanaian public universities.
3. To explore the perceptions of accounting students towards the adoption of e-learning in Ghanaian public universities.

1.4 Research Questions

1. What is the level of interactivity with the e-learning technology used in teaching and learning accounting courses in Ghanaian public universities?
2. How have the e-learning experiences influence on the technology adoption of accounting students in Ghanaian public universities?
3. What is the perception of accounting students towards the adoption of e-learning in Ghanaian public universities?

1.5 Significance of the Study

This study significantly contributes meaningfully to the fields of theory, practice and policy in accounting education, specifically concerning the incorporation of existing theories; Theory of Planned Behaviour and Unified Theory of Acceptance and Use of Technology to evaluate the factors that affect adoption of e-learning technologies. Basically, this study develops theoretical understanding by proposing and validating a conceptual framework that investigates the relationship between accounting students' e-learning experiences and their technology adoption behaviours. Through the stated framework, it provides basic knowledge that can assist future research on technology integration across different educational setting.

In practical point of view, this study offers concrete guidance for accounting educators and instructional designers having the objective to improve teaching and learning effectiveness through technology. The findings emphasize the relevance of improving quality and interactivity of online resources and supporting hybrid learning environments to enhance student satisfaction and technological proficiency. By addressing the unique needs of accounting students, specifically within the Ghanaian public universities, the insights from this study provide support in developing tailored e-learning techniques. Moreover, the findings from this study motivate universities to employ innovative methods that assist student interactivity and enhance academic performance by integrating emerging technologies effectively. At the policy making level, this study provides evidence-based implications to institutional leaders and education policymakers about the critical role of e-learning technologies in contemporary accounting education. This study advocates for strategic initiatives that embed technology-based learning as a fulcrum element of curriculum design to achieve excellence accessibility, and interactivity. Furthermore, this study highlights

the relevance for investment in infrastructure, faculty training, and continuous assistance to facilitate successful technology adoption. This study informs policies that could empower academic institutions to encourage collaborative, flexible, and effective e-learning environments that provides the emerging needs of accounting students and the labour market.

1.6 Limitations of the Study

This study is limited to responses from accounting students only, without considering inputs from facilitators and academic management of the universities. Moreover, this study adopted the mixed method data collection using survey questionnaire and semi-structured interview. The collection of the qualitative data did not consider other methods such as focus groups, experiment etc. which could allow detailed views from the respondents. Some accounting students were reluctant to answer the questions which resulted in a 75.6% response rate out of the total questionnaires administered limiting the contextual nuances that could have been ascertained from a higher response rate.

1.7 Delimitation of the Study

This study focused on accounting departments at two public tertiary universities (UCC and UEW) in Ghana and responses were from students‘ perspectives. This is because UCC and UEW have demonstrated academic excellence and leadership in distance education in Ghana (Agyenim-Boateng et al., 2023). These two universities being pioneers in distance learning education have established facilities and departments which are robust for e-learning. Both institutions have been recognised as top-performing business universities through the potent accounting graduates they,

emphasizing their high standards and effectiveness in delivering quality accounting education.

To investigate e-learning experiences, UCC and UEW status makes them best environments where student's perspectives on e-learning technology experiences were considered. Moreover, UCC and UEW have invested significantly in digital infrastructure and hybrid learning abilities, facilitating a robust e-learning environment for instructional delivery. This makes available important and modern context to investigate how technology integration improves learning outcomes in accounting courses. Also, using UCC and UEW as context enables for a consistent study setting where institutional policies and resources are comparable, minimizing changeability that might arise from different private institution practices. Furthermore, UCC and UEW as public universities enrol a large and diverse student population, assisting this study to capture different range of student perspectives and experiences critical for understanding technology adoption in accounting education. Their prominence and resources position them as benchmark public universities whose insights can inform enhancements in e-learning techniques both regionally and nationally. The specific context of this study's findings may not be generalised across different students of different departments and private universities due to its limited focus on accounting students from only two public universities. Other determinants might have an impact on technology adoption examined in this study such as the quality of resources needed for this study, the environment, gender, and culture of the students.

1.8 Organization of the Study

This research is structured into five interconnected chapters. The first chapter provides the introduction, outlining the background of the study, the research problem, objectives, research questions, the significance of the study, the scope of the research, delimitation of the study, and the organization of the research. Chapter Two presents a review of relevant literatures, examining previous studies and related research on the topic. The third chapter details the research methodology, including the research design, approach, target population, sample size and sampling techniques, data sources, and methods of data analysis. The fourth chapter focuses on the analysis of data and the discussion of findings. The final chapter concludes with a summary of the study, key conclusions, and recommendations based on the analyzed data

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Chapter two of this study covers the literature review in light of the use of technology in accounting education. In this chapter, the study reviews the theoretical foundation upon which the study is based; a conceptual review; an empirical review of prior studies that are directly and indirectly related to this study, and conceptual framework adopted for this study and lastly, a summary for this chapter.

2.1 Theoretical Review

The main theories employed in this study are; The Theory of Planned Behaviour (TPB), and the Unified Theory of Acceptance and use of Technology (UTAUT).

2.1.1 Theory of Planned Behaviour (TPB)

The Theory of Planned Behaviour (TPB) was propounded by Acek Ajzen in 1985. It is classified as human behavioural theory that explains why individuals show a particular attitude (Ajzen, 1985). Theory of Planned Behaviour has key objective to predict individual‘s intentions to engage in a behaviour. TPB extends the Theory of Reasoned Action (TRA), advanced to curb shortcomings, and tackling attitudes that are beyond the control of an individual, hence presenting the concepts known as perceived behavioural control, attitudes towards behaviour, and subjective norms (Ajzen, 2020). There is high prediction accuracy in attitudes, subjective norms, and behavioural control from attitudes toward behaviour, subjective norms, and perceived behavioural control and intentions to act those behaviours combined. Perceptions of behavioural control account for the considerable discrepancy in resulting behaviour. There is a link between attitudes, subjective norms, and perceived behavioural and

appropriate sets of important behaviour, normative, and beliefs. Concerning perceived behaviour actual characteristics of these relations are still not clear.

Attitude: can be defined as the level of an individual‘s advantageous and disadvantageous evaluation of identified behaviour (Ajzen, Fishbein, Lohmann & Albarracin 2018).

Subjective norm: refers to social pressure to engage in a behaviour or not (Ajzen, 2020). It is a societal control that impacts information system continuance. Bhattacherjee (2020) considered it a dual influence which includes; interpersonal, and external influences. The interpersonal influence is whereby friends, family relatives, superiors, and experienced individuals who relate to the potential adopter impact his or her beliefs. The external influence on the other hand is whereby media information, opinions of experts in a particular field, and other formal advice are used in acting behaviour. The theory of planned behaviour (TPB) concluded that perceived behavioural control together with behavioural intention can be employed directly to foretell behavioural achievement. The theory of Planned Behaviour (TPB) states that human behaviour is controlled by these groups of factors: the subjective norm, attitude toward behaviour, and perceived behavioural control.

Perceived behavioural control: is strongly interdependent with the concept of self-efficacy Bandura (1991) as cited in (Munir, Nauman, Ali Shah & Zahid, 2024), which appears to be a pivotal variable of motivation (Mutlu, 2018). Self-efficacy beliefs can impact selecting actions, readiness for a movement, achievements for implementing the activities together with intellectual ability, and psychological reactions (Munir et al., 2024). The theory of planned behaviour (TPB) assembles self-efficacy belief or behavioural control in a more universal framework of relations among beliefs,

attitudes, intentions, and behaviour. As earlier stated in the theory of reasoned action, an individual's intentions to act on a given behaviour are a pivotal determinant in the theory of planned behaviour. It is presumed that intentions show what motivates individuals to put up a behaviour. They are marks of how people are prepared, attempt, and the extent they are prepared to use vigour. The generally accepted rule is that; ~~t~~he higher the intention of an individual to absorb in a behaviour the higher achievements obtained". Nonetheless, intentions connect expression in behaviour if the behaviour being considered is consciously controlled. That is when an individual has the will power to engage or not to engage in a certain behaviour (Ajzen, 2020).

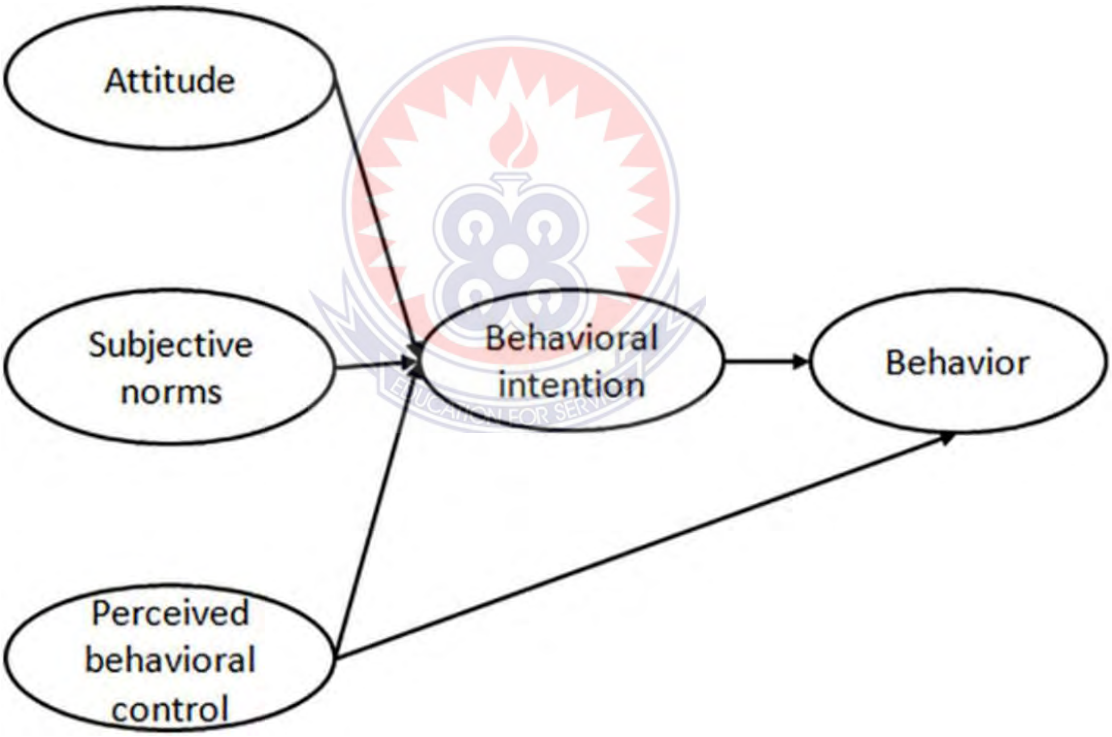

Figure 2.1: The Theory of Planned Behaviour

Source: Adopted from TPB (Ajzen 1991)

Figure 1, is the theoretical framework for TPB with its identified key concepts: Attitude, Subjective Norms, and Perceived Behavioural Control which are revealed to

predict Behavioural Intentions to act in a particular behaviour, with a high level of accuracy.

Adoption of technology in education which is the pivoted aim for this study, is greatly affected by the three key variables in TPB that predict behaviour. Attitude; which is proxied as ‗attitude towards e-learning technology'. With ‗attitude' as one of the factors that determines the intention to adopt technology for learning is based on the overall valuation of the technology adopted for education being favourable or unfavourable. To apply attitude as a factor influencing technology adoption, a student with positive belief that technology adoption has benefits such as; quick in accessing study information, saves time, promote collaborative learning etc. is more likely to adopt it (Wang et al., 2025). Conversely, if the student has negative belief that technology adoption has challenges like; costly, lack of internet connectivity and network etc. and outweighs the benefits, then the student is less likely to adopt the technology for learning (Wang et al., 2025). Attitude has been shown to have strong relationship with technology adoption (Ajzen, 2020).

Hence, there is the need to address every challenge associated with technology adoption. For instance, by providing free computers, internet service and many more to students. Also, every misinformation about technology-based learning must be addressed. Subjective Norms; which is proxied as ‗social interactivity' in this study also influences technology adoption through pressure from colleague learners who are already interacting on the e-learning platforms. A facilitator who has adopted the virtual platforms could also pressure learners to adopt e-learning technology for academic activities. Student and facilitators already using technology for academic activities must take their colleagues through the benefits of adopting technology-

based learning, encourage wide spread technology adoption, positively spread information regarding quality of online acquired certificates etc. Perceived Behavioural Control; also proxied as the ‗preferred usage' of e-learning technology, refers to the ease which technology adoption can be utilised for different activities such as; live presentation, retrieving lecture notes etc. A student with technological skills and without difficulties to use online platforms would be willing to adopt it. Considering perceived behavioural control as factor that influence technology adoption, learners and facilitators who lack technological skills must be given training, introduce programs that would encourage interactivity on the online platforms, and be given the required resources that facilitate technology adoption.

Previous research has successfully adopted TPB to predict and explain different behavioural domains such as technology adoption, drug use, choice of travel mode etc. (Hardcastle, Maxwell-Smith & Hagger, 2022; Sujood, Bano & Siddiqui, 2024; Wang et al., 2025; Oteng-Peprah, De Vries & Acheampong, 2020; Al-Mamary et al., 2024; Sugeng & Suryani, 2024). Specifically, in accounting education studies; Sugeng and Suryani, (2024), employed the Theory of Planned Behaviour (TPB) to investigate accounting educators' teaching and learning methods. The findings shown that attitudes, subjective norms, and perceived behavioural control all have a significant influence on the intentions of accounting educators to adopt contemporary learning platforms and ultimately the intentions impact technology adoption.

The Theory of Planned Behaviour is the best basic theory to be adapted for this study because with factors that determine technology adoption behaviour: attitude, social pressure, required facilities and training are made available for the individual. Also, TPB assists to identify potential hindrances to change in behaviour (technology

adoption) for accounting education that might not be considered otherwise. However, many issues remain unresolved by the TPB and that is recognised as a major weakness to the theory (Oteng-Peprah et al., 2020). The theory of planned behaviour maps attitudes, subjective norms, and perceived behavioural control to a fundamental foundation of beliefs about the intentions. Despite the existence of proof for a significant relationship between behavioural beliefs and attitudes toward the intentions. The form of this relationship remains unknown. Moreover, the broad nature of a topic that examines human experiences would not make the Theory of Planned Behaviour the solely theory which is best fit to underpin such a study. Therefore, this study applied a second theory which is the Unified Theory of Acceptance and Use of Technology (UTAUT) to augment the Theory of Planned Behaviour (TPB).

2.1.2 Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh, Morris, Davis, and Davis (2003), synthesized the Technology Acceptance Model (TAM), and Theory of Planned Behaviour (TPB) to obtain the Unified Theory of Acceptance and Use of Technology (UTAUT). It revealed the following key constructs: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. It further identified the following moderators: Age, Gender, Experience, and Voluntariness in predicting Behavioural Intention to use technology. According to UTAUT, Performance Expectancy, Effort Expectancy, and Social Influence are considered to impact the behavioural decisions to adopt technology for learning (Venkatesh et al., 2003). It is noted that Behavioural Intentions and Facilitating Conditions determine technology use in learning. Furthermore, different combinations of moderators were considered and revealed to moderate various UTAUT relationships. There is a significant moderating influence of Experience,

Voluntariness, Gender, and Age which are confirmed as essential characteristics of the UTAUT model.

The new Unified Theory of Acceptance and Use of Technology (UTAUT2) was recently proposed and tested by Venkatesh, Thong, and Xu (2012), as a form of the Unified Theory of Acceptance and Use of Technology which was originally propounded (Venkatesh et al., 2003). The UTAUT2 included the following constructs: Hedonic motivation, Price value, and Habit. It was said to explain about seventy-four percent (74%) of the difference in consumers' Behavioural Intentions to employ technology in activities and fifty-two percent (52%) of the difference in consumers' technology use (Venkatesh et al., 2012). According to Venkatesh et al. (2012), UTAUT based study has prosperous constructs to explain technology use despite some researchers reporting that UTAUT has reached its peak of unravelling individual decisions to employ technology in organizations. The rebirth of the UTAUT to UTAUT2 is partly due to an increase in UTAUT-based research resulting from the increase and spreading of advanced Information Technologies (ITs) (Venkatesh et al., 2012).

The following is the list of studies that proof to the high use of UTAUT and the need for its extension to UTAUT2: enterprise systems (Sykes, 2015); integrating digital technology in information-intensive entities, mobile Internet for consumers (Thong et al., 2011; Venkatesh et al., 2012), Smart Information System, e-government for citizens, and health Information System in the healthcare industry (Zafar et al., 2014). Information Technology has influenced both organizations and society and has spiked entire society and individuals in different fields now employ IT. The past two decades have witnessed the development of diverse contemporary Information Technologies

and concurrent studies underpinned by UTAUT. In analysing the various literatures, it was found that the Information Systems field was at a critical point regarding what holds for the continuance use of UTAUT. Particularly, the possible theoretical contributions from further research into technology acceptance and use were seen as a threat. Scholars through systematic evaluation contributions of the existing UTAUT-based studies revealed limitations of UTAUT and the limitations of UTAUT-based research from which researchers developed this current UTAUT2. It is used as the new framework for the acceptance and use of technology with aims toward gaining promising future research directions. Adopting the UTAUT in technology education study which examines the e-learning experiences of accounting students in Ghanaian public universities is suitable. The intention to use technology in learning is highly addressed by this theory and the various moderating factors, and outcomes are all captured. Below is the brief description for main constructs of UTAUT that impacts the intention and adoption of technology for learning, but detailed description is found in Venkatesh et al., (2012).

Performance expectancy (PE): Performance expectancy is a key variable that influences holistic acceptance, understanding of technology adoption and ultimate use of the important technology. It has been identified as having the strongest impact on intention to adopt a technology (Venkatesh et al., 2012). In this study‘s context, it refers to the extent to which accounting students perceived that using technology for learning would assist them gain enhance performance in their learning.

Effort expectancy (EE): Previous research has shown that variables related with effort expectancy have stronger impact on intention about using new technology (Venkatesh et al., 2003). This study refers to effort expectancy as the degree of

expectation of accounting students that the use of technology for learning would not be physically and mentally difficult (ease of technology use for learning).

Social influence (SI): It refers to the level which accounting students perceived that others who are important such as; friends, University facilitators, peers believe e-learning technology be used for learning accounting courses.

Facilitating conditions (FC): This is considered as the extent to which accounting students perceived there is enough organizational and technical infrastructure, to assist the use of e-learning technology as supportive-learning tools.

Hedonic motivation (HM): In this study's context, it is considered as perceived enjoyment or pleasure from accounting students in using e-learning technology. Previous research has shown perceived enjoyment has significant impact on technology adoption for learning (Wang et al., 2025).

Price value (PV): This study operationalised PV as a predictor of Behavioural Intention to adopt e-learning technology.

Habit (HT): It is examined as the level to which a person believes the behaviour to be involuntary, due to impacts of technology use (Venkatesh et al., 2012). Habit reveals the previous experiences gained from technology use.

Behavioural intention (BI): It is considered as important factor behind the actual use of technology in diverse intention models (Venkatesh et al., 2003). It is operationalised as the degree to which accounting students intend to use e-learning technology in their accounting courses.

USE behaviour (USE): for the purpose of this study, USE refers to the level to which accounting students use e-learning technology for accounting courses.

It is noted that the adoption and use of e-learning technology by accounting students for their academic activities could be a function of the variables in UTAUT described above. Most studies have used the UTAUT theory to provide empirical insights into the acceptance of diverse technologies by participants in different contexts (Venkatesh et al., 2012). Previous research on online learning technology adoption by students such as: (Ameri, Khajouei, Ameri & Jahani, 2020; Kumar & Bervell, 2019; Abdekhoda, Dehnad & Zarei, 2022; Abbad, 2021) employed variables from the UTAUT theory. Different disciplines such as technical education, health sciences, management, accounting have accepted and tested UTAUT theory. Kumar and Bervell, (2019) stated that UTAUT has been used in technology adoption for learning. Conversely, there is a limited use of UTAUT theory in the context of higher education by students for learning (Ameri et al., 2020; Kumar & Bervell 2019; Abbad, 2021). Specifically, Ameri et al., (2020) employed UTAUT to investigate the behavioural intention of students that pursue pharmacy, intend to accept and use for long-period mobile-based technology for academic activities. The findings revealed that performance expectancy, social influence and habit positively impact behavioural intention. It was further shown that behavioural intention had a positive and significance influence on USE, with the habit impact on USE in male being higher than female. Similar study by Rudhumbu, (2022) applied the UTAUT theory to predict the acceptance of blended learning by university students in Zimbabwe. The findings indicate that five factors of UTAUT (performance expectancy, effort expectancy, social influence, facilitating conditions, and hedonic motivation) positively and significantly influence

behavioural intentions. However, habit and USE did not influence behavioural intentions significantly.

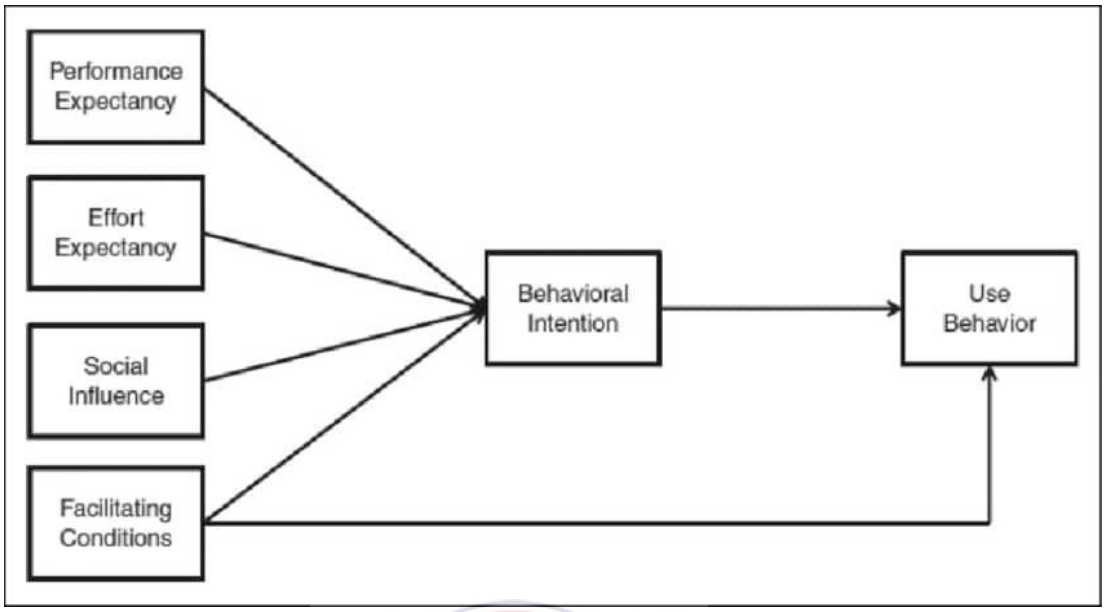

Figure 2.2: Unified Theory of Acceptance and Use of Technology (UTAUT)

Source: Adopted from Venkatesh et al. (2003).

2.1.3 Summary of the Strengths and Weaknesses of the Theories Reviewed

To begin with the strengths; TPB is noted for dealing with the behavioural intentions of individual, it also deals with internal social and user features. UTAUT is also noted for addressing external user, ICT features but deals little with social features. Notably, it is popular with explaining about 70% of examining actual usage of e-learning. Considering their weaknesses, TPB still finds it difficult to fully explain how a person's belief impacts internal features to predict technology use, it is hindered from capturing external determinants like institutional, environmental, pedagogical etc. Another drawback of the TPB is its failure to capture the effectiveness of the technology. The UTAUT is also challenged by its inability to explain the features of institutional, environmental etc. It also fails to explain the effectiveness of the ICT.

2.2 Conceptual Review

The various concepts used in this study are reviewed in this section of the chapter.

2.2.1 Historical Overview of The Two Target Ghanaian Universities

University of Education, Winneba (UEW) and University of Cape Coast (UCC) are famous from their area of specializations which is Education (Agyenim- Boateng et al., 2023).

2.2.1.1 University of Education, Winneba (UEW)

The PNDC Law 322 (1992) was original legal instrument used to establish the University of Education, Winneba. The instrument was later amended to the University of Education, Winneba Act (Act 672) of 2004 by integrating seven diploma awarding institutions (Advanced Teacher Training College, Specialist Training College, National Academy of Music, The School of Ghana Languages, The College of Special Education, Advanced Technical Training College, and St. Andrews Agricultural Training College. With regards to teacher training or education development in Ghana, University of Education, Winneba is the leader with core responsibility of producing professional educators to help implement emerged national vision for education with objectives at assisting Ghana achieve rapid economic and social development. University of Education, Winneba (UEW), began as a College of Education which was later moved to full university status in 2004, and operated on four satellite campuses across Ghana: Winneba, Kumasi, Ashanti-Mampong, and Ajumako. Presently, the Kumasi campus was enacted with the name Akenten Appiah-Minkah University of Skills Training and Entrepreneurial Development Act (2020), Act 1026. University of Education, Winneba has student population of approximately sixty-one thousand (61000) as at 2025/2026 academic

year. This population is spread across two campuses, five schools, seven faculties, two institutes, and two colleges. The university has developed and expanded its Distance Education Regional Study Centers to more than forty-four (44) centers. Every country in this 21st century put much emphasis on human capital which helps to respond to the realities and necessities of modern economies and beyond continents. University of Education, Winneba plays a pivotal role in producing scholars whose expertise would fit into such realities and necessities. The university now operates beyond its core mandates of teacher training by expanding various departments and faculties to cover non teacher training disciplines such as pure business programs for the corporate world, Arts, health sciences and many more. The mission of UEW is to train competent professional facilitators for various degree of education as well as engage research, disseminate knowledge, and assist to educational policy and development. Also, the vision of the university is to be reputable worldwide for teacher education and research. Some noted core values associated with UEW are; academic excellence, good corporate governance, gender equity and social inclusiveness etc.

2.2.1.2 University of Cape Coast (UCC)

In considering teacher education, capacity building for education systems, and other broad range of disciplines in higher education landscape of Ghana, then University of Cape Coast has played a key role. The University of Cape Coast was established in 1962 then referred to as University College of Cape Coast having special relationship with University of Ghana, Legon. The University of Cape Coast was established with the original purpose to train graduate teachers to fill the manpower gap after the post-independence of Ghana (Boateng et al., 2023). In 1st October 1971, the University of Cape Coast became autonomous university capable of conferring its own degrees,

diplomas, and certificates through the parliamentary act. The university later widened and broadened its mandate beyond teacher training to cover different disciplines. University of Cape Coast started with two departments: Arts and Science), and developed rapidly to include Education, Economics and Social Studies which is now Faculty of Social Sciences. Additional faculties were later created to meet the needs of the Ghanaian economy. The university basically operates across different campuses with the main campus situated on a hill facing close to cape coast's historic coastline. In 1963 the University of Cape Coast had student enrolment of about 155, but currently has student population of approximately 74,720. The population comprises of undergraduate, sandwich undergraduate, regular postgraduate, sandwich postgraduate, distance undergraduate, and distance postgraduate students. The vision of UCC is to be ~~"~~globally recognized as strongly positioned for innovative teaching, research, outreach, and professional development". Moreover, the university has its mission to ensure ~~"~~equitable chance for learners to gain quality education via comprehensive, liberal and professional programs that challenge learners to be creative, innovative and responsible citizens". Some identified core values of the university include: Excellence, Equal Opportunity, Ethical Behavior and many more.

2.2.2. Definition of e-learning

E-learning refers to the process of acquiring knowledge through the use of electronic technologies, enabling access to educational content beyond the boundaries of traditional classroom environments (Quansah, 2020). Typically, e-learning is facilitated through Learning Management Systems (LMS), which may be institutionally hosted or freely available online platforms. The core idea of e-learning involves leveraging computer and digital technologies to enhance the teaching and learning experience. This shift acknowledges the growing complexities of academic

programs and the increasing diversity of learners in the education sector (Marsick & Neaman, 2018). According to Negahban and Zarifsanajey (2020), e-learning is a multifaceted concept that encompasses various terms with similar meanings, such as open learning, virtual learning, online learning, and computer-based learning. Similarly, Wong (2015) identified related terminologies including web-based learning, web-based instruction, and technology-enhanced learning, all of which highlight the broad spectrum of digital learning approaches. Since its inception, e-learning has evolved significantly. It now includes not only fully online courses but also blends with traditional "brick-and-mortar" educational programs through the incorporation of digital tools (Nugroho, Setyorini & Novitasari, 2019). Numerous definitions of e-learning exist in academic literature, many of which converge around common themes.

For instance, Daultani, Goswami, Kumar and Pratap (2021) define e-learning as ~~"~~the use of telecommunication technology to deliver information for education and training." Similarly, Pallavi et al. (2022) defines it as ~~"~~a virtual learning environment in which a learner's interactions with materials, peers, and instructors are mediated through information and communication technologies." These definitions underscore two essential components of e-learning: (1) the delivery of educational content through digital platforms and (2) the facilitation of learner interactions via technology. While e-learning presents both advantages and challenges for students, educators, and educational institutions, the benefits tend to outweigh the limitations. The National E-Learning Guidelines for Pre-Tertiary Schools in Ghana recognize e-learning as an effective contemporary approach for extending teaching and learning beyond face-to-face classroom settings. According to these guidelines, e-learning can be strategically developed to engage learners who are unable to attend school due to geographical,

financial, or personal constraints. Furthermore, it serves as a valuable tool during academic breaks or emergencies such as the COVID-19 pandemic. E-learning platforms also support the development of a wide range of skills and technical competencies that are essential in the 21st-century educational context.

2.2.3 E-Learning Technology Trends in Ghana's Education Sector

Digital technology has become a vital enabler of educational advancement globally, and its impact is also evident within Ghana‘s higher education landscape. The use of Information and Communication Technology (ICT) in Ghanaian universities has seen considerable progress, particularly in public institutions (Ansong et al., 2017). These universities have made concerted efforts to enhance ICT infrastructure, including the construction of ICT laboratories, installation of network systems, and provision of computer facilities. Such developments have facilitated a more dynamic instructional delivery system through electronic collaboration between students and instructors. Many public universities in Ghana have adopted ICT policies, which include the implementation of an ICT levy to support infrastructure development and student access to digital resources (Ansong et al., 2017). As a result, students now benefit from access to computer laboratories with full-day internet connectivity. However, despite these advancements, several challenges persist. Key among these is inadequate network quality, high costs of internet data, and the significant human and financial resources required to maintain ICT facilities. These challenges hinder the full integration of digital technology into teaching and learning processes. Since independence, education in Ghana has been regarded as a critical tool for national development. The formal education system continues to serve as a primary means for developing human capital at both the pre-tertiary and tertiary levels. Over time, tertiary education has experienced improvements in instructional quality, transitioning

from traditional classroom methods to the integration of ICT in lesson delivery. Recognizing the global shift toward technology-enabled learning, the Government of Ghana introduced the ICT in Education Policy in 2008 under the ICT for Accelerated Development (ICT4AD) initiative. This policy aimed to promote effective teaching and learning through the use of ICT across all levels of education.

The onset of the COVID-19 pandemic further accelerated the adoption of e-learning in both public and private tertiary institutions in Ghana. During this period, e-learning programs were implemented to ensure continuity in academic instruction while students remained at home. In the post-pandemic context, educational institutions are encouraged to maintain the momentum of digital learning adoption by embracing flexible, technology-driven teaching methods. To guide this transition, the National Inspectorate Board issued e-learning guidelines, recommending that schools adopt either commercial or free open-source Learning Management Systems (LMS), which could be either locally installed or cloud-based. This approach is expected to improve learning outcomes and promote greater inclusivity and accessibility in higher education across Ghana.

2.2.4 Types of e-Learning

Some scholars have identified types of e-learning based on learning tools, while others have decided to concentrate on different metrics such as synchronicity and learning content. According to Al-Atabi and Al-Noori (2020), there are 10 easily identifiable types of e-learning. These include: Computer Managed Learning (CML), Computer Assisted Instruction (CAI), Synchronous Online Learning, Asynchronous Online Learning, Fixed E-Learning, Adaptive E-Learning, Linear E-Learning, Interactive Online Learning, Individual Online Learning, Collaborative Online

Learning (Al-Atabi & Al-Noori, 2020). Otherwise, some scholars have decided to identify e-learning types. They identified just two basic types of e-learning: computer-based e-learning and internet-based e-learning. This technique of grouping could be regarded as more accurate because it distinguishes e-learning from online learning, the two of which are often incorrectly used interchangeably. Forms of e-learning such as CML and CAL are not required to take place online, but they are considered types of e-learning. Computer Managed Learning (CML): Computer Managed Learning (CML), also known as Computer Managed Instruction (CMI), refers to the use of computer systems to plan, deliver, monitor, and evaluate learning processes. These systems rely on extensive databases that contain instructional content, assessment tools, and performance-tracking mechanisms.

Within a CML environment, students interact with the system by engaging with digital learning materials, after which the computer assesses their understanding based on predefined criteria and ranking parameters. This dual interaction between the learner and the system enables the continuous monitoring of progress toward specific learning objectives. One of the core features of CML is its ability to personalize learning pathways. By analyzing student performance data, the system can autonomously determine whether a learner has satisfactorily achieved their learning goals. If not, the system can guide the student through remedial instruction or repeat cycles of the learning material until mastery is attained. This iterative feedback loop promotes mastery-based learning, ensuring that students reach competency before progressing to the next instructional level. In addition to facilitating individual learning, educational institutions also utilize CML systems for administrative and instructional management purposes. These systems are commonly used to store and retrieve vital educational data, including lecture schedules, course materials, student

grades, curriculum outlines, and enrolment records. By automating these functions, institutions enhance efficiency in educational planning, resource allocation, and performance evaluation, thereby supporting a more data-driven approach to academic administration. Computer Assisted Instruction (CAI): Computer Assisted Instruction (CAI), also referred to as computer-assisted learning (CAL), is a type of e-learning that uses computers together with traditional face-to-face teaching. This refers to interactive software for the students. Computer-assisted training techniques use a combination of many media such as text, graphics, sound, and video to improve learning. The basic value of CAI is interactivity, it enables students to become potent learners not rather passive learners, through the use of various approaches like quizzes and other computer-assisted teaching and testing mechanisms, modern schools currently, both online and traditional, employ distinct variations of computer-assisted learning to aid the development of skills and knowledge in their learners.

Synchronous Online Learning: Synchronous online learning refers to a mode of e-learning in which groups of learners engage in educational activities simultaneously, despite being in geographically dispersed locations. This form of learning typically utilizes real-time digital communication tools such as video conferencing, live chats, and virtual classrooms. These tools enable immediate interaction between learners and instructors, allowing for instant feedback, clarification of concepts, and dynamic discussions, thereby closely simulating the traditional classroom experience (Hrastinski, 2008). The rapid evolution of online learning technologies has significantly contributed to the feasibility and effectiveness of synchronous learning environments. Before the development of computer networks in the 1960s, synchronous e-learning was virtually impossible. However, advancements in internet connectivity, digital infrastructure, and virtual collaboration tools have made it a

widely adopted practice in contemporary education. One of the key advantages of synchronous e-learning is its ability to mitigate some of the well-documented drawbacks associated with asynchronous e-learning such as feelings of isolation, lack of immediate support, and limited peer-to-peer interaction. By facilitating real-time engagement, synchronous learning fosters a stronger sense of community, enhances learner motivation, and supports collaborative knowledge construction (Bower et al., 2015). Due to these benefits, synchronous e-learning has become one of the most popular and fastest-growing forms of online education. It offers a balance between technological innovation and the social dimensions of learning, which are essential for effective teaching and learning experiences in the digital era. Asynchronous Online Learning: Asynchronous online learning is a mode of e-learning in which learners engage with educational content and activities at different times and from different locations, without the need for real-time interaction (Singh & Thurman, 2019).

In this approach, communication and learning are not bound by time constraints, allowing participants to access instructional materials such as recorded lectures, discussion forums, emails, and reading assignments at their convenience. Asynchronous e-learning is widely regarded as a more learner-centered method, offering flexibility and autonomy in the learning process (Hrastinski, 2008). This learning mode is particularly suitable for individuals who have demanding schedules, such as working professionals or those with family responsibilities, as it supports self-paced learning. Learners can plan their study schedules and progress through the content at a pace that suits their individual needs, rather than adhering to a fixed timetable or participating in live sessions with others (Singh & Thurman, 2019). Historically, all forms of e-learning were asynchronous, especially before the advent of computer networking technologies. Notably, before the development of the

PLATO (Programmed Logic for Automatic Teaching Operations) system in the 1960s, there were no means of enabling real-time digital interaction. However, the emergence of the internet and modern ICT tools has broadened the scope of online education, making both synchronous and asynchronous learning possible and widely accessible. Despite the growing availability of synchronous options, asynchronous e-learning remains a preferred choice for many due to its flexibility (Singh & Thurman, 2019). Nevertheless, each mode has its advantages and limitations, and the decision between the two often depends on learners‘ preferences, learning objectives, institutional capacity, and the nature of the course content (Bao, 2020).

Adaptive E-Learning: Adaptive e-learning represents a modern and transformative approach to online education, where learning content and experiences are tailored to meet the unique needs of individual learners (Fischer et al., 2020). This type of e-learning system dynamically adjusts instructional materials based on various factors such as a learner‘s performance, prior knowledge, learning goals, skills, preferences, and cognitive characteristics (Brusilovsky & Millán, 2007). By doing so, adaptive e-learning supports a more autonomous, personalized, and learner-centered educational experience compared to traditional one-size-fits-all instructional approaches. The core of adaptive learning lies in its ability to utilize data analytics and artificial intelligence to sequence learning modules, present targeted feedback, and recommend learning paths that suit each student‘s abilities and progress. Current laboratory-based adaptive instructional systems have shown promise, especially in subjects like mathematics, where student performance data can be mathematically modelled to determine appropriate next steps in instruction (Fischer et al., 2020). Despite its potential, adaptive e-learning presents significant challenges in design and implementation. It requires sophisticated algorithms and robust learning management systems. Linear E-

Learning: In referring to human-computer interaction, linear communication refers to when information passes from sender to receiver, without making exclusion (Ronchi & Ronchi, 2020). With regards to e-learning, this becomes a stumbling block factor, as it does not permit dual communication between facilitators and learners. Linear e-learning has its place in education, although it is losing its relevance with time. An example is sending training materials to learners through television and radio programs (Bates, 2005). Fixed E-Learning: Fixed e-learning is a term used to describe a traditional and widely recognized method of online education. The word "fixed" signifies that the content delivered during the learning process remains static and unaltered throughout the instructional period. In this approach, all learners receive the same information, presented in the same way, regardless of their individual learning needs or preferences (Ronchi & Ronchi, 2019). The materials are pre-designed and selected by the facilitator or instructional designer, meaning that learners have little to no influence over the learning content or delivery.

This model closely mirrors conventional classroom instruction, where the curriculum is standardized and uniform across all participants. While fixed e-learning has served as a foundational model for digital education, especially during the early stages of online learning adoption, it has notable limitations in today‘s dynamic and data-driven educational landscape. According to Venkatesan (2023), fixed e-learning does not capitalize on the vast potential of real-time data generated by learner interactions. These static systems fail to respond to learners‘ progress, struggles, or feedback, thereby missing opportunities for personalization and adaptive learning. In contrast, adaptive or personalized e-learning environments analyze learner behavior, preferences, and performance in real time and adjust content and assessments accordingly. This individualized approach not only enhances learner engagement but

also significantly improves learning outcomes by catering to diverse learner profiles. Therefore, while fixed e-learning continues to have a place in structured education systems, especially where consistency and scalability are priorities, it is increasingly being viewed as suboptimal in fully leveraging the potential of modern digital technologies. Emphasizing adaptive learning strategies based on learner data can lead to more effective, inclusive, and learner-centered educational experiences. Interactive Online Learning: Interactive e-learning permits senders to become receivers and receivers to become senders, effectively and efficiently aiding a dual communication channel between the parties involved (Xin, Tianlei & Chao, 2024).

Through the messages sent and received, the facilitators and learners could make substitutes for their teaching and learning approaches. Considering this reason, interactive e-learning is noted as more famous than linear, as it assists facilitators and learners to communicate more freely with each other. Individual Online Learning: Individual learning in this situation refers to the number of learners part-taking in achieving the learning goals and objectives, rather than the learner-centeredness of the modules. This type of learning has been the same in face-to-face traditional classrooms for centuries. When practicing independent learning, the learners study the course modules on their own, and there are expectations for them to meet their learning goals on their own (Xin et al., 2024). This type of learning is not suitable for developing communicational skills and teamwork capabilities in students, as it largely focuses on students learning independently, without communication with other colleagues‘ students. Hence, a more contemporary method is significant to augment the communicational skills and abilities. Collaborative Online Learning: Collaborative e-learning is a recent type of learning technique, via which many students‘ studies and attain their learning objectives simultaneously as a group. Learners are supposed to

work jointly and practice teamwork to attain their common learning objectives. This is done through the development of effective groups, where the individual learner has to factor in the strengths and weaknesses of each other colleague learner. This boosts the communication skills and teamwork capabilities of the students. Collaborative e-learning thrives on the notion that knowledge is best developed inside a set of individuals where they can interact and learn from each other. While this type of learning is mostly employed in face-to-face traditional classrooms than in online courses, it is still an important type of e-learning that can be more effective if done properly.

2.2.5 Use of Technology in Education.

According to the United States National Library of Medicine, technology is a broad concept defined as the application of scientific knowledge through tools, techniques, products, processes, and methods to perform practical tasks. The use of technology has become an essential component in education, work, communication, and entertainment (Bilyalova, Salimova & Zelenina, 2020). Bilyalova et al. (2020) argue that any entity failing to embrace technology will face significant disadvantages. Notably, both ICT and the internet are gaining prominence in global education, with mobile technologies gaining robust momentum in this domain. Approximately two decades ago, access to technology was limited, and providing internet connectivity to schools was among the highest educational priorities for many countries (Judd & Kennedy, 2010). Recent developments in web technologies now enable individuals to personalize tools and services and to engage in self-directed learning in open and social contexts through personal learning environments (Garcia-Zarza, Bote-Lorenzo, Vega-Gorgojo & Asensio-Perez, 2022). Educational technology has demonstrated a significant positive impact on achievement in education. For instance, students in

technology-integrated classrooms outperform their peers on standardized basic skills assessments (Ilahi, Komara & Ismail, 2022). Additionally, both teachers and students with greater access to technology are better able to manage complex information, identify patterns, draw inferences, and communicate findings (DeCoito & Richardson, 2018). Research on students with disabilities also indicates that technology enhances access to educational resources and improves students‘ information-processing capabilities (Boyle & Kennedy, 2019).

2.2.6 Merits and Demerits of e-Learning

Over the past two to three decades, since the advent of the World Wide Web (WWW) enabled widespread Internet access, the possibilities for distance education have expanded dramatically. E-learning, in particular, has gained substantial prominence due to its flexibility and accessibility. One of the key reasons for this growing popularity is that it allows working professionals, who often face time constraints and cannot commit to traditional, face-to-face university classes, to enroll in academic programs or professional development courses online. This mode of learning offers a pragmatic solution, enabling individuals to acquire new skills and advance their careers without having to resign from their full-time jobs. The rapid expansion of e-learning is evident in global educational trends. Bates (2018) reported that virtual education is becoming an integral part of higher education. His findings indicate that between 40% and 60% of institutions that offer traditional face-to-face programs also deliver online courses and degree programs. A critical marker of the growing significance of virtual learning is its incorporation into the strategic planning of educational institutions. In 2003, 49% of institutions considered online instruction vital to their long-term strategies. This figure rose to 56% by 2005. During the same period, enrolment in e-learning programs increased from 2 million to approximately

2.4 million, reflecting consistent and often underestimated growth in the sector. Such trends underscore the persistent and expanding role of online learning in reshaping educational landscapes.

Numerous practitioners and scholars have highlighted the advantages of e-learning. Malan (2020), for instance, revealed that online learning offers significant pedagogical advantages over traditional, classroom-based instruction. A core benefit of virtual education lies in its capacity to support student-centered learning, which encourages interaction and collaborative discussion among participants. Online forums and virtual tutorials foster environments where learners actively contribute diverse perspectives, thereby facilitating a social constructivist learning approach. In particular, students in virtual classes report that asynchronous written discussions allow for deeper reflection, as learners invest more time formulating thoughtful responses. Because these ideas are documented in writing, they are more likely to be retained and revisited, unlike verbal contributions in traditional settings that are easily forgotten once the conversation shifts. Additionally, asynchronous learning environments offer students greater opportunities to conduct research and critically evaluate their responses before sharing them with peers, resulting in the generation of higher-quality insights. This deliberate engagement enhances the overall learning experience. Further emphasizing the benefits of virtual learning, Pallavi et al. (2022) assert that e-learning has the potential to improve the quality of education, expand access to learning opportunities, lower educational costs, and increase cost-efficiency. The flexibility of distance learning facilitates 24/7 access to training and supports the rapid upskilling of large groups of learners. From both the learner‘s and the institution‘s perspectives, virtual learning presents a win-win situation. Setiyani et al.

(2022) also acknowledged these advantages, noting that the digital transformation of education provides significant benefits in terms of reach, scalability, and adaptability.

2.2.6.1 Merits of e-learning to the university

Reduced total cost is the sole most influential factor in using e-learning. The removal of costs related to facilitator‘s salaries, rentals for meeting rooms, and student travel costs, lodging, and meals are directly computable. The decrease in hours spent away from the job by workers may be the most positive result. Studying hours decreased an average of 40 percent to 60 percent (Ives, Cancilla & Ragan 2023). Increased retention and application to the job averages a rise of 25 percent over traditional methods (Li, 2018). Consistent delivery of content is possible with self-paced e-learning. Scholarly idea is shared, but more significantly captured with good e-learning and knowledge management systems. Proof of completion and certification, essential elements of training initiatives can be automated.

2.2.6.2 Merits of e-learning to the Learner

In addition to the previously discussed benefits such as increased knowledge retention and reduced learning time e-learning presents a wide array of specific advantages that make it a compelling alternative to traditional learning modalities. Among these is the on-demand accessibility of learning materials, which allows students to engage in training at their convenience, whether during non-traditional hours or from the comfort of their homes. This flexibility is particularly beneficial for individuals with demanding schedules, such as working professionals and caregivers. Furthermore, self-paced learning accommodates both fast and slow learners, reducing stress levels and enhancing learner satisfaction by allowing individuals to learn at their rhythm without the pressure of keeping up with a fixed pace. Another critical merit of e-

learning is interactivity, which actively engages learners by encouraging them to participate in the learning process, rather than passively receiving information. This user-driven approach fosters deeper cognitive processing and retention. Additionally, the reliability and accessibility of refresher materials reduce the burden on learners to master content in one sitting. Instead, they can revisit resources as needed, reinforcing understanding over time (Alastal et al., 2023). Institutions also benefit from e-learning's scalability; training costs are significantly reduced, and large groups of learners can be reached and trained efficiently within a relatively short period. As a result, e-learning supports the principle of "anytime, anywhere" learning, providing students with constant access to educational content across various digital devices. The Joint Information Systems Committee (JISC) report (2009), as cited by Basaran and Mohammed (2020), emphasizes that future learners will require digital literacy and lifelong learning capabilities.

These students are expected to engage with education using technologies of their choosing, highlighting a shift towards learner autonomy and technological integration. In line with this, Ilahi et al. (2022) reported that higher education institutions are increasingly embracing distance learning due to its transformative potential. They note that e-learning not only responds to the evolving needs of students but also strengthens the link between higher education and workplace readiness. This alignment reflects a broader trend in which the adoption of online learning is expected to play a central role in the future of education, underpinned by its tangible benefits in flexibility, accessibility, and skill development.

However, despite its numerous advantages, e-learning is not without challenges. One of the major concerns raised by Yaw Obeng and Coleman (2020) is the absence of

face-to-face communication, which is essential for achieving certain educational and social outcomes. In traditional classrooms, learners benefit from direct interpersonal interactions with peers and instructors, which foster collaboration, motivation, and social bonding. In contrast, distance education often requires students to work independently, limiting spontaneous and meaningful face-to-face engagement. Although virtual communication channels such as discussion forums, chats, and video conferencing offer some level of interaction, they are often considered less effective in replicating the rich, dynamic nature of in-person communication (Tareen & Haand, 2020). The lack of physical presence can hinder the development of social connections and reduce the emotional engagement necessary for some learners to thrive.

2.2.6.3 Demerits of e-Learning to the University

E-learning is not universally applicable to every training need and presents several limitations (Ives et al., 2023). One significant drawback is the substantial upfront investment required for developing e-learning solutions, including high developmental costs. As such, budgeting and the management of cash inflows and outflows must be carefully negotiated. Technological challenges also arise, including whether existing infrastructure can meet training objectives, the sustainability of additional technological investments, and the compatibility of required software and hardware systems. Although a minority of scholars argue that some content may be unsuitable for e-learning, even skills involving complex physical, motor, or emotional components can, to some extent, be supported through digital formats. Furthermore, cultural acceptance remains a concern, especially in institutions where the student demographic and psychographic characteristics may make learners hesitant or resistant to using computer-based platforms. E-learning may fall short compared to

other training methods in several ways. Technological challenges frequently affect learners, including technophobia and lack of access to necessary devices. While the flexibility of e-learning has been enhanced by the proliferation of network access points, notebook computers, Personal Digital Assistants (PDAs), and smartphones, it still cannot fully match the convenience and accessibility of printed course books or reference materials. Additionally, reduced social and cultural interaction is a notable drawback. The absence of face-to-face communication such as body language cues and the diminished opportunities for peer-to-peer learning contribute to a sense of detachment. Although advancements in communication technologies are mitigating some of these issues, they remain concerns. Furthermore, Akhter, Javed, Shah, and Javaid (2021), along with Rusu and Tudose (2018), identified common disadvantages of e-learning from participants‘ perspectives.

These include feelings of isolation due to lack of physical contact with instructors and peers, technological issues such as the requirement to own a computer, internet access, and peripheral devices like printers and speakers, and the challenge of poor or unreliable internet connectivity in certain areas. Basic computer literacy is also essential; learners must possess adequate skills to use modern Information and Communication Technology (ICT) tools, and some struggle with handling digital files and online platforms. A lack of self-discipline and motivation can also cause learners and facilitators to fall behind in e-learning environments. Additionally, there are ongoing concerns regarding effective methods for evaluating learners‘ performance in e-learning settings. According to Nikou and Maslov (2023), several factors discourage the adoption of e-learning in universities, including insufficient institutional and administrative support, unpreparedness of students for virtual learning, facilitators‘

lack of technological proficiency, time constraints, the need for practical support, and issues related to academic integrity.

2.2.7 Learning Management Systems (LMS)

A Learning Management System (LMS) is a computer application designed to manage, track, and report on educational content and learner progress. According to the National Inspectorate Board Guide (2020) in Ghana, many schools have adopted various LMS platforms to facilitate effective teaching and learning, particularly during interruptions to traditional face-to-face instruction. Numerous free, cloud-based LMS options are available for school administrators to choose from (Cantebella et al., 2019). Examples include ClassMate, Blackboard, Edmodo, Google Classroom, Adobe Captivate Prime, Docebo, Moodle, WeChat, Seesaw, Sakai CLE, and ClassDojo, among others. LMS platforms can be categorized by design into open source or commercial, and installation-based or cloud-based systems. Open-source LMSs make the source code publicly accessible, allowing users to modify and customize the platform at no cost; Moodle is a widely used example of this model. In contrast, commercial LMSs require a license or purchase fee to access and use. Installation-based LMSs require software to be installed locally on a user's computer, while cloud-based LMSs are hosted online, requiring only login credentials to access the system without any local installation.

2.2.7.1 Primary Features of Learning Management Systems (LMS)

Cantebella et al., (2019) identified the following basic features of Learning Management Systems (LMS); Login system: It is one important aspect of LMS that manages learners and teachers to have access to online classes and resources and leave evidence for identification and accounting purposes. Learning content

management: This is the facet of Learning Management Systems that is employed for creating, storing, and sharing online learning resources. Curriculum mapping and planning: This is the feature where courses are added, lessons are planned, and assessments are arranged for a class. Further, it assists facilitators in authoring and personalise the learning experience. Learner engagement and management: This aspect of the LMS enables the tracking of learners‘ performance and allows teachers to monitor and adjust their instructional strategies when necessary. Access to such data empowers facilitators to improve their teaching methods, revise course content, or provide targeted support to learners who require additional assistance. The analytics tool within the LMS facilitates the measurement of both the effectiveness of the learning programme and the quality of instruction.

It offers detailed insights into each learner‘s learning patterns, thereby enhancing the efficiency and ease of monitoring academic progress. Assessment Management & Live Feedback: Quizzes and assessments are significant stages of education. Periodic quizzes and tests during and after the teaching can aid facilitators in evaluating learners‘ progress. Collaborative Dashboard: The fundamental factor that makes online teaching engaging is collaborative learning. A Learning Management System should permit learners to socially interact with other participants and teachers online. Students can enrich their learning experiences by sharing chapter assessments, study materials, and quizzes with other colleagues through live chats, instant messaging, and discussion boards.

2.2.8 Approaches to e-Learning

The leadership and management of higher institutions can decide on any two e-learning approaches to engage students (Turnbull, Chugh & Luck 2020). These approaches are identified as:

2.2.8.1 Teacher-Led Instructions (Synchronous)

This method involves delivering the curriculum with contents and tasks which is scheduled and led by the class facilitator via an e-learning programme. Both facilitator and learners should be present online reciprocating chats, audio and video conferencing, and whiteboard. This is also known as synchronous e-learning.

2.2.8.2 Learner-paced Learning Method (Asynchronous)

This should be a set of self-paced learning tasks that enable learners to take lessons and activities at any time through emails, discussion forums, blogs, and many more. Facilitators are not required to schedule or facilitate discussions and track the progress of learners on the platform. Learners take responsibility for their learning. This can be termed as asynchronous e-learning.

2.2.9 Overview of e-learning Tools

These e-learning tools are employed by educational institutions either to enhance training models or traditional learning models. Digital technology innovation enables a smooth transition from traditional training to web design courses.

2.2.9.1 Moodle

Moodle is a cloud-based learning management solution that provides educational institutions with tools to design customisable training courses. It comes with a

centralised dashboard, which enables users to track course completion and monitor learners' progress using predictive analytics.

2.2.9.2 Google Classroom

Google Classroom is a cloud-based free learning management system that enables teachers to create an online classroom area to share curriculum content. Teachers can give assignments from Google Classroom for learners to complete and submit for grading. Google Classroom can be accessed via mobile apps available for iOS and Android.

2.2.9.3 ClassDojo

ClassDojo is a cloud-based LMS for online course creation. It allows for the addition of images and tables to course materials. Course delivery formats include video, audio, and Microsoft Word files.

2.2.9.4 iSpring Suite 8.1

iSpring Suite is a top desktop product developed for content creators, trainers, and e-learners. This e-learning tool functions as a fully equipped add-in for Microsoft PowerPoint, offering unique applications not commonly found in other e-learning tools. The software transforms presentations into multimedia e-courses compatible with any LMS or standard HTML site. These courses are highly responsive and require no extra adjustments for use on mobile devices. iSpring Solutions, Inc. also offers other user-friendly e-learning products like Presenter and Quiz Maker for creating video lectures and assessments. Whether experienced or new to e-course authoring, educators will find iSpring Suite ideal for developing effective e-learning modules.

2.2.9.5 Articulate Storyline 2

This e-learning tool is potent for building group e-learning modules and online courses. The interface is familiar to PowerPoint but gives importantly greater functionality and choices for publishing compared to an HTML5 webpage. Articulate Storyline could be used to produce simulations, quizzes, drag-and-drop teams, screen recordings, and other e-learning objects that users can interact with. This e-learning tool could be employed if you want to create learning modules that provide information in a non-linear, and modules that need an important amount of group features. Articulate Storyline is popularly employed for higher institution and corporate training. This software further creates interactions, educational games, ads, and presentations. It is a professional tool with complex features which have a learning curve.

2.2.9.6 Adobe Captivate 9

Adobe Creative 9 is an e-learning toolset for team and responsive e-learning content. It assists the learner to refresh and update his or her storyboards which have e-Learning components and publish it to the cloud for digital viewing. So, it needs no extra software or application. Similarly, it could be used together with other programs, Adobe Captivate 9 enables you to import PowerPoint presentations in e-learning projects. It seems to be perfect for corporate entities and large-scale businesses to begin training courses. Adobe Captive 9 grants a huge educational discount and cost reduction. It helps group learning to promote e-learning for educators and learners.

2.2.9.7 TechSmith's Camtasia

This type of e-learning tool is a video editing and screen recording benefit that a learner can employ to deliver e-courses for business and education. A learner could edit and tailor-made content on both Macintosh and Windows and share findings on any device having a YouTube application. Camtasia aids both educators and teachers to participate and encourage learners by producing video lessons. Camtasia can be acquired in the workplace to create presentations to share with staff across the companies. Camtasia is popularly and largely employed in educational institutions and by learners and parents.

2.2.10 Blended Learning in University Education

University is a form of higher education that serves as a transformative force in individuals' lives. A review report on Australian higher education describes higher education as ~~–~~the site for the production and transmission of new knowledge and new applications of knowledge. Most highly skilled members of the workforce are educated here, and also the intellectual base for new knowledge-intensive industries is formed." Education provides access to advanced learning for individuals from diverse cultural and religious backgrounds. It can foster social inclusion and mitigate social and economic disadvantages (Davis, 2017). A central role of modern universities is to support students in acquiring advanced knowledge and skills necessary for independent survival. Education also enables students to pursue self-development through intellectual engagement (Davis, 2017). For universities to function effectively and efficiently, they must be evaluated based on their ability to supply the workforce with skilled labour, provide equal opportunities to all capable students, and equip them with relevant experience. The purposes of university education are multifaceted, including producing work-ready graduates, delivering quality teaching, and promoting

lifelong learning. In the field of accounting education, numerous reforms have been introduced to enhance the academic preparation of future accountants. In recent decades, university education has faced increasing pressure to evolve due to factors such as globalization, the emergence of a knowledge-based society, advancements in digital technology, and the changing needs of the labor market. Additional challenges include reduced government funding despite rising student enrolments. Without flexible learning options, students may lack access to alternative modes of learning that would allow them to obtain study materials, submit assignments and term papers efficiently, and collaborate remotely at minimal cost. The blended learning approach offers students the advantage of combining face-to-face and virtual learning environments (Kastner, 2019).

Literature reviews suggest that blended learning represents an evolutionary step in university-level teaching and learning (Dangwal, 2017). Kastner (2019) defines blended learning as ~~–~~the organic integration of thoughtfully selected and complementary face-to-face and online approaches and technologies.” All definitions of blended learning generally emphasize three types of integration: instructional delivery media, instructional methods, and the combination of online and face-to-face instruction (Hrastinski, 2019). As with any mode of education, blended learning has associated advantages and disadvantages.

2.3 Empirical Review

The empirical literatures reviewed in this study covers e-learning technology use in accounting education. This review further expanded to previous studies that are similar to e-learning technology in accounting education within Higher Institutions (HI). Literatures located from business disciplines especially, accounting education if

considered important was added. The review of the accounting education literatures included journal articles published in prominent accounting education and other relevant journals such as Journal of Accounting Education, Accounting Education: An International Journal, Advances in Accounting Education, Global Perspectives on Accounting Education, Issues in Accounting Education, and The Accounting Educators' Journal. The literatures reviewed in this section are grouped according to consideration of the research objectives of this study: the level of interactivity with e-learning technology in accounting education by students in Ghanaian public universities, influence of e-learning experiences on technology adoption in instructional delivery of accounting course in Ghanaian public universities, perceptions of accounting student towards e-learning, and comparison of e-learning technology with face to face traditional mode of learning.

2.3.1 Student Level of interactivity with e-learning technology in accounting education

Previous study by Prifti, (2022) investigated Learning Management Systems (LMS) determinants that impacts self-efficacy and how it influences student satisfaction. The study adopted mixed method for gathering and analysing data. The findings of the study shown that LMS self-efficacy has a positive influence on students' satisfaction with their education. The findings further revealed that the system's content, accessibility, and components associated to the improvement of critical thinking, are significant factors of LMS's self-efficacy. The study recommended that future research should extend data collection to other universities. Paz (2017), posits in a study –Innovative New Apps and Uses for the Accounting Classroom" The study used a quantitative research method and also employed the independent sampling t-test to estimate distinctions that exist between samples regarding the exam grades and grade

distributions. It was revealed from the analysis that a one-tailed test conveniently estimates whether one sample‘s grade distribution has more students with higher grades on exams and higher course grades than another sample‘s distribution. The study reviewed different recent innovative technologies that assist students to interact on e-learning platforms, such as Doceri and DisplayNote, Pool Everywhere, Top Hat, nClass, and Asana. The study gave a gist description, pricing, and recent active uses. Categorically, the study examined Doceri and Display Note in much detail.

The findings revealed from analysing the exam scores and course grades showed that student‘s interactivity through Doceri improves entire course performance in an introductory managerial accounting class. Poll Everywhere is a learner response system that uses Information Technology with the internet as a substitute of face-to-face learning. Learners surveyed suggested that the student engagement with Poll Everywhere encourages solving questions and class participation. The findings revealed a positive perception of students as they participated more and the class offered more concrete solutions when Poll Everywhere was employed in learning. Also, Top Hat was identified as a cloud-based classroom and student response system used to increase student levels of engagement during lectures using smartphones and other electronic learning devices. The findings of the study showed that the use of these technological apps improved students' and facilitators' level of interactivity in an introductory managerial accounting class. The study suggested future research of using nClass and Asana and follow with experiment.

MacCarthy, Kasaila, and Grasso (2019) investigated whether the performance of a learner depends on the course delivery mode. The study examined two senior-level accounting courses taught in three different delivery modes, namely; traditional face-

to-face mode, hybrid mode, and online mode by the same facilitator in each course with a consistent curriculum in the three delivery modes. Mixed-regression findings disclosed significant effects for delivery mode and revealed the interactivity between delivery mode and past student performance on student achievement on examinations in both courses (Accounting III and Auditing) to be significant. Accounting III learners in the online and hybrid modes significantly performed better than learners in the face-to-face mode. Also, Auditing learners in the online mode significantly performed better than learners engaged in the hybrid and face-to-face modes. The results of the study provided support for the authorization of online accounting education since it encourages learners to highly interact.

Prior study conducted by Asamoah and Oheneba-Sakyi (2024) explored factors impacting facilitators‘ use or non-use of Learning Management Systems (LMS) in the universities Ghana. The study employed qualitative research method, utilizing semi-structured interview as data collection instrument and analysing data with thematic analysis. The findings revealed that, some of the factors impacting the adoption and use of the Learning Management System (LMS) for instructional delivery include; functionality of the Learning Management Systems, its use without difficulties, and user‘s previous knowledge of using information communication technology. The findings shown further those conditions determining the failure to use the Learning Management System included; the nature of the course, technical and infrastructural insufficiencies and the difficult of use of the LMS. The study recommended that non-users must be made aware through publicity, training, and motivation. Also, hindrances encountered by non-users and users of the LMS must be addressed by university administrators.

Olaniran and Maphalala (2020), in a related study, investigated the state of e-learning technology and learning spaces in a comprehensive university. The study adopted a single-case qualitative design in the form of a survey. Data were gathered from eight academic staff members at a rural-based university in South Africa. A focus group method was employed to collect the data, which enabled rich descriptions of the actual state of the institution‘s technological learning environment. Thematic analysis was used to analyse the qualitative data. The findings revealed that the university had integrated e-learning technology into its teaching and learning processes by adopting Moodle as its Learning Management System (LMS). Nonetheless, learning could not continue beyond the lecture halls and office premises of the university due to limited access to Wi-Fi. The high cost of funding e-learning technology also posed a significant challenge for universities. During the outbreak of the coronavirus in 2019, e-learning became the undisputed alternative to face-to-face learning, ensuring the continuity of instructional delivery when a nationwide lockdown was announced. One of the fundamental merits of online learning is the ease of access to educational resources through electronic media such as mobile phones, laptops, and other digital devices in learners' chosen period. The study suggested that universities are required to provide reliable Wi-Fi throughout campus and critical learning areas.

Similarly, Tareen and Haand (2020) emphasized the role of technology in improving access to education, especially for working adults and professionals seeking to return to school to acquire updated skills and knowledge. The study observed that technological advancements, particularly internet-enabled learning platforms, have transformed the educational landscape by expanding opportunities for acquiring knowledge and information. Within the context of online learning, interactions between students and instructors both asynchronous and synchronous were found to

be beneficial. Despite a few noted limitations, the findings affirmed that online learning is convenient, fosters student participation, and effectively meets learners' educational needs.

Setiyani, Lianingsih and Sunsilowati (2020) examined the level of student engagement and learning experiences in a taxation course delivered through a blended learning method. The study utilized a longitudinal research design spanning from 2010 to 2019 and adopted a descriptive research approach to assess the impact of blended learning on learners' experiences. The findings indicated that blended learning affords students greater flexibility in completing assignments at any time and from any location. Additionally, the integration of multiple delivery methods through blended learning was found to significantly enhance student engagement and improve the overall learning experience. The study highlighted blended learning as a strategic educational method that merges the technological advancements and convenience of online learning with the interaction and participatory features of traditional classroom settings. This hybrid model not only supports self-paced learning but also encourages active student involvement through interactivity on the online platforms. The authors concluded by recommending that future studies should further explore the impact of blended learning on academic achievement, as their research primarily focused on engagement and experiential dimensions. According to Abdel-Rahim (2021) in a similar study, used a mixed-method research approach to examine how accounting students in a distance-learning upper-level program perceived the effectiveness of various Online Teaching and Learning (OTL) tools commonly employed in business-related online courses. The study adopted an exploratory research design to investigate OTL tools, assess their effectiveness, and evaluate methods recommended by previous studies. The population consisted of accounting students enrolled in an

upper-level online course at a mid-tier institution accredited by the Association to Advance Collegiate Schools of Business (AACSB) in the United States of America. The study's findings revealed that transitioning accounting courses online is inevitable, as students expressed a strong preference for and highly interacted with the electronic learning tools introduced to them such as recorded video lectures and online homework assignments. The study recommended future research to robustly assess the effectiveness of the OTL tools highlighted, as well as to explore whether the findings would hold in different contexts, such as in other countries or private universities.

Moustafa and Aljifri (2009), as cited in Handani, Laksmi and Hardinto (2021), examined the impact of various instructional methods that combine effective learning activities with technological delivery tools. The researchers compared the academic achievement of students exposed to innovative teaching methods with those in a control group who received instruction solely through traditional face-to-face approaches. Three instructional strategies were assessed: Traditional Learning (TL), Cooperative Learning (CL), and Laptop-Based Active Learning (LAL). The results indicated that the Laptop-Based Active Learning approach had a significantly positive effect on student performance compared to the other two methods, highlighting the value of integrating technology into pedagogical practices. The positive impact of Laptop-Based Active Learning method on student‘s academic outcome was as a result of student‘s high level of engagement. Emerson and Smith (2022) examined students‘ performance on online assessment questions, comparing questions with readily searchable answers to those designed to be unsearchable online. The study employed a quantitative research method, analyzing numerical data to validate the issue. It evaluated students' learning performance in online quizzes that included two types of

questions: one with answers easily searchable on the web and another with answers modified to prevent retrieval through internet searches. The analysis revealed that students performed significantly better on the questions with searchable answers compared to those with non-searchable answers.

A follow-up investigation showed that when access to external websites was restricted, students‘ performance on previously searchable questions declined significantly, while their performance on non-searchable questions remained unchanged. Collectively, these findings indicate that students heavily rely on the interaction with electronic learning tools and online resources to complete assessments, an issue that warrants urgent attention from accounting educators globally. Inusah and Debrah (2022) explored students‘ perceptions of the effectiveness of online instructional delivery in accounting during the school closures resulting from the outbreak of the coronavirus. The study adopted a quantitative research approach and collected data through a survey using a structured questionnaire. The target sample consisted of 400 students pursuing Business Education at Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development (formerly the University of Education, Winneba – Kumasi Campus). The respondents were students who had participated in an undergraduate online accounting course during the 2019/2020 academic year when in-person instruction was suspended. The study‘s findings revealed several key insights. First, the least familiar technological skill among learners was the ability to collaborate with peers online to solve assignments. Additionally, the study found that access to the internet and the quality of connectivity were poor. As a result, students perceived online teaching and learning accounting as largely ineffective, citing limited interactivity between learners and facilitators as a major drawback. Moreover,

the study established that demographic factors such as gender, age, and the type of device used for learning had no statistically significant effect on students‘ perceptions of the effectiveness of online accounting education. Similarly, elements such as course content delivery, course interaction, and student engagement were found to have no significant relationship with the perceived effectiveness of online learning.

However, the study concluded that students‘ technological proficiency and access to high-quality internet significantly influenced the effectiveness of teaching and learning accounting in an online environment. These studies (Prifti, 2022; Paz, 2017; Olaniran & Maphalala, 2020; Abdel-Rahim, 2021; Emerson & Smith, 2022; Asamoah & Oheneba-Sakyi, 2024), are consistent with related research conducted by Boateng, (2023) which explored the perception of student on the impacts of digitalization on learning outcomes with a digital learning management platform called Sakai. Boateng, (2023) adopted mixed method research, analysing data using inferential analysis for numeric data, content and thematic analysis for the non-numeric data. The findings indicate Sakai as e-learning tool which improves students‘ level of interactivity in discussion forums and virtual chats that improved learning through collaboration sharing of course materials. Overall, students‘ high level of interactivity (students and course content, students and facilitator, students and colleague students) highly depended on their expertise in technology, access to technology, and experience with the virtual platform. The study suggested that future study should increase data collection to different levels, and involve different universities. However, Inusah and Debrah, (2022) disagree with: Boateng, (2023); Asamoah and Oheneba-Sakyi, 2023. Such that the findings from Inusah and Debrah, (2022) indicated that course content, interaction, age, gender does not have significant influence on the effectiveness of online learning tools.

H_1: *Students have high level of interactivity with e-learning technology.*

2.3.2 The influence of e-learning experiences on technology adoption.

Many e-learning experiences have been identified to impact technology adoption by learners in higher education. These e-learning experiences include; attitude features (Pharm et al., 2019; Fortin et al., 2019; Smith & Hill, 2019; Arias, Swinton & Anderson, 2018; Jill, Wang & Mattia, 2019), social interactivity features (Bervell & Umar, 2020; Kotb et al., 2019; Al-Fraihat, Joy, Masa'deh & Sinclair, 2020; Yaw Obeng & Coleman 2020; Eleyan, 2021; Lusher, Huber & Valencia 2012; Nariman, 2020), preferred usage features (Boateng, Mbrokoh, Boateng & Ansong, 2016; Osei, Kwateng & Boateng, 2022; Lambert & Yanson, 2017; Gunesekera, Bao & Kibelloh, 2019).

2.3.2.1 Attitude Towards E-learning Technology Adoption Features

According to Pharm et al., (2019), their study examined the relationships among e-learning service quality features, total e-learning service quality, e-learning student satisfaction, and e-learning student loyalty in Vietnam. The study used cross-sectional research design and analysed data using exploratory factor analysis, confirmatory factor analysis, and structural equation modelling. The findings shown that total e-learning service quality has positive and significant effects on student satisfaction which also impacts e-learning student loyalty positively. Moreover, total e-learning service quality influences e-learning student loyalty directly. The study recommended that future research should expand samples to cover more universities and further explore more factors impacting e-learning student satisfaction and loyalty.

In recent research by Fortin et al. (2019), contrasted the performance and satisfaction of learners in two blended learning formats having similar content and design. That is

face-to-face plus (F2F+) traditional classroom courses versus online plus (O+) courses in four advanced accounting subjects.

Learners who engaged in the four advanced accounting subjects were investigated and their respective course achievements were obtained. The findings indicated that the main factors of learners‘ decision to part-take in an Online Plus (O+) course are: resitting the course, surged weekly work hours, and confidence that this type of blended course eases learning. Findings further revealed that learners in advanced accounting courses with similar content and design perform equally and have equivalent levels of course satisfaction across course delivery formats, as speculated under equivalency theory. Smith and Hill (2019) conducted a study examining the effects of instructional delivery modes on burnout among full-time college professors at a Christian university in Southern California. In their review of the literature, they articulated the growing relevance of blended learning, drawing from contemporary research to highlight its benefits. These included enhanced flexibility for both instructors and students, support for autonomous learning, improved student outcomes, promotion of independent and self-directed learning, opportunities for professional development, cost efficiency, increased satisfaction among employees and students, and improved interactions between facilitators and learners, as well as peer-to-peer engagement. These identified benefits derived from technology-based education for instructional delivery positively influenced the professors to adopt the blended mode. In a related study, Arias et al., (2018) investigated factors influencing students‘ attitudes and preferences toward hybrid course formats. Their analysis focused on the determinants affecting college learners' perceptions of hybrid learning environments. While expectations related to achieving higher GPAs and required course participation in online formats were found to be statistically insignificant, the

study revealed that demographic variables such as gender and age did not significantly affect student preferences for hybrid learning. Notably, students preferred hybrid formats due to the scheduling flexibility they offer, the potential for improved attendance, and the continuous accessibility of course materials online.

That is, in line with research reported by Van Oordt and Mulder (2016) revealed that students recognized electronic learning as a valuable support tool in their learning experience. While the use of e-learning does not directly impact academic achievement, it positively influences learning outcomes and supports the management of educational processes. Also, a study by Jill et al., (2019) investigated the impact of instructor-generated YouTube videos on student performance in a Principles of Accounting course. The study adopted a quantitative research approach, creating YouTube videos that served as learning tools for participants. In addition to measuring performance outcomes, the researchers collected data on student engagement, motivation, and perception. The study sampled 246 undergraduate students from a private university in the southeastern United States. The facilitator-created videos included lecture content and problem-solving guidance to assist students in understanding financial accounting concepts. The findings provided evidence that incorporating instructional videos into the learning process enhances student performance. Since learning is considered the primary goal of any instructional method, these findings are significant. Students confirmed that the videos were helpful and expressed appreciation for their potential integration into classroom instruction. The study recommended further exploration of alternative learning tools, optimal video length for online learning, and the extent to which such tools influence academic performance.

2.3.2.2 social interactivity features

Similarly, Kotb et al. (2019) conducted a study on the development and coverage of e-learning technology within accounting curricula and examined the factors influencing its integration. The study employed a mixed-method research approach, utilizing both online questionnaires and semi-structured interviews to gather data. It aimed to fill a research gap by exploring: (1) the current technological developments reflected in accounting courses and (2) the key determinants influencing the inclusion of such developments in undergraduate accounting syllabi across the United Kingdom and the Republic of Ireland (ROI). The study highlighted the role of professional accounting bodies as gatekeepers of the profession and acknowledged accounting educators and employers as trustees of its integrity. Kotb et al. (2019) made three key contributions to the existing body of knowledge. First, it was identified as the first study to solicit the views of both accounting educators and professional bodies on the coverage of technological developments in British and Irish undergraduate accounting degrees. Second, unlike previous studies that focused on areas such as ethics and social or environmental accounting, this research addressed technological advancements a topic with significant implications for the future of accounting education and practice. Third, the study contributed to the ongoing debate on the alignment between accounting education and professional practice, a subject widely discussed in accounting research. The empirical scope of the study included universities in both the United Kingdom and the Republic of Ireland, thus strengthening the external validity of its findings. Results revealed that undergraduate accounting students are rarely introduced to the digital technologies used in real-world business environments. The study concluded by urging accounting education scholars to recognize digital

technology as a crucial and transformative area that deserves substantial inclusion in accounting curricula to align academic training with market realities.

Al-Fraihat et al., (2020) examined the conditions necessary for assessing the success of e-learning systems and developed a comprehensive e-learning success model that integrates these conditions. The study adopted a quantitative research design to test theoretical models and hypotheses, employing a quantitative analytical survey as its primary data collection instrument. The research identified several critical factors influencing perceived satisfaction with e-learning systems, including technical system quality, information quality, service quality, support system quality, learner quality, instructor quality, and perceived usefulness. Collectively, these factors explained 71.4% of the variance in students' perceived satisfaction with e-learning. Furthermore, the study found that perceived usefulness was significantly influenced by technical system quality, information quality, support system quality, learner quality, and instructor quality, which together accounted for 54.2% of its variance. In identifying the drivers of e-learning use, the study highlighted four key constructs: the quality of the educational system, support system quality, learner quality, and perceived usefulness. These four constructs jointly explained 34.1% of the variance in e-learning use. Finally, perceived usefulness, perceived satisfaction, and actual use explained 64.7% of the variance in the perceived benefits of e-learning. The authors offered several recommendations for future research. First, although the study involved students from diverse cultural and academic backgrounds attending a single university in the United Kingdom, the authors suggested that including participants from multiple universities across the UK could enhance the model's validity and reliability. Moreover, they recommended extending the research to universities in developing countries, such as Ghana, to provide a broader understanding of e-learning

success in different contexts. Another limitation of the study was its exclusive focus on students' perceptions. The authors emphasized the importance of incorporating the views of other key stakeholders in education, such as lecturers and university management, in future research. Including these groups would enrich the findings by providing more comprehensive insights into the multidimensional factors affecting the success of e-learning systems.

Despite the robust explanatory power of the proposed model, the study acknowledged that it does not fully account for all determinants of e-learning success. Specifically, while the model explained 71.4% of the variance in perceived satisfaction, 54.2% in perceived usefulness, 34.1% in actual use, and 64.7% in perceived benefits, this leaves 28.6%, 45.8%, 65.9%, and 35.3% respectively unexplained. These unexplained variances suggest the presence of additional contributing factors not captured in the current model. To address this gap, the study recommended further investigations into the quality and influence of these unexplored variables. Finally, the authors proposed that, given the ever-evolving nature of digital technologies, longitudinal studies should be conducted to examine how e-learning quality factors change over time. Such studies could reveal new insights and improve the understanding of what drives the long-term success of e-learning systems. Yaw Obeng and Coleman (2020) explored the transformative role of technological innovation in enhancing the functionality and effectiveness of e-learning systems, while also addressing educational challenges. The study adopted a causal-comparative quantitative design to test theoretical models and hypotheses, establish cause-effect relationships, identify data trends, and generate generalizable conclusions. Data were collected through a cross-sectional survey, using a purposive sampling technique to target tertiary students in Ghana who were considered knowledgeable about e-learning systems.

Data collection occurred in two phases: between September and November 2019 using both in-person and virtual administration of questionnaires, and in April 2020 using a web-based tool to mitigate COVID-19 risks. The findings revealed that technological innovation positively influences both the features and outcomes of e-learning systems.

Improvements in system characteristics, such as interface design, functionality, and accessibility, led to enhanced learning outcomes. Among the most significant benefits identified were the minimization of learning-related risks and the attainment of educational objectives. The study also made academic contributions by advancing the literature on technology-mediated learning and providing insight into how digital innovation supports teaching and learning. Despite its contributions, the study acknowledged several limitations. It recommended that future research incorporate other forms of innovation, such as pedagogical and organizational innovation, and expand the scope to include tertiary institutions in developed countries for broader generalizability. Additionally, while students were the primary participants, the inclusion of other e-learning stakeholders such as instructors, instructional designers, and policymakers was suggested to deepen understanding of the factors driving e-learning success. The authors also noted that the proposed model, although informative, did not fully capture all relevant determinants and dimensions, and could therefore serve as a foundation for further research and model refinement. Eleyyan (2021) investigated the effects of Industrial Revolution (IR) 4.0 products like the Internet of things, cloud computing, big data, cyber security, artificial intelligence, blockchain, and robots on the educational variables: control learning, learning opportunities, Instructional activities, and social implications. The study adopted a quantitative research survey design using a sample size of 77 pre-service science

teachers in the Teacher Preparation Program (TPP) at Sohar University in the academic year 2019/2020. The diverse findings of the study showed that blockchain, Cloud Computing, and cyber security will be used in a vast field in the future to enhance learning opportunities and sustain learning activities for a long time despite the demerits of this revolution. The study predicted the taking over of educational jobs and other jobs by robots and machines in the future.

The study suggested the implementation of important changes in instructional programs, curricula, learning environment, liquid instructional skills, and teachers-students‘ responsibilities to mitigate IR 4.0 technologies and products. The positive perceptions and attitude would ultimately impact learning outcomes of students (Lusher et al., 2012). Lusher et al., (2012) investigated the impact of adopting learning technologies in classroom environments on student performance. The study employed a quasi-experimental design and compared two instructional settings: one using conventional pen-and-paper methods and the other a fully computerized classroom environment. Student performance data were collected across various components, including in-class activities, group projects, homework, and exams. The analysis revealed inconsistent outcomes between the conventional and computerized classroom settings, highlighting the complexity of technology‘s influence on learning performance and suggesting that the effectiveness of digital learning tools may vary depending on how they are implemented.

2.3.2.3 Preferred Usage of Technology Features

Lambert and Yanson, (2017) explored employee preferences for learning styles in the context of professional development. Guided by Media Richness Theory, the study examined choices between traditional face-to-face instruction and various forms of e-

learning. The results showed a general preference for traditional in-person learning. However, a noteworthy finding was that employees who had prior experience with e-learning whether synchronous or asynchronous tended to favor those methods over others, indicating a shift in learning preferences as a result of exposure to digital learning environments. Boateng et al., (2016), investigated the factors that influence e-learning adoption (ELA) among students enrol in University of Ghana. A quantitative research method was utilised by the study, analysing data using Structural Equation Modelling (SEM). Boateng et al., (2016) considered 13 determinants: Computer self-efficacy (CSE), Perceived ease of use (PEOU), Perceived usefulness (PU), and Attitude towards use (ATTU). The findings indicate that PU and ATTU directly affected ELA, with PU and PEOU also having direct relationship on ATTU. However, other constructs like CSE, PEOU had indirect and insignificant relationship on ELA. The study suggested that future studies should consider data from private universities. Also, future research should consider different research method such as qualitative.

Kaushik and Agrawal, (2021), examined factors that assist or hinder students from employing e-learning technology platforms. Quantitative research method was employed, analysing data using Principal component analysis (PCA), Analysis of variance (ANOVA), t-test and correlation analysis. The findings of the study revealed that student has positive attitude towards e-learning approach. Which reflects that students are familiar with e-learning platforms and use for their academic purpose. They utilise the e-learning platforms because of the feeling of its benefits and innovativeness. However, the findings shown a challenge in using the e-learning platforms. The study recommended that future study should consider longitudinal

research design. Also, future study should consider samples from different geographical location and employ comparative data analysis.

Similar study by Osei et al., (2022), as conducted with the purpose of employing an extended UTAUT2 model that integrates personality and self-determination theory to examine e-learning adoption in Ghana during the outbreak of COVID-19. The study used quantitative research method analysing data using Structural Equation Modelling. The results of the study revealed that; personality has a positive relationship with behavioural intentions, actual usage is impacted positively by motivational factors, there is a positive mediating role of behavioural intention for motivational factors and actual use, and motivational factors play a positive mediating role between UTAUT2 variables and behavioural intentions. The study recommended that future studies should employ longitudinal or experimental designs. Previous research (Lambert & Yanson 2017; Boateng et al., 2016; Kaushik & Agrawal, 2021; Osei et al., 2022) concord with the study of Gunesekera et al., (2019), which reviewed the influence of usability determinants on e-learning user relationships, such as; student-student interaction (SSI), student-instructor interaction (SII), and student-content interaction (SCI), in previous literature. Also, the study aimed to recognize whether significant relationship exist between usability and learners‘ satisfaction. The study used PRISMA methodology to select literature that falls within context of e-learning and usability issues. The findings indicated that prior research investigated on usability and e-learning systems had been highly focused on student-student interaction (71.4%), with the least study done on student-content interaction (26.6%). The findings clearly support that students have different preferences for adopting the e-learning technology tools, hence preferred use of the platforms is considered as a characteristic to the e-learning adoption.

$H_{2:}$ E-learning experiences have positive and significant influence on technology adoption.

$H_{2A:}$ Attitude towards technology has a positive and significant influence on technology adoption.

H_{2B}: *Social interaction has a and positive and significant influence on technology adoption.*

$H_{2C:}$ Preferred usage has a positive and significant influence on technology adoption.

2.3.3 Perception of students towards e-learning technology in accounting education

A prior study conducted by Sabah (2013), as cited in Raman, Thannimalai, Rathakrishnan, and Ismail (2022), examined the impact of four learning approaches face-to-face learning, blended learning, virtual classrooms, and video streaming among students at Alquds Open University. Utilizing a quantitative research methodology, the study investigated factors influencing students‘ acceptance of e-learning. The study population consisted of undergraduate students from Alquds Open University in Gaza, Palestine, spanning three major fields of study: Information Technology, English, and Accounting. A sample of 100 students, randomly selected with a gender distribution of 52 males and 48 females, participated in the study. The findings revealed a significant positive correlation between students‘ technical abilities and their attitudes toward e-learning. Additionally, students expressed a strong preference for combining e-learning with face-to-face instruction. Factors such as students‘ field of study, prior computer experience, and the amount of dedicated time spent using computers were found to influence their attitudes toward e-learning.

The study recommended that future research incorporate the three stages of the learning process to provide a more comprehensive understanding. In a similar study, Osgerby (2013) conducted a study to explore student perceptions regarding the integration of hybrid learning methods across different modules in Accounting and Financial Management. The results revealed that students held generally positive attitudes toward the use of electronic learning technologies, supporting the adoption of blended learning formats in the delivery of accounting-related courses. In a related study, Baragash and Al-Samarraie (2018) investigated the effects of student engagement in three learning delivery modes face-to-face (F2F) learning, learning management system (LMS)-based learning, and web-based learning (WBL) on students‘ learning experiences and academic performance.

Employing a quantitative correlational research design, the study aimed to determine the nature and strength of the influence of students‘ engagement in these modes on their performance within a blended learning environment. Data were collected through survey methods. The results indicated that while the F2F learning mode had a significant positive direct influence on both LMS-based learning and WBL modes, it did not directly affect students‘ overall learning performance. Conversely, time spent using LMS tools positively influenced learning performance within the blended environment. These findings provide evidence supporting the effectiveness of integrating multiple learning delivery modes in higher education. However, the study acknowledged several limitations that suggest directions for future research. First, the research was conducted with a relatively small sample drawn from a single university in a developing country, which limits the generalizability of the results. Future studies should include larger and more geographically diverse populations from both emerging and advanced economies to enhance external validity. Second, the sample

comprised students from only two courses, which may reflect distinct learning behaviors and preferences not representative of other disciplines. Future research should therefore consider incorporating participants from a wider range of academic fields, such as education, finance, and management. Third, the cross-sectional design used in the study constrains causal inferences about the relationships between learning modes and student outcomes; thus, longitudinal research designs are recommended to better capture the influence of F2F, LMS, and WBL modes over time. Fourth, while the study examined student engagement across the three learning modes, it did not explore potential moderating variables such as gender, task complexity, or age, which may affect the relationship between learning experiences and academic performance.

Future research should investigate these moderating effects to provide deeper insights. Lastly, the study observed an unexpected negative effect of web-based learning on student performance but did not explore its causes. Further research is warranted to understand this inverse relationship and to improve the design and implementation of web-based learning within blended environments. Edumadze (2019) used a descriptive survey research design to investigate the perception of students using the Moodle platform from a Ghanaian university where the use of an e-learning platform to aid traditional face-to-face is optional among all the courses. The study used a population of 414 business students who were taught by the author in both semesters of the 2016/2017 academic year. The findings of the study revealed that a greater percentage of the students own computing devices and spend half of the day using those devices. The computers were used for academic purposes and mobile phones were used for non-academic purposes. The study further shows that students have positive attitudes studying with the Moodle Learning Management System (LMS) despite the challenges. Additional findings of the study stated clearly reasons for

which universities deploy e-learning technologies: it is natural for students, who are mostly digitally friendly and like using technology at the given chance, it assists learners to obtain 21st-century knowledge and skills needed to meet the IR 4.0, it prepares students for lifelong learning, it improves the technological competency of students, it aids in staff professional development.

The study concluded that students were ready for the use of technology in learning since they already own their devices and spend most of their time with them and they are digitally inclined. Moreover, there are a large number of students using mobile devices for non-academic purposes of personal life and social networking such as TikTok, Facebook, Whatsapp, Instagram, and many more. Thus, there is available space for mobile learning (m-learning) which is a component of e-learning. It revealed that m-learning should be made famous in the university. This is because m-learning is observed to be the future of learning, especially in Africa which is one of the continents with the highest mobile phone penetration. As mobile devices become more personal, so should their learning application be put to use. Owusu-Fordjour et al. (2020) assessed the impact of COVID-19 on learning using the descriptive survey design and quantitative research approach. The study took place in Ghana, West Africa using a sample size of 250 students from second-cycle and tertiary institutions. The study used the simple random sampling technique. The findings of the study revealed that the e-learning platforms introduced possessed difficulties for the majority of the students because of the limited access to the internet and lack of technical skills and knowledge of these technological devices by most students in Ghana. Also, as part of the difficulties, the study revealed that students were unable to learn from the house, and parents were not able to help their children access the online platforms and could not supervise the learning of their wards at home effectively.

Owusu-Fordjour et al. (2020) further recommended that students and facilitators all must be introduced to e-learning platforms and how to effectively employ them for academic purposes in the wake of such problems in the Ghanaian educational system. Offline electronic platforms must be made available to enable students without access to internet connectivity to learn effectively. Shabeeb, Sobaih and Elshaer (2022) assessed accounting students' learning experience and satisfaction before and amid the COVID-19 pandemic at the School of Business (SoB) in public higher education institutions in Saudi Arabia (KSA).

The study adopted a quantitative research method where numerical data were collected through the use of a questionnaire and two methods of data analysis (Descriptive analysis and Multivariate analysis) were used. The findings of the study indicated an overall positive relationship between learning experience and satisfaction, before (model 1) and during COVID-19 (model 2). These findings acknowledged blended learning post-COVID-19 education to achieve the benefits of different types of learning and improve students' satisfaction, as well as their academic performance. Pallavi et al., (2022) in a study investigated the effectiveness of e-learning compared to traditional face-to-face learning. The study was conducted to know the effectiveness of online learning from the learner's perspective. The data was collected from 403 respondents in total which comprises 145 female and 257 male respondents. A quantitative research approach was used for the study. Pallavi et al. (2022) stated that, due to its flexible and user-friendly characteristics, online learning has been given attention by students and educational institutions. Many of the higher education institutions are now accredited by the University Grants Commission (UGC) to begin online degree programs. The study revealed that the majority of learners cannot set time for study, homework, and assignment completion.

The institutions along with routine learning can also include sessions for motivation, a sense of accountability, and responsibility which may enhance discipline among learners. The study recommended that institutions along with routine learning can also add sessions for motivation, a sense of accountability, and responsibility which may improve discipline among learners. Alastal, Salman and Allaymoun (2023) explored the perceptions of accounting and finance students at Gulf University regarding e-learning during the COVID-19 pandemic, to identify its perceived merits. The researchers adopted an exploratory research design and collected data through an online survey. The target population comprised accounting students who engaged in online learning for their accounting courses during the pandemic, resulting in 83 valid responses.

The findings highlighted several perceived benefits of e-learning, including ease of use, the constant availability of learning materials, enhanced communication with lecturers, and improved interaction among students. The study also affirmed that the delivery of accounting and finance courses via e-learning was effectively facilitated by the university. In conclusion, the authors recommended future research to investigate the perceptions of accounting students in other Bahraini universities, as well as those in developing countries such as Ghana, regarding the use of e-learning in the teaching of accounting and finance. Additionally, they suggested that future studies could explore the potential link between e-learning in accounting education and Sustainable Development Goal (SDG) 4, which focuses on ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all. Alshammari (2023) conducted a study aimed at expanding the existing body of literature by evaluating the academic performance of students enrolled in an introductory computer science course through a comparison of grades obtained in

online and traditional face-to-face instructional formats. A secondary objective of the study was to investigate any gender-based differences in academic achievement across the two delivery modes. The findings corroborated those of earlier studies, indicating no significant gender-based differences in students' performance in the course. Notably, the study revealed that students who received instruction through the online mode outperformed those who were taught via the traditional face-to-face format. Furthermore, both male and female students in the online learning cohort demonstrated significantly better performance than their male counterparts in the face-to-face group. These findings suggest that online learning may be a more effective instructional method for students regardless of gender.

Braun, Boldt, Mauldin and Viosca (2020) investigated professionals working as public accountants in the United States to explore their opinions on accounting degrees which are taken online compared to accounting degrees taken face to face. The findings showed a strong preference for blended learning by public accountants. That is, accounting students, educators, and administrators in traditional programs want to select a mix of coursework that avoids sending a negative signal to recruiters and harming job prospects. Similarly, Weldy (2018) explored student perceptions of different course delivery formats through a comprehensive survey focusing on three core areas. First, the study assessed students‘ preferences among face-to-face, online, and blended learning formats. Second, it examined how these formats influenced students' learning experiences, including study time, expected grades, and reliance on self-teaching. Finally, the study investigated pedagogical tools that students found effective in online courses. Although the findings indicated a general preference for and more positive experiences in traditional face-to-face courses, there was a noticeable increase in enrollment in online and blended formats. Furthermore,

students reported that instructional tools such as podcasts and videos were more effective for learning than text-based tools like threaded discussions. Dunbar (2017) examined the relationship between full-time faculty burnout and two instructional delivery modes traditional brick-and-mortar education and fully online education at a Christian university in Southern California. The study sought to determine whether the method of course delivery had any statistically significant effect on faculty burnout. The findings indicated no significant statistical relationship between the delivery method and the incidence of burnout among full-time college professors.

Additionally, the study found no significant relationship between course delivery methods and faculty retention or between delivery methods and the length of tenure of full-time professors, suggesting that instructional modality alone may not be a determining factor in faculty well-being or longevity. Twum, Ofori, Keney and Korang-Yeboah, (2022), investigated the determinants of behavioural intentions to employ e-learning during the corona virus outbreak. The study in addition examined the impact of personal innovativeness in information technology and financial cost perceived in using e-learning technology. The study used cross-sectional quantitative research method and analysed data using partial least square structural equation modelling. The findings indicated that individual innovativeness in IT, perceived financial cost, improved expectancy, hedonic motivation and social influence significantly impact e-learning use. Contrary, habits, effort expectancy, and facilitating factors have no relationship with e-learning use. The study suggested that future research should gather sample from many universities. Also, future study should employ mixed method research approach.

H_3: Students have positive perception towards e-learning technology

Table 2.1: Summary of Articles Reviewed

Author	Research purpose	Methodology	Findings	Recommendations
Prifti, (2022)	Investigated LMS factors that influence self-efficacy and student satisfaction	Mixed method	LMS self-efficacy has a positive influence on students' satisfaction. Also, the system's content, accessibility, and components associated to the improvement of critical thinking, are significant factors of LMS's self-efficacy.	Future research should extend data collection to other universities.
Paz, (2017)	To estimate distinctions that exist between samples regarding the exam grades and grade distributions.	Quantitative	The study reviewed different recent innovative technologies that assist students to interact on e-learning platforms, such as Doceri and DisplayNote, Pool Everywhere, Top Hat, nClass, and Asana	The study suggested future research of using nClass and Asana and follow with experiment.
MacCarthy, Kasaila, and Grasso (2019)	To investigate whether the performance of a learner depends on the course	Mixed method	The results of the study	Future study should expand collect samples from different universities.

	delivery mode.		provided support for the authorization of online accounting education since it encourages learners to highly interact.	
(Asamoah & Oheneba-Sakyi, 2024)	To explore factors impacting facilitators' use or non-use of LMS.	Quantitative method	Conditions determining the failure to use the Learning Management System included; the nature of the course, technical and infrastructural	The study recommended that non-users must be made aware through publicity, training, and motivation

			insufficiencies and the difficult of use of the LMS	
Olaniran and Maphalala (2020)	Examined the state of technological learning spaces in a comprehensive university.	Single case Qualitative design	The findings reveal that the university has adopted technological facilities like LMS but there are factors hindering their utilization.	Future studies should expand data collection to other universities
Tareen and Haand (2020)	To emphasize the role of technology in improving access to education, especially for working adults and professionals seeking to return to school to acquire updated skills and knowledge	Mixed method	The study observed that technological advancements, particularly internet-enabled learning platforms, have transformed the educational landscape by expanding opportunities for interaction, acquiring knowledge and information	Future study should address the challenges of online learning and adapt to technological changes. Also, UiTM consider the findings in future planning.
Setiyani, Lianingsih		Quantitative	The	Future studies should further explore the

and Sunsilowati (2020)	To examine the level of student engagement and learning experiences in a taxation course delivered through a blended learning method	method	integration of multiple delivery methods through blended learning was found to significantly enhance student engagement and improve the overall learning experience.	impact of blended learning on academic achievement.
Abdel-Rahim (2021)	To examine how accounting students in a distance-learning upper-level program perceived the effectiveness of various OTL tools commonly employed in business-related online courses	Mixed method	Transitioning accounting courses online is inevitable, as students expressed a strong preference for and highly interacted with the electronic	Data collection should be extended to different countries.

			learning tools introduced to them such as recorded video lectures and online homework assignments	
Handani, Laksmi and Hardinto (2021)	Examine the impact of various instructional methods that combine effective learning activities with technological delivery tools	Mixed method (Quantitative approach, experimental studies	Laptop-Based Active Learning approach had a significantly positive effect on student performance compared to the other two methods	Data collection should be extended to different universities.
Emerson and Smith (2022)	Examined students' performance on online assessment questions, comparing questions with readily searchable answers to those designed to be unsearchable online.	Quantitative method	Collectively, these findings indicate that students heavily rely on the interaction with electronic learning tools and online resources to complete assessments, an issue that	Future study should integrate qualitative research method to investigate experience of students.

			warrants urgent attention from accounting educators globally	
Inusah and Debrah (2022)	To explored students' perceptions of the effectiveness of online instructional delivery in accounting during the school closures resulting from the outbreak of the coronavirus	Quantitative method	Least familiar technological skill among learners was the ability to collaborate with peers online to solve assignments. Additionally, the study found that access to the internet and the quality of connectivity were poor. Students perceived online teaching and learning accounting as largely ineffective.	Future research should consider combining qualitative method.
Boateng, (2023)	To explore the perception of student on the impacts of digitalization on learning outcomes with a digital learning management platform called	Mixed method	Sakai as e-learning tool improves students' level of interactivity	future study should increase data collection to different levels, and involve different universities.

	Sakai		in discussion forums and virtual chats that improved learning through collaboration sharing of course materials.	
Pharm et al., (2019)	To examine the relationships among e-learning service quality features, total e-learning service quality, e-learning student satisfaction, and e-learning student loyalty in Vietnam	Quantitative method	Total e-learning service quality has positive and significant effects on student satisfaction which also impacts e-learning student loyalty positively	The study recommended that future research should expand samples to cover more universities and further explore more factors
Fortin et al. (2019),	To contrast the performance and satisfaction of learners in two blended learning formats having similar content and design	Experimental research design	The main factors of learners' decision to part-take in an Online	Data collection should be expanded to different universities.

			Plus (O+) course are: resitting the course, surged weekly work hours, and confidence that this type of blended course eases learning	
Smith and Hill (2019)	Examining the effects of instructional delivery modes on burnout among full-time college professors at a Christian university in Southern California	Quantitative method	Technology-based education for instructional delivery positively influenced the professors to adopt the blended mode	Future study should expand samples to different universities in developing country.
Arias et al., (2018)	Investigate factors influencing students‘ attitudes and preferences toward hybrid course formats	Quantitative method	Expectations related to achieving higher GPAs and required course participatio	Future study should integrate qualitative research method.

			n in online formats were found to be statistically insignificant	
Jill et al., (2019)	To investigate the impact of instructor-generated YouTube videos on student performance in a Principles of Accounting course.	Quantitative method	Incorporating instructional videos into the learning process enhances student performance.	The study recommended further exploration of alternative learning tools, optimal video length for online learning.
Van Oordt and Mulder, (2016)	To describe the implementation of fundamental e-learning tools as supplementary and alternative tools.	Action research method	Students have access to devices and data to utilise e-learning tools. Students perceived the tools as assisting study aids and have preference for synchronous alternative tools.	Future study should consider other learning theories.
Kotb et al. (2019)	Examine the development and coverage of e-learning technology within accounting curricula and examined the factors influencing its integration	Mixed method	Undergraduate accounting students are rarely introduced to the digital technologie	Accounting education scholars to recognize digital technology as a crucial and transformative area that deserves substantial inclusion in accounting curricula to align academic training with market realities

			s used in real-world business environments.	
Al-Fraihat et al., (2020)	Evaluation of E-learning Systems.	Quantitative method	The findings reveal four variables to be the determinants of e-learning use; educational system quality, support system quality, learner quality, and perceived usefulness.	Future research should consider other universities in developing countries.
Yaw Obeng and Coleman (2020)	To explored the transformative role of technological innovation in enhancing the functionality and effectiveness of e-learning systems, while also addressing educational challenges.	Quantitative method	The findings revealed that technological innovation positively influences both the features and outcomes of e-learning systems.	Future research incorporates other forms of innovation, such as pedagogical and organizational innovation, and expand the scope to include tertiary institutions in developed countries
Elayyan, (2021)	To investigated the effects of Industrial Revolution (IR) 4.0 products like the Internet of things, cloud computing, big	Quantitative method	Blockchain, Cloud Computing, and cyber security will be used in a vast field in the	Implementation of important changes in instructional programs, curricula, learning environment, liquid instructional skills, and teachers-

	data, cyber security, artificial intelligence, blockchain, and robots on the educational variables		future to enhance learning opportunities and sustain learning activities for a long time despite the demerits of this revolution.	students' responsibilities to mitigate IR 4.0 technologies and products.
Lambert and Yanson, (2017)	To explore employee preferences for learning styles in the context of professional development	Quantitative method	Employees who had prior experience with e-learning whether synchronous or asynchronous tended to favor those methods over others, indicating a shift in learning preferences as a result of exposure to digital learning environments	Future studies should consider data from multiple sources with more objective measures. Also, future research should consider different research method such as qualitative that investigate the perceptions of employees on e-learning.
Boateng et al., (2016)	Assess factors that influence e-learning adoption (ELA) among students enrol in University of Ghana	Quantitative method	PU and ATTU directly affected ELA, with PU and PEOU also having direct relationship on ATTU. However,	Future studies should consider data from private universities. Also, future research should consider different research method such as qualitative.

			other constructs like CSE, PEOU had indirect and insignificant relationship on ELA	
Kaushik and Agrawal, (2021)	Examined factors that assist or hinder students from employing e-learning technology platforms	Quantitative Method	They utilise the e-learning platforms because of the feeling of its benefits and innovativeness.	Future study should consider longitudinal research design. Also, future study should consider samples from different geographical location and employ comparative data analysis.
Osei et al., (2022),	Employed an extended UTAUT2 model that integrates personality and self-determination theory to examine e-learning adoption in Ghana during the outbreak of COVID-19	Quantitative method	personality has a positive relationship with behavioural intentions, actual usage is impacted positively by motivational factors, there is a positive mediating role of behavioural intention for motivational factors and actual use, and	Future studies should employ longitudinal or experimental designs.

			motivational factors play a positive mediating role between UTAUT2 variables and behavioural intentions.	
Thannimalai, Rathakrishnan and Ismail (2022),	Examine the impact of four learning approaches face-to-face learning, blended learning, virtual classrooms, and video streaming among students at Alquds Open University	Quantitative method	Students expressed a strong preference for combining e-learning with face-to-face instruction.	Future research incorporates the three stages of the learning process to provide a more comprehensive understanding
Baragash and Al-Samarraie (2018)	Investigate the effects of student engagement in three learning delivery modes face-to-face (F2F) learning, learning management system (LMS)-based learning, and web-based learning (WBL) on students' learning experiences and academic performance.	Quantitative Method	These findings provide evidence supporting the effectiveness of integrating multiple learning delivery modes in higher education	Larger and more geographically diverse populations from both emerging and advanced economies to enhance external validity by future study. Also, integrate participants from wider range of academic field, and employ longitudinal research design.
Edumadze (2019)	To investigate the perception of students using the Moodle platform from a Ghanaian university where the use of an e-learning platform to aid traditional	Quantitative method	Greater percentage of the students own computing devices and spend half of the day	Future study should consider samples from developing economies such as Africa.

	face-to-face is optional among all the courses.		using those devices. The computers were used for academic purposes and mobile phones were used for non-academic purposes.	
Owusu-Fordjour et al. (2020)	To assess the impact of COVID-19 on learning.	Quantitative method	The e-learning platforms introduced possessed difficulties for the majority of the students.	Students and facilitators all must be introduced to e-learning platforms and how to effectively use them.
Shabeeb, Sobaih and Elshaer (2022)	To assessed accounting students' learning experience and satisfaction before and amid the COVID-19 pandemic	Quantitative	There is positive relationship between learning experience and satisfaction, before (model 1) and during COVID-19 (model 2)	Future study should integrate qualitative research method to investigate the experiences.
Pallavi, Ramachandra and Chinnasamy (2022)	To investigate the effectiveness of e-learning compared to traditional face-to-face learning	Quantitative method	The study revealed that the majority of learners cannot set time for study, homework, and assignment completion.	Future studies should integrate different research method such as qualitative to explore the experiences of students.
Alastal,	To explore the	Quantitati	Perceived	Future research to

Salman and Allaymoun (2023)	perceptions of accounting and finance students at Gulf University regarding e-learning during the COVID-19 pandemic, to identify its perceived merits	ve method	benefits of e-learning, including ease of use, the constant availability of learning materials, enhanced communication with lecturers, and improved interaction among students.	investigate the perceptions of accounting students in other Bahraini universities, as well as those in developing countries.
Alshammari (2023)	Evaluating the academic performance of students enrolled in an introductory computer science course through a comparison of grades obtained in online and traditional face-to-face instructional formats	Quantitative method	Students who received instruction through the online mode outperformed those who were taught via the traditional face-to-face format.	Data collection should be extended to different universities.
Braun, Boldt, Mauldin and Viosca (2020)	To investigate professionals working as public accountants in the United States to explore their opinions on accounting degrees which are taken online compared to	Quantitative method	Findings shown a strong preference for blended learning by public accountants	Future research should include diverse samples from different employees from developing countries.

	accounting degrees taken face to face.			
Weldy (2018)	To explore student perceptions of different course delivery formats through a comprehensive survey focusing on three core areas; face to face, online and blended learning formats.	Quantitative method	General preference for and more positive experiences in traditional face-to-face courses, there was a noticeable increase in enrollment in online and blended formats.	Future study should investigate student perception on different course format.
Dunbar (2017)	To determine whether the method of course delivery had any statistically significant effect on faculty burnout	Quantitative research approach	There is no significant statistical relationship between the delivery method and the incidence of burnout among full-time college professors. Additionally, there is no significant relationship between course delivery methods and faculty retention.	Further study should consider universities outside Southern California Christian university.
Twum, Ofori, Keney and Korang-Yeboah,	**To investigate the determinants of behavioural intentions to employ e-**	**Quantitative Research method**	**The findings indicated that individual**	**Future research should gather**

(2022)	**learning during the corona virus outbreak. The study in addition examined the impact of personal innovativeness in information technology and financial cost perceived in using e-learning technology**	**innovativeness in IT, perceived financial cost, improved expectancy, hedonic motivation and social influence significantly impact e-learning use**	**sample from many universities. Also, future study should employ mixed method research approach.**

Source: Author's Field Data (2024).

Table 2.2: Data collection method used in empirical articles (by frequency count)

	Survey	**Course performance**	**Published source**	**Quasi-experiment**	**Interview**	**Experiment**	**Total**
Section, Reference, and subject area							
Curriculum and Instruction	8	3	1	1		1	14
Instruction by content area							
Educational technology	1	3					4
Students	7	3	1	1	2		14
Faculty	2	2					4
Totals	**18**	**11**	**2**	**2**	**2**	**1**	**36**
Percentage of total	50%	30%	6%	6%	6%	2%	100 %
Comparing the previous year's data							
2019 totals	22	1	3	5	0	0	31
Percentage of total	71%	3%	10%	16%	0%	0%	100 %
2018 totals	28	9	3	1	2	3	46
percentage of total	61%	19%	7%	2%	4%	7%	100 %
2017 total	**21**	**6**	**6**	**3**	**3**	**1**	**40**
percentage of total	**53%**	**15%**	**15%**	**7%**	**7%**	**3%**	**100 %**

Source: Adapted from Apostolou et al. (2021)

Table 2.3: Geographical location of sample used in empirical articles (by frequency count)

	US and Canada	Australia and New Zealand	Europe	Asia and Africa	Multinational	Total
Section reference and subject area						
Curriculum and instruction	10		3	1		14
Instruction by content area						
Educational technology	2	1	1			4
Students	8		2	2	2	14
Faculty	3				1	4
Totals	23	1	6	3	3	36
percentage of total	64%	3%	17%	8%	8%	100%
Comparing previous year data:						
2019 totals	16	3	4	5	3	31
percentage of total	51%	10%	13%	16%	10%	100%
2018 totals	25	6	7	7	1	46
percentage of total	55%	13%	15%	15%	2%	100%
2017 totals	**29**	**4**	**6**	**1**	**0**	**40**
percentage of total	**73%**	**10%**	**15**	**2%**	**0%**	**100%**

Source: Adapted from Apostolou et al., **(2021)**

2.4 Analysis of Studies Reviewed

The empirical literature reviewed from journals on: Accounting education, the International Journal of Learning, The Online Journal of Distance Education, Doctoral Thesis, Conference Papers, Presentations, and many other literatures under the classified titles: Interactivity, Factors influencing e-learning use, perception on e-

learning Technology (extent of usage), Technology (impact) from 2012 to 2024, it was further revealed from the forty (40) articles reviewed (Table 2.1) which relate to the objectives that; Majority of previous studies (28) adopted quantitative research method, analysing data using regression. Some reviewed studies (7) also employed mixed method, analysing data using regression for quantitative and content analysis for qualitative data. Only one article used single case qualitative research method, analysing data with thematic analysis. Moreover, it was shown from the empirically reviewed literature that most of the research were conducted in developed countries where infrastructure is highly improved for academic institutions. The few studies which were conducted in Ghana either collected data from senior high school or different discipline which is unlike accounting that is practical and involve huge volume of figures. Hence, most of the suggestion made for further study stated the expansion of data samples to culturally diverse location such as developing country, integrating qualitative research method. These articles are summarised in table 2.1 above. To support findings from my empirical review, having noted the limited level of studies on accounting students' use of technology in accounting education, Apostolou et al. (2021) recommended more empirical studies to be done on technology uptake in accounting education in areas such as Africa and Asia using the mixed data collection approach. This current study presents an overview of the data collection methods used in thirty-six (36) empirical articles considered in accounting journals from 2017 to 2020. Table 2.2 indicates the research methods used for data gathering by empirical studies. It was shown that the highest areas of study are Curriculum and Instruction with a total of fourteen (14) articles. Also, the least areas of study were both Education Technology and Faculty which had four (4) articles each published in 2020. As shown in Table 3, no article on educational technology

collected data from Asia and Africa in the year 2020, and articles on students that collected data in Asia and Africa were two (2), and articles on curriculum and instruction were one (1).

Overall, the thirty-six (36) articles reviewed on geographical data collection, the United States (US) and Canada had the highest number of twenty-three (23) representing sixty-four percent (64%) and the least were Australia and New Zealand one (1) representing three percent (3%). Asia and Africa, and multinationals also had the same number of three (3) articles with eight percent (8%) each. Observing the year-to-year comparison, a study that took data from Asia and Africa in 2017 was one (1) with 2%, increased to seven (7) with 15% in 2018, decreased to five (5) with 16% in 2019 and a further decreased to three (3) with 8%. In addition to the above findings revealed in Table 2, it is identified that only one (1) article used a survey for data collection in conducting a study on education technology and no interview was used as a data collection method for a study on education in 2020 per their reviewed literature. The total percentage of survey studies on the entire subject area started increasing in 2017 (53%), 2018 (61%), and 2019 (71%) but decreased in 2020 (50%). Similarly, the total percentage of interview studies on the entire subject area increased from 3% to 7% decreased to 0% in 2019, and further rose to 2% in 2020. Notably, none of the studies used a combined (mixed) data collection method. Moreover, the 88 reviewed literature by Apostolou et al. (2021) further revealed information on the geographical location of samples used in 36 articles as indicated in Table 3 above.

2.5 Identification of Gaps in Accounting Education

Baragash and Al-Samarraie (2018) noted that a significant portion of existing literatures on student learning within accounting education is based on small sample

sizes, which limits the generalizability of findings. Consequently, they emphasized the need for future research employing larger datasets, particularly from developing countries, to produce more representative and robust conclusions. Similarly, Apostolou et al. (2021) highlighted the urgent need for research that evaluates students‘ e-learning experiences toward adoption of educational technologies, thereby underscoring the relevance of integrating technology in accounting education studies. A notable contribution to this discussion is the study by Edumadze (2019), which examined the use of digital technology by accounting students. The findings reinforced the dynamic nature of the accounting education environment and advocated for further scholarly exploration into emerging educational challenges, particularly those arising from the use of mobile phones for learning.

Mobile Learning (M-Learning), a subset of electronic learning, was identified as having a positive influence on accounting education. Edumadze (2019) recommended that research objectives and questions should be focused on addressing the problems that emerge from technology usage in learning. Answering such research questions holds the potential to enhance the quality of education delivered to learners, especially in accounting programs. Furthermore, the study called for research into effective strategies to motivate students to adopt digital tools and information technologies in accounting learning environments. There was also a recommendation for empirical studies that examine the relationship between technology use and academic performance, which could make meaningful contributions to accounting education literature. Jill et al. (2019) echoed similar concerns, emphasizing the limited body of research affirming the impact of technology adoption on improved learning outcomes in accounting education. With the rapid advancement of educational technologies and their permeation into all academic disciplines, the authors called for more empirical

evaluations of virtual learning and technology-based instructional delivery methods within accounting programs. This perspective is supported by Herrador-Alcaide, Hernández-Solís, and Sanguino Galván (2019), who noted an increasing demand for research that assesses how emerging technologies influence student learning.

In agreement, Alameri et al. (2020) highlighted that while there is rapid progress in technology integration within accounting education, there remains insufficient empirical evidence to substantiate claims that e-learning technologies significantly enhance learning outcomes. Reviewing literature from 2006 to 2009, 2010 to 2012, and more recently from 2017 to 2020, Apostolou et al. (2021) reiterated their call for comprehensive studies that examine the effectiveness of technological uptake in accounting education and its impact on learners' academic performance. These calls collectively underscore the persisting research gap and the urgent need for empirical studies that can provide conclusive evidence on the role of educational technology in

2.5 Conceptual Framework

The conceptual framework was employed to guide this study, and have been expressed using latent constructs. The conceptual framework was adapted through the gaps shown in both theoretical review and conceptual review; social interactivity, and preferred usage apart from attitude which were shown to dominate majority of the studies. The purpose of this study was to evaluate the current use of e-learning technology by identifying the e-learning experiences that influence technology adoption. That is, the adapted conceptual framework is considered ―Technology adoption" and addressed as dependent variable in this study. Constructs from theories and empirical studies that predict behavior and acceptance of technology use in learning were identified to represent e-learning experiences of students and addressed

as independent variables. Hence, the conceptual framework shown in figure 3.1 was used to test the e-learning experiences that impact technology acceptance through the utilization of Partial Least Square Structural Equation Modelling (PLS-SEM).

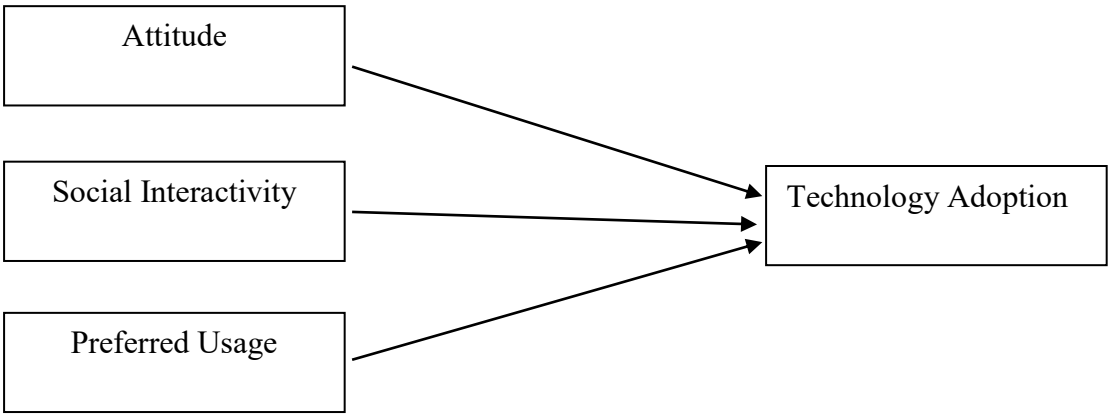

Figure 3.1: Conceptual framework

Source: Modified TPB and UTAUT adapted from (Ajzen 2018).

2.6 Chapter Summary

Chapter Two provided a comprehensive review of relevant literatures on students‘ e-learning experiences, particularly within the context of accounting education and its influence on technology adoption. The chapter explored significant scholarly works that form the foundation of the study‘s background, focusing on critical concepts that influence both general education and the integration of technology in accounting education. Specifically, it examined how e-learning shapes the teaching and learning of financial accounting in higher education institutions. The literature review addressed two key areas: the experiences of accounting students with e-learning platforms and how these experiences influence technology use, including knowledge acquisition, interactivity, and academic performance. It further analyzed how the financial accounting curriculum and professional accounting training have responded to the growing adoption of e-learning technologies.

Additionally, the chapter discussed the role of blended learning as a pedagogical shift, as well as students‘ attitudes and readiness towards adopting e-learning as part of their educational journey. The influence of digital tools and virtual learning environments on accounting instruction was critically assessed. To provide a theoretical underpinning for the study, two major theories were introduced and examined: the Theory of Planned Behavior (TPB) and the Unified Theory of Acceptance and Use of Technology (UTAUT). These theories helped to establish the study's conceptual foundation by explaining the behavioural intentions and technological acceptance patterns of students engaging with e-learning platforms. Ultimately, the chapter justified the selection of the TPB as the most suitable theoretical lens guiding the research.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The preceding chapter offered a comprehensive review of relevant literatures, emphasizing instructional delivery modes in financial accounting within the context of technological advancement, particularly the emergence of Artificial Intelligence (AI). This current study centers on the e-learning experiences of accounting graduates in Ghanaian public universities. As Mukherjee (2019) posits, the fundamental purpose of any research is to uncover previously unexplored facts and contribute to the existing body of knowledge.

Chapter Three details the methodology employed in conducting the study. It outlines the systematic procedures followed to collect, analyse, and interpret data to address the research objectives. Specifically, the chapter comprises the following key components: Research Approach, Research Design, Study Area, Sample Size and Sampling Techniques, Data Collection Methods (Research Instruments), and Procedures for Data Processing, Analysis, and Presentation. These elements are critical in ensuring the reliability, validity, and replicability of the study's findings.

3.1 Research Paradigms and Philosophical Stance

Two predominant paradigms guide behavioural research: Positivism and interpretivism (Akotia, Awuzie & Egbu 2023; Burrell & Morgan, 2019; Ibembe, 2019; Morgan, 2018). These paradigms are deeply rooted in philosophical assumptions about the nature of reality (ontology) and the basis for acquiring knowledge (epistemology) (Moreno-Lopez & Torres, 2020; Lune & Berg, 2017). Positivist and interpretivist have historically dominated social and behavioural

sciences research, particularly throughout the 20th century (Tzagkarakis & Kritas, 2023). However, pragmatism has gained increasing prominence over the past 25 years, especially in the 21st century, as researchers seek to explore deeper contextual meanings and subjective experiences (Tzakarakis et al., 2023).

3.1.2. Pragmatism

Pragmatism is a philosophical approach that emphasizes problem-solving, practicality, and the evaluation of consequences. It is grounded in the belief that knowledge, meaning, concepts, and beliefs are best understood through their practical applications and real-world success, rather than through abstract representations or metaphysical speculation. Pragmatism thus prioritizes action, outcomes, and adaptability over rigid adherence to a single philosophical doctrine. As a research philosophy, pragmatism integrates the principles of pluralism, democracy, and experimentation, offering a flexible and inclusive framework for addressing complex research questions. It supports the use of multiple methods and perspectives, recognizing that no single approach can fully capture the dynamic and multifaceted nature of human experience (Islam, 2022).

This study adopts the position articulated by Creswell (2013), which recognizes that although a combined (mixed-methods) approach may not always yield the optimal solution, it offers a valuable means of integrating diverse research techniques and philosophical orientations to provide a comprehensive understanding of complex issues. This view is supported by Bell, Bryman and Harley (2022); Privitera and Ahlgrim-Delzell, (2018); Lambert, (2019), who argue that a pragmatic approach offers a philosophically and methodologically sound middle ground that is both flexible and effective. This current study did not select the mixed-methods approach

solely to examine the influence of e-learning experiences of accounting students on technology adoption in accounting education. Rather, the decision was based on specific philosophical premises that underlie the research. The study aligns with an objectivist view in accounting education, treating the subject matter such as student preferred usage of e-learning technologies, levels of social interactivity, attitudes, and social interactivity as observable and measurable elements of an objective reality. These constructs are presumed to exist independently of individual perceptions, reflecting real and tangible phenomena. However, the study also acknowledges a subjectivist perspective, particularly about the adoption and experiences of e-learning. It is understood that individuals respond differently to technological interventions in education, and these responses do not always follow predictable, deterministic patterns.

This dual recognition of both objectivist and subjectivist realities reinforces the need for a pragmatic research philosophy. The choice of research method is thus pivotal, as it influences not only the design of the study but also the strategic decisions concerning data collection, analysis, and interpretation (Headley & Plano Clark, 2020). The complexity of integrating technology in accounting education highlighted by the diversity of definitions and frameworks in existing literature makes predictions using only a single approach, such as quantitative research, highly limited. The dominance of positivist paradigms in prior educational technology studies has proven insufficient to address such complexities comprehensively. Consequently, this study proposes a pragmatist orientation to facilitate the examination of both the measurable relationships among variables and the contextual interpretations derived from qualitative insights. By drawing on both data types, the study aims to uncover a deeper understanding of how accounting technology adoption is influenced by student

e-learning experiences in Ghanaian public universities, thereby justifying the adoption of a mixed-methods approach grounded in pragmatism.

3.2 Research Methods

3.2.1 Qualitative Research Method

The qualitative method refers to the approach of gathering and analysing non-numeric data to obtain more insights into individuals‘ experiences, behaviours, and perspective (Creswell & Creswell, 2017). According to Bell et al., (2022), the qualitative research method used in research has number of identified characteristics. Some of these features include the exploratory aims and the understanding of events, rather than testing just hypotheses. It collects and analyses non-numeric data like text, images, and observations. It also possesses flexibility in research design by enabling amendments and refinements during the progress or after conducting a study.

A qualitative investigators‘ interest is to use a refined methods and knowledge in events and further places the interest of the respondents who are directly affected by the occurrences first (Creswell & Creswell 2017), rather than counting on big pattern sizes to dispose the need for fairness as witnessed in the conduct of quantitative studies. A qualitative technique identifies the perspectives of unique research topics and attaches significance to what is probably found out from their respective stories (Akotia et al., 2023). Qualitative study is used optimally for situations on the way to boom understanding, extend know-how, make clear the actual issues, generate speculation, pick out quite a number attitudes and behavior, and discover awesome behavioral companies (Morgan, 2018). Creswell and Creswell (2017) further disclosed qualitative research study improves the capacity of obtaining a legitimate understanding of a phenomena, and also assist the expansion of concepts through

exploration of experiences, perspectives etc. The exploration feature of qualitative research method helps a study to gain green information used for decision making. The quantitative research technique would not be feasible to gain facts from research participants, due to the unwilling behaviour of humans to provide sincere answers to questions that exposed their privacy. Research questions that embarrass respondents in gaining their views in a quantitative study would be avoided by respondents or attempt not to provide truthful answers.

3.2.2 Quantitative Research Method

Quantitative research prioritizes systematic techniques, rigorous measurement, and statistical analysis to establish correlations and causal relationships within numeric data, yielding measurable and data-driven findings (Daowd et al., 2021). It employs well-structured procedures to gather and analyze numerical data to identify patterns, trends, and relationships that provide solutions to real-world problems. A notable advantage of quantitative research is its ability to generalize findings from a relatively small sample to a larger population, often reducing study costs (Wappa & Pembi, 2021; Silverman, 2020). Statistical tools are employed to test established relationships between variables. Nonetheless, quantitative methods have limitations, including a lack of depth in understanding complex issues, potential investigator bias in study design and interpretation, and a tendency to focus on testing existing theories rather than exploring novel experiences (Almalki, 2016). Moreover, during data collection, investigators have limited opportunities to amend instruments if issues such as ambiguous or omitted questions arise. Quantitative research is often critiqued for its inability to account for individual differences and for applying natural science methods to social phenomena, which can overlook the subjective aspects of human behavior (Almalki, 2016; Silverman, 2020).

3.2.3 Mixed Research Methods

Mixed methods research integrates both quantitative and qualitative approaches to gather and analyze data within a single study. This methodology has gained acceptance, particularly in social sciences, due to its ability to address complex research problems inadequately served by either approach alone (Creswell & Plano Clark, 2023). It requires researchers to skillfully combine quantitative and qualitative data collection, analysis, and interpretation (Bell et al., 2022). By integrating both methods at all stages, mixed methods research offers a comprehensive understanding that surpasses what each method can achieve independently (Baskarada & Koronios, 2018). One method can validate the findings of the other, enhancing confidence in the study‘s conclusions (Creswell, 2013; O‘Halloran et al., 2018). Despite its advantages, mixed methods research faces critiques, particularly regarding its ontological and epistemological foundations. Critics argue it is difficult to reconcile the objective measurement of social phenomena with the subjective nature of social meanings influenced by personal experiences (De Loo & Lowe, 2017).

Additionally, researchers lacking broad methodological expertise may generate conflicting or incompatible findings (Mitchelle & Education, 2018). The non-detachment of researchers in the process challenges the acceptance of dependent data, raising concerns about the validity of triangulation as a verification strategy (Silverman, 2020; Creswell, 2013). Pragmatism provides a philosophical response to these critiques by advocating for pluralism, democracy, and problem-solving, thus supporting the integration of diverse assumptions inherent in quantitative and qualitative methods (Brierley, 2017; Creswell & Plano-Clark, 2023). Benson and Filippaios (2016) further emphasize the necessity of adopting mixed methods to

comprehensively address complex research problems by generating multifaceted data conducive to effective solutions.

3.2.4 Justification for Adopting Mixed Method

This study employs a mixed methods research approach, integrating both quantitative and qualitative techniques to comprehensively examine the research questions and objectives. Creswell (2013) notes that mixed methods research requires familiarity with both qualitative and quantitative approaches. Qualitative data collection instruments are typically open-ended, allowing for unrestricted responses, while quantitative instruments often utilize closed-ended questions to generate measurable outcomes. In this study, a closed-ended questionnaire and an open-ended questionnaire are used to collect data. The closed-ended questionnaire, representing the quantitative method, measures and examines the extent of student level of interactivity with e-learning technologies, and the impact of e-learning experiences on technology adoption.

The open-ended questionnaire serves the qualitative component, exploring students' perceptions of e-learning technology within public universities in Ghana. Mixed methods research considers both inductive and deductive reasoning and adopts what best suits the study. It is grounded in the understanding that all methods have inherent limitations and biases; therefore, combining both types of data collection helps to neutralize these weaknesses, enhancing the validity and reliability of findings. Creswell and Creswell (2017) outline critical stages for conducting mixed methods research: determine the feasibility of using a mixed methods design, justify the rationale for combining methods, plan the data collection procedures, develop appropriate questions, collect the data, analyze the data, and write the report

accordingly. Headley and Plano Clark (2020) further state that mixed methods research employs well-defined procedures and structured instruments to gather data objectively and systematically. Statistical analyses of numerical and categorical data can be performed using software such as SPSS, R, Python, STATA, Microsoft Excel, NVivo, and MAXQDA. The mixed methods design is built on four key strengths: it allows for a more comprehensive understanding of research problems, facilitates the triangulation of data, offsets the weaknesses of single-method studies, and enhances the generalizability and depth of findings. However, it also presents four key weaknesses: it can be time-consuming and resource-intensive, demands high methodological expertise, may lead to difficulties in integrating different types of data, and requires careful consideration of philosophical compatibility. These strengths and weaknesses, as identified by Adu et al. (2022), informed the adoption of the mixed methods approach in this study.

3.3 Research Design

Headley and Plano Clark (2020) disclosed that a study exhibiting methodological coherence is more likely to yield findings with high validity, at least within the boundaries of a particular methodological paradigm and method. A well-structured research design serves as a logical strategy for enhancing the validity of research outcomes. Privitera and Ahlgrim-Delzell (2018) asserted that research designs offer the primary framework for uncovering answers to research questions, guiding both methodological choices and execution. Similarly, Clark, Foster, Bryman, and Sloan (2021) emphasized that research design lays the foundation for systematic data collection and analysis. In line with this, Creswell and Creswell (2017); Privitera et al., (2018); Clark et al., (2021) identified six primary classifications of mixed method research designs: convergent parallel mixed methods, explanatory sequential mixed

methods, exploratory sequential mixed methods, embedded design, transformative design, and multiphase design. These frameworks offer researchers flexible options for integrating qualitative and quantitative approaches in a coherent and meaningful manner.

3.3.1 Explanatory Sequential Mixed Method Design

This type of mixed method design is one in which the researcher begins first to conduct quantitative research, analyse the findings, and then develop the findings to explain them in more detail with qualitative research. It is referred to as explanatory because the prior quantitative data findings are explained further with the qualitative data. Also, it is termed as sequential because the initial quantitative stage is followed by the qualitative stage. The explanatory sequential mixed method design is famous in disciplines with a strong quantitative orientation such as accounting; therefore, this study starts with quantitative data collection and further used the strings to collect and analyse qualitative data. However, it presents difficulties in identifying the quantitative results to further explore the unbalanced sample sizes for each stage of the study.

3.3.2 Justification for Adopting Explanatory Sequential Mixed Method design

Based on some factors outlined in section 3.3.1, this study is being carried out in accounting discipline which is highly rooted in the numerical data with strong quantitative research orientation. Moreover, this study involves the evaluation of the relationship between independent and dependent variables, and further exploring of student‘s e-learning experiences. Hence, explanatory sequential mixed method design was deemed most appropriate for this study. The research adopted a mixed method strategy which involves multiple forms of data collection carried out over two

months, specifically from August 18, 2024, to October 18, 2024. Both closed-ended questionnaires (surveys) and semi-structured interviews were utilized in gathering data. As the data collection occurred within less than twelve months, the study is classified as cross-sectional. The chosen mixed method design was suitable for addressing both the quantitative and qualitative aspects of the study. The research process involved initially collecting and analysing quantitative data for research objective one and two to reveal the significant threads, which subsequently informed the development of semi-structured interviews used to further explore emerged issues on student's e-learning experiences for research objective three.

3.4 Research Approach

This section of the chapter presents the approach that was adopted in exploring the study.

3.4.1 Research Setting and Study Population

For research purposes, the term population refers to a set that includes all measurements of interest to the researcher (Yin, 2018). In this context, it denotes the collection of all responses that are relevant to the study. The term _responses' is used because the investigator sampled a population of accounting students. This study was conducted at two public universities in Ghana: The University of Cape Coast (UCC) and the University of Education, Winneba (UEW). The selected participants comprised accounting students from these two institutions, as they are expected to use accounting software packages at various stages of their academic progression. This study conducted in the domain of accounting education makes it appropriate for the researcher to select UEW and UEW, which are two public universities in Ghana being well established for education. Although the study focused on students from UCC and

UEW, the broader target population included all fifteen (15) public universities in Ghana.

Table 3.1: Total Accounting Students in University of Education, Winneba 2023/2024

Name of University	Bachelor of Business Administration (BBA)	Bachelor of Science Accounting Education (B.Sc. Accounting)	Master of Business Administration (MBA)	Master of Philosophy Accounting (MPhil Accounting)	Total
University of Education, Winneba (UEW)	611	420	65	26	1,122

Source: School of Business UEW, Accounting Department (2024)

Table 3.2: Total Number of Accounting Students in University of Cape Coast 2023/2024.

Undergraduate Accounting	Post-graduate Accounting	Sandwich	Total
1,342	**22**	**50**	**1,414**

Source: School of Business UCC, Accounting Department (2024).

3.4.2 Sampling Method and Sample Used

A *sample* refers to a group of elements chosen from the target population (McDonal et al., 2015). This study adopted the purposive and simple random sampling method to select a sample from the target population of Ghanaian public universities and accounting students from UEW, and UCC. Purposive sampling, also known as judgemental sampling, involves the deliberate selection of participants based on specific characteristics deemed relevant by the researcher. In this case, the researcher

identified accounting students with prior exposure to educational technologies in learning, particularly those relevant to accounting courses. The sample comprised two public universities: the University of Cape Coast (UCC) and the University of Education, Winneba (UEW). Alhara, Asikin and Amidi (2021) argue that purposive sampling is appropriate when researchers intend to select specific cases that are most informative for the study. Additionally, to ensure representativeness, a simple random sampling technique was applied to select students from the two sampled universities. Simple random sampling is a probability sampling method that ensures every element in the population has an equal chance of selection.

3.4.3 Determination of Sample Size

Determining the required sample size for a study, according to Hair, Howard and Nitzl (2020), can be approached through several methods. These methods are grouped into categories such as item-sample ratios, population-sample tables, and general rules of thumb. Specifically, commonly used techniques include: sample-to-item ratio, sample-to-variable ratio, Krejcie and Morgan‘s sampling table, online calculators, a-priori sample size for structural equation models (SEM), Roscoe‘s rule of thumb, Green‘s procedure, PLS-SEM guidelines, inverse square root and gamma-exponential methods, power tables, and sample size recommendations for multilevel models (Hair et al., 2020; Kline, 2023). This study adopted both the 10- times rule, Krejcie and Morgan (1970) sampling table to determine the sample size. Given the use of multiple regression and similar analysis techniques, Hair et al., (2020) suggest a minimum sample size should be equal to the larger of ―10 times the largest number of structural paths directed at a particular latent construct in the structural model or 10 times the largest number of formative indicators used to measure one construct”. Despite the doubts levelled against this rule for selecting sample size, Kline (2023) stated that

–the 10 times rule of thumb for determining sample size adequacy in PLS analysis only applies when certain conditions, such as strong effect sizes and high reliability of measurement items, are met". For this study, considering a population of 2,536 students (UEW – 1,122 and UCC – 1,414), a sample size of 331 was used since the mentioned conditions in the 10 times rule, Krejcie and Morgan's table are achieved. In using the formula recommended by Krejcie and Morgan, (1970) to distribute the sample size for the two public universities;

(N×S) ÷ TP. Where N = Population of each university, S = Total sample size and TP = Total Population. Using this formula, the samples among the two public universities would be;

University of Education, Winneba: (1122×331) ÷ 2536 = 146

University of Cape Coast: (1414×331) ÷ 2536 = 185.

3.4.4 Data Collection Instruments

The primary data collection instruments for this study were survey questionnaires, and semi-structured interview which also comprises of open-ended items that aligned with the research questions and objectives. These instruments were adapted from Briggs et al., (2023); Wong (2015). The closed-ended questions were designed to obtain specific, quantifiable responses, while the semi structured items allowed for more detailed, descriptive feedback from the sampled students. The use of Google Forms was deemed appropriate for this research, as it facilitated efficient distribution and response collection. Additionally, the platform supported the formulation of questions that directly addressed the study's objectives and enabled the collection of data necessary for drawing meaningful conclusions.

3.4.4.1 Questionnaire for Quantitative Data Collection

Lambert (2019) outlined several advantages and disadvantages associated with the use of questionnaires in research. Questionnaires are effective for data collection, as responses are generally easy to tabulate and analyse, especially when the items are mostly checkbox-based. However, a notable limitation is their often-low response rate, particularly when mailed to unfamiliar individuals. In contrast, in-person administration tends to yield higher participation. Anonymous questionnaires can be advantageous when exploring sensitive issues, as participants are more likely to respond truthfully when confidentiality is assured. Nevertheless, questionnaires may offer only partial insight, particularly when they focus on items that can be objectively scored, such as multiple-choice or limited-response questions. Despite this, they are cost-effective compared to face-to-face interviews, which are generally more expensive due to travel requirements. Lastly, responses may sometimes reflect social desirability bias, with participants answering in a socially acceptable rather than truthful manner.

3.4.4.2 Semi-structured Interview for Qualitative Data Collection

An interview is another important data collection instrument used in research. It involves a process where the investigator poses questions to a respondent to gather relevant information. This technique relies on either verbal or written questioning and is particularly effective in obtaining detailed insights into the respondent's experiences. Interviews are typically used when a researcher seeks to gain a deeper understanding of responses, allowing for a rich and comprehensive exploration of the subject matter (Harris & Brown, 2019). They are commonly classified into structured, semi-structured, and unstructured formats, depending on the level of flexibility and depth required. Among data collection tools, interviews are most often employed in

qualitative research to gather non-numeric data (Harris & Brown, 2019). A major strength of interviews lies in their ability to elicit broad and detailed responses from participants. However, they also present some limitations, including the time-consuming nature of both conducting and analysing the data, as well as the associated costs particularly when equipment for recording is required. Interviews may take either a quantitative or qualitative form. The quantitative interview typically involves a structured script with closed-ended questions, whereas the qualitative interview uses open-ended questions to obtain in-depth information about the respondent‘s beliefs, reasoning, and experiences.

3.4.4.3 Survey Questionnaires and Semi-Structured interview

The questionnaire and semi-structured interview employed in this study was adapted from a previously validated instrument by Briggs et al., (2023); Wong, (2015); Boateng et al., (2016), and designed using a five-point Likert scale format. This scale was instrumental in addressing the study's research questions, which focused on three main areas: the level of student interactivity with e-learning technologies, the influence of e-learning experiences on technology adoption by accounting students, and a general exploration of the e-learning experiences of accounting students. According to Leedy and Ormrod (2010), as cited in Coy (2019), when assessing behaviours, attitudes, or perceptions, the use of a rating scale is particularly appropriate. Such scales often employ descriptive anchors ranging from _inadequate to excellent‘, _never to always‘, or _strongly disapprove to strongly approve‘, including the more common _strongly disagree to strongly agree‘ format. These rating mechanisms, originally developed by Rensis Likert in the 1930s, were designed to evaluate people's thoughts, beliefs, and attitudes and are now widely accepted as Likert scales. In this study, the structured questionnaire was organized into five major

parts, as outlined in Table 3.0. The instrument comprised primarily closed-ended and open-ended questions intended to generate quantitative and qualitative data. Respondents were asked to read and respond to each item from part 1 to 4, using a five-point Likert scale where 5 represented "strongly disagree", 4 denoted "disagree", 3 signified "undecided", 2 indicated "agree", and 1 corresponded to "strongly agree". The part 5 of the questionnaire used open ended questions which was used for gathering the views of students on e-learning technology. This format was chosen to facilitate consistency in responses and to enable the systematic analysis of data concerning the research objectives.

Table 3.3: Closed and Open-ended Questions

Part 1	Demographic characteristics.
Part 2	The level of interactivity with e-learning technology.
Part 3	Influence of e-learning experiences on technology adoption.
Part 4	Perceptions of accounting students on technology adoption.
Part 5	Student‘s suggestion to improve e-learning accounting course.

Source: Author’s Field Data (2024)

The questions included in the data collection instrument were primarily adapted from Wong (2015); Briggs et al. (2023); These items were carefully edited to simplify the language and reduce the overall length of the questionnaire, while still preserving the essential and significant information necessary for the study. In addition to the adapted questions, relevant elements from other established questionnaires were incorporated to enrich parts 1, 2, 3, and 4 of the questionnaires and the semi-structured interview (part 5). This approach ensured that the instrument

comprehensively covered all relevant aspects of the research objectives while maintaining clarity and conciseness for the respondents.

3.4.5 Measurement of scale of construct

Attitude Towards Technology (A)

Attitude was measured by employing an adapted 4-item on a five-point Likert scale by Briggs et al., (2023), starting from ~~1~~=Strongly disagree" to ~~5~~=Strongly agree". Because this study focused on evaluating the impact of e-learning experiences of accounting students on e-learning technology adoption, the Likert scale was considered as best measurement tool. The Likert scale has a popular record of use in research related to e-learning technology use, as shown in prior studies (Wong, 2015; Briggs et al., 2023; Boateng et al., 2016). The Cronbach Alpha values was pegged between 0.752 to 0.897 (Boateng et al., 2016). Preliminary test was conducted for this study and achieved a Cronbach Alpha of 0.611.

Some of the sampled items were:

> *"I work hard at my studies because I find the materials interesting", "I aim to pass Accounting while doing as little work as possible", "I come to classes as I am interested in learning about accounting*".

Social Interactivity (SI)

The social interactivity part of the survey questionnaire measured with adapted 13-item on five-point Likert scale by Kisanjara et al., (2019), from e-learning implementation model. The Likert scale begins from ~~1~~=Strongly disagree" to ~~5~~= Strongly agree". The adapting of this data collection instrument for social interactivity was the fact that Kisanjara et al., (2019), developed model achieved significant acceptability values for validity compared to prior models. The pilot testing achieved a Cronbach Alpha value of 0.705.

Sample items were:

> *"I would prefer to engage in online tutorials instead of face-to-face tutorials"; "I would prefer to navigate and use the e-learning platform"; "I would prefer to engage in group interaction in tutorials and lectures".*

Preferred Usage (U)

Also, the preferred usage characteristics of the questionnaire had its measurements by Wong, (2015). There were 5-item on five-point Likert scale ranging from ~~1~~=Strongly disagree" to ~~5~~=Strongly agree". This study's Composite Reliability (CR) obtained from pilot study was 0.721.

The following are sample of the items:

> *"Recorded lectures for Tutorials"; "Face-to-face for Tutorials"; "Power-point presentation for Assignment"; "Google meet for Lectures".*

Technology Adoption

The technology adoption characteristics of the questionnaire measured with adapted 15-item of five-point Likert scale by Boateng, (2016) from the Ajzen's theory of planned behavior. The Likert scale starts from ~~1~~=Strongly disagree" to ~~5~~=Strongly agree". The adapting of this measurement instrument is due to the recognition and acceptance of Ajzen's theory which is used as conceptual framework for understanding individual behavior to adopt technology. The pilot test obtained a Cronbach Alpha value of 0.801.

The following are sample of items:

> *"The e-learning experience has affected your understanding of accounting concepts"; "There are some challenges you faced while using the e-learning platform for accounting course"; "There are some benefits that you have derived from using the e-learning platform for accounting".*

Variable indicators used in this study were all modified to fit the research objectives. Table 3.4 indicates summary of the indicators:

Table 3.4: Summary of Measurements of Variables

Variable	Indicator	Source
Attitude	I aim to pass Accounting while doing as little work as possible (A30). I work hard at my studies because I find the material interesting (A31).	Briggs et al., (2023)
Social Interactivity	I would prefer to engage in online tutorials instead of face-to-face tutorials (SI17) I would prefer to navigate and use the e-learning platform (SI22). I would prefer to engage in group interaction in tutorials and lectures (SI24). I would prefer potent participation in discussions with tutorials and lectures (SI25). I would prefer updates and announcements (SI27). I would prefer lecture notes (SI28). I would prefer to overall rate the quality of the e-learning website (SI29).	Kisanjara et al., (2019)
Preferred Usage	I prefer to use recorded lectures for tutorials (U12). I prefer to use power point presentation for Assignment (U14). I prefer to use Google meet for Lectures (U15).	Wong, (2015)
Technology Adoption	There are some benefits that you have derived from using the e-learning platform for accounting course (TA38). Ample time was given to me to comprehend things I had to learn (TA39). The lecturers made a real effort to understand the difficulties I might be having with my work (TA40). Assessment methods used in accounting require an in-depth understanding of the content (TA41). The teaching staff normally gave me helpful feedback on how to I was doing (TA42).	Boateng, (2016)

	My lecturer was extremely good at explaining things (TA43). The teaching staff worked hard to make the course interesting TA45). I am satisfied with my learning experience in this course (TA48).

Source: Author's Field Data (2024)

3.5 Operationalisation of Constructs

Operationalising the observed constructs from measurable constructs enable in describing and defining means of measuring the variables and also assist the investigator to use particular types of questions on the questionnaire in gathering data. The operationalisation of the constructs is considered significant because it aids to achieve theoretical and measurement validity for the study. The Table 3.5 below shows the variables and how they are operationalised in this study.

Table 3.5: Operationalisation of Variables

Latent Constructs	Measurable Indicators	Description and sources
(Independent Variables)		
Attitude	Behaviour, Motivation	Refers to the favourable and unfavourable behaviour of individual to act (Ajzen, 1985).
Social interactivity	Collaborative, Skills, Online tools	It is achieved through the use of social networking platforms such as Facebook, Google meet etc. for online chat-rooms, conversation and discussions.
Preferred Usage	Use, Benefits,	Refers to the academic activity which is easy for the learner to employ the online tools (Venkatesh et al., 2012).
(Dependent Variable)		
Technology Adoption	Use Behaviour	It is considered as the willingness or unwillingness to accept the e-learning systems (Ajzen, 2020).

Source: Author's Construct (2024).

3.6 Pilot Study

Cabrera-Tenecela, (2023) emphasized that after selecting an appropriate research design, a researcher should not commence data collection before clearly defining the study‘s objectives and developing a suitable data-gathering instrument. Failure to do so may result in findings that are inadequate for answering the research questions. Coy (2019) further observed that innovative researchers enhance the validity of their assessment instruments by employing various techniques. One effective strategy is to review existing literatures to identify measurement tools that have been successfully validated in prior studies. Another important approach involves sharing the initial drafts of the instruments with experienced research supervisors to obtain their feedback and recommendations.

This study adopted both approaches by first adapting data collection instruments previously validated in similar studies (Wong, 2015; Boateng et al., 2016; Briggs et. al., 2023) and subsequently submitting the questionnaire to the supervisor for critical feedback, suggestions, and final approval. Prior to the gathering of data for this study, the researcher collected data from 4 accounting students in UCC and 6 accounting students in UEW to determine the validity of the adapted data collection instrument. It was shown that all the piloted variables had Cronbach Alpha values within the pegged values by Hair, Risher, Sarstedt and Ringle, (2019). Table 3.6 Shows a summary of Cronbach alpha values achieved by the pilot instrument from the measurement constructs.

Table 3.6: Summary of Cronbach alpha Values from Pilot Study

Item	Source	Previous studies	Pilot Testing	Actual Study
Attitude	Briggs et al., (2023)	0.895	0.611	0.637
Social Interactivity	Kisanjara et al., (2019)	0.828	0.705	0.875
Preferred Usage	Wong, (2015); Kisanjara et al., (2019)	0.828	0.721	0.713
Technology Adoption	Boateng et al., (2016); Briggs et al., (2023)	0.895	0.801	0.886

Source: Authors Field Data (2024)

3. 7 Data Collection

Prior to data collection, permission was sought and granted by the administrators or gatekeepers of the Department of Accounting at both the University of Education, Winneba (UEW) and the University of Cape Coast (UCC). The data collection process utilized various social media platforms such as LinkedIn, WhatsApp, and Telegram to reach the sampled accounting students. Additionally, ethical guidelines were observed to ensure the study complied with institutional research guidelines. To minimize costs, save time, and enhance flexibility and accuracy, the questionnaires were developed using Google Forms. The questionnaire link was then distributed to all sampled accounting students enrolled in accounting programs at the two selected public universities (UCC and UEW) in Ghana. These students were all given equal chances for responding to the questions. The questionnaire and semi-structured interview were sectionalized such that students could first respond to the closed ended questions before the open-ended questions.

3.8 Reliability and validity

Although the terms validity and reliability are often used interchangeably, they have distinct analytical meanings and serve different purposes in research. They are related in that validity generally implies reliability (Clark et al., 2021). This section explores

the concepts of reliability and validity as they apply to both quantitative and qualitative data.

3.8.1 Reliability in Mixed Method Design

Reliability refers to the stability and consistency of a measurement scale over time. It addresses whether the findings of a study can be replicated under the same conditions. In essence, reliability concerns the firmness or dependability of the measurements used (Clark et al., 2021). This aspect is especially important in mixed methods research, where ensuring consistent measurement across both quantitative and qualitative components is critical. More broadly, reliability is defined as a measurement instrument‘s ability to produce stable and consistent results when the underlying phenomenon has not changed (Coy, 2019). Several factors influence reliability, including stability over time, internal consistency, and inter-observer agreement (Clark et al., 2021). In this study, internal consistency and reliability were assessed using Cronbach‘s alpha and Composite Reliability (CR), with both thresholds set at 0.70 as the minimum acceptable standard.

3.8.2 Validity in Mixed Method Design

Evaluating the quality of results in a mixed-method design involves validating the data collected. Validity assessment applies to both quantitative and qualitative studies and is considered one of the most critical activities in all research (Cohen, Manion & Morrison, 2017). It is even more important than evaluating the research questions, sample size, research design, data collection, or data analysis. Research findings that lack validity are essentially meaningless. Therefore, this study ensures that the validity of findings is not compromised by employing Mixed Method Research, which allows for evaluation of results from both the independent quantitative and

qualitative phases, as well as from the overall mixed methods perspective. This study includes an open discussion and assessment of how results from the quantitative and qualitative components have been integrated, as well as the quality of that integration. Such a discussion helps readers understand whether the conclusions align with the research objectives and contribute meaningfully to the body of knowledge. Additionally, potential threats to validity encountered during data collection and analysis are acknowledged, along with the strategies implemented to mitigate these threats. Addressing these issues strengthens the overall quality and rigor of the research design employed (Gibson, 2017).

3.8.3 Validity Types

Cohen et al. (2017) identified several key types of validity in research. The first is face validity, which refers to the extent to which a tool appears to measure a specific feature on the surface. Next is content validity, which assesses how well an instrument covers a representative sample of the subject matter. Another important type of construct validity, which measures the extent to which a tool estimates features that cannot be directly observed but are inferred from patterns in behaviour. Lastly, criterion validity refers to how well the findings of an assessment tool correlate with another similar measurement. The questionnaire used in this study was designed according to the stated objectives to ensure validity. The constructs were evaluated for both convergent and discriminant validity and met the required thresholds.

3.9 Data analysis

Data analysis involves several key steps and can be broadly defined as the application of statistical methods to the collected data. Its primary purpose is data reduction

simplifying large datasets gathered by the researcher to make them more understandable (George & Mallery, 2019). Every research study ultimately leads to logical reasoning, where mixed method researchers may use either deductive or inductive reasoning depending on the design adopted. In this study, both quantitative and qualitative data will be analysed using descriptive statistics, Partial Least Squares Structural Equation Modelling (PLS-SEM), and thematic analysis. The results will be presented through graphs, tables, and other appropriate visual formats to effectively communicate the findings.

3.9.1 Quantitative Data Analysis

The quantitative data in this study was analysed using descriptive statistics with the Statistical Package for Social Sciences (SPSS) version 27.0. Additionally, the Partial Least Squares Structural Equation Modelling (PLS-SEM) approach was employed using Smart-PLS version 4.1 software. The choice of PLS-SEM over covariance-based models is due to its suitability for predictive studies that address complex problems, such as this research (Hulland, Ryan & Rayner, 2010). PLS-SEM is primarily used for predictive analysis and does not require a large sample size, making it advantageous for this study. Furthermore, PLS-SEM uniquely allows for the modelling of variables with formative indicators, a feature not available in other methods (Ubeda-Garcia, Claver-Cortes, Marco-Lajara, & Zaragoza-Saez, 2021). Previous research, such as Madueno et al. (2016), has demonstrated the effectiveness of this technique. The PLS-SEM process involves two main steps: the first step is for the researcher to tests the measurement model, including confirmatory factor analysis (CFA), internal consistency, and validity assessment; the second step conducts the structural equation analysis.

3.9.2 Qualitative Data Analysis (Thematic Analysis)

The analysis of the qualitative data was conducted using thematic analysis facilitated by NVivo 10.0 software. Thematic analysis is a fundamental qualitative technique employed to identify, analyze, and report patterns or themes within collected data (Eakin & Gladstone, 2020). Themes may be derived from coded data, including recorded audio, printed, or written text, using software such as NVivo or MaxQDA (Babalola & Nwanzu, 2021). This method is widely recognized for its flexibility, theoretical openness, and ability to provide rich, detailed accounts of data (Clarke & Braun, 2018).

However, Xu and Zammit (2020) highlight several limitations of thematic analysis. It is not a standardized or unified method for analyzing non-numeric data, and its guidelines are often considered ambiguous and protracted, which has attracted critique within qualitative research (Brierley, 2017). Due to the flexible nature of qualitative research, investigators may struggle to develop specific guidelines on which data components to prioritize during advanced thematic analysis, potentially undermining the study‘s ability to resolve the identified research problem. Furthermore, the interpretive capacity of thematic analysis is somewhat constrained, as existing theoretical frameworks offer limited support beyond descriptive analyses. Thematic analysis primarily serves as a basic approach for categorizing data rather than a method designed for theory development (Xu & Zammit, 2020).

Despite these limitations, the benefits of thematic analysis in producing insightful, relevant qualitative findings that address specific research questions remain significant. The critical factor is selecting a method that best aligns with the research objectives. Researchers should approach method selection with the same rigor and

commitment as they do in the formulation of their research title and overall study design (Collins & Stockton, 2018). Clarke and Braun (2018) outline a six-stage process for thematic analysis: familiarization with the data, generation of initial codes, searching for themes based on these codes, reviewing themes, defining and naming themes, and finally, producing the report.

3.10 Ethical Consideration

Ethical considerations are essential in mixed methods research, just as they are in purely quantitative or qualitative studies. Every research project requires researchers to obtain informed consent from participants, ensure confidentiality, and secure approvals for the use of research sites or facilities. In quantitative studies, the purpose of the research must be clearly and accurately communicated to participants. Similarly, qualitative research demands that investigators convey the study's objectives honestly, avoid deception, respect participants, address power imbalances, and maintain confidentiality. These ethical principles equally apply to Mixed Method Research Designs (Creswell & Creswell 2017, as cited in Vabrianto et al., 2020).

In this study, strict adherence to ethical guidelines was maintained throughout the research process. While selecting a research methodology may be straightforward, integrating ethical considerations remains a critical step (Mustajoki & Mustajoki, 2021). Most ethical issues are broadly applicable across research types, though some are specific to particular methodologies. When human participants are involved, it is imperative to address ethical concerns comprehensively (Pentang, 2023). Participation by the accounting students in this study was entirely voluntary. Participants were fully informed about the study's purpose and gave consent freely. Furthermore, their

responses were kept anonymous to protect their privacy throughout the data collection and analysis phases.

3.11 Chapter Summary

This chapter reviewed key aspects of the research methodology, including: research philosophy, strategies, design, sampling and sample size, data collection instruments, and ethical considerations. The study aligns with a pragmatist philosophy, employing both quantitative and qualitative approaches with multiple rounds of data collection. Survey questionnaire and semi-structured interview were identified as appropriate tools for gathering data from accounting students in this study. The Sequential Explanatory Mixed Methods Design was deemed suitable due to the use of multiple research instruments. The chapter also detailed the procedures for data collection, data analysis, and the process of obtaining ethical approval. It concluded by acknowledging the limitations of the study's instruments.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

This chapter presents the findings of the study, beginning with an overview of the respondents‘ characteristics. Subsequently, the results are organized according to each specific research objective: first, the level of interactivity with e-learning technology in teaching and learning of accounting courses in Ghanaian public universities; second, the influence of e-learning experiences on technology adoption in these institutions. Additionally, this chapter addresses the qualitative findings related to accounting students‘ perceptions of technology adoption in Ghanaian public universities.

4.1 Response Rate

To ensure that the findings of this study are more representative of the population considered, the response rate was employed as a measurement of the survey quality (Zaitsava, Marku & Di Guardo 2022). The accepted rate or threshold which is stated as the measurement of the quality of the survey is pegged at 60% (Johnson & Wislar, 2012). A survey questionnaire was shared to 331 accounting students in both UEW (146) and UCC (185) who are group members on LinkedIn, WhatsApp, and Telegram. This study had 250 (75.5%) responses retrieved; UEW (147) and UCC (103) out of the stated sample size, and the distributed questionnaire of 331. These retrieved responses were further cleaned and scrutinized to provide final responses of 202 representing a rate of 61%. The cleaning of the responses involved the process where incomplete submitted responses were removed. Also, the researcher made effort to remove all duplicate copies which were sent by the same respondents.

According to Chai, (2020) this data cleaning is very relevant when preparing data for analysis and best means of handling data for potential errors. The final refined data rate of 61% from UEW and UCC qualifies for the pegged threshold by Johnson and Wislar, (2012), hence this study‘s data meets the quality criteria and capable of achieving valid results consistent with Zaitsava et al., (2022).

4.2 Summary of Demographic Characteristics of Respondents

This study revealed several important characteristics of the participants, including demographics such as gender, age, university affiliation, enrolment status, academic qualification, and level of study of the accounting students involved. The demographic profile of these accounting students demonstrated the suitability of the study population for the research objectives. A detailed description of the respondents‘ demographic information is presented in Table 4.1.

Table 4.1: Summary of Descriptive Statistics of Sample Respondents (N=202)

Variables		Frequency	Percentage
Gender	Female	80	39.6
	Male	122	60.4
Age	Below 25	81	40.1
	26-30	67	33.2
	31-35	26	12.9
	40 and above	28	13.9
University	UEW	127	62.9
	UCC	75	37.1
Enrolment	Full time	143	70.8
	Part-time	59	29.2
Academic Qualification	PHD	2	1.00
	Masters	60	29.7
	Bachelor Degree	115	56.9
	Post-graduate diploma	25	12.4
Level of study	100	33	16.3
	200	50	24.8
	300	57	28.2
	400	34	16.8
	800	28	13.9
Working Status	Yes	137	67.8
	No	65	32.2
Working Hours	0 – 10 hours	120	59.4
	11 - 20 hours	42	20.8
	21 - 30 hours	17	8.4
	Greater than 30 hours	23	11.4

Source: Author's Field Data (2024)

Table 4.1 reveals several key demographic insights about the accounting students who participated in this study.

Gender and Age Distribution

Males constituted the majority, making up 60.4% of the total valid respondents, while females accounted for 39.6%, indicating male dominance in the sample population and, consequently, in the opinions expressed. Making this study agree with the traditional view, which discloses that female students not usually attracted to the quantitative profession (Owusu, Bekoe, Okyere & Welbeck, 2019; Awadallah &

Elgharbawy, 2021). Regarding age distribution, respondents were categorized into four groups: below 25 years, 26 to 30 years, 31 to 35 years, and 40 years and above. The largest age group was students below 25 years, comprising 40.1% of the sample, indicating the prospects for the dominance and expansion of technology-integrated learning for the present and future (Owusu et al., 2019). This was followed by those aged 26 to 30 years, who made up 33.2%, while students aged 40 years and above represented 13.9%. The smallest group was students aged 31 to 35 years, constituting only 12.9% of respondents.

University

In terms of university affiliation, 62.9% of respondents were students of the University of Education, Winneba (UEW), and 37.1% were from the University of Cape Coast (UCC). Majority of students in UEW as a pioneer public university in distance education, responded to the questionnaires which attest to the findings of Ghansah, (2025), that reveal UEW has significantly and successfully transitioned to technology-based learning before, during and after the outbreak of the corona virus pandemic. Both UEW and UCC have achieved remarkable developments in distance and e-learning education, enhanced resources, centers and facilities that enhanced collaborative, innovative in teaching and learning online courses (Ghansah 2025; Boateng et al., 2023).

Enrolment Status and Academic Qualification

The majority of participants, 70.8%, were full-time students, with the remaining 29.2% enrolled as part-time students. Academic qualification-wise, more than half of the respondents (56.9%) were pursuing their first degree. Meanwhile, 29.7% were master's degree students, and smaller proportions were enrolled in post-diploma

(12.4%) and PhD programs (1%). The results indicating majority of respondents enroll as full-time students and also, a large proportion of undergraduate students having engage in technology-based learning has important future projection for the sustainability of hybrid mode of instructional delivery in accounting education. That is Ghanaian accounting students are beginning to accept online mode of learning as equally superior to the conventional face to face mode of learning (Mahama, Amankwah-Sarfo & Gyedu (2024).

Level of Study

The results of the study indicate that majority of respondents (86.1%) are pursuing their first degree which is consistent with the youthful age characteristics revealed in the demographic data. The findings give a positive direction to the acceptance of technology integrated learning by students in Ghanaian public universities. That is, the implementation status of technology-based learning by the universities in Ghana have been widely accepted by students and use these platforms for their academic activities (Asamoah & Oheneba-Sakyi, 2024).

Working Status and Working Hours

Additionally, the analysis showed that a significant majority, 67.8% (143 students), were combining work with their studies, while 32.2% were not engaged in any form of employment alongside their academic pursuits. The large proportion of respondents engaging in a form of job and also pursuing education requires to save time and space which is achieved through the use of e-learning technology in learning (Olaniran & Maphalala, 2020). Furthermore, the results shown that majority of respondents (59.4%) devote up to 10 hours of their time for working. These results augment the relevance for introducing students to technology-integrated learning.

4.3 Level of Interactivity with e-Learning Technology

This subsection aimed to evaluate the level of interactivity with technology in the teaching and learning of accounting within Ghanaian public universities. The findings are presented through descriptive analysis, using frequencies and percentages to summarize the data collected. The analysis was based on information gathered from students via the research questionnaire. As noted by Rugube, Mthethwa-Kunene, and Maphosa (2020), recent advances in technology and communication channels have significantly enhanced interactivity across various dimensions, including student-to-student, student-to-facilitator, student-to-system, and student-to-content interactions. Table 4.2 provides a detailed breakdown of respondents‘ levels of interactivity with technology in their academic activities.

Table 4.2: The Level of Interactivity of E-learning Technology

Variable		Frequency	Percentage
The level of computer or technology skills.	Beginner	53	26.2
	Competent	96	47.5
	Proficient	38	18.8
	Expert	15	7.4
The type of technology access students has outside the university campus.	I have a personal computer but no internet connectivity	50	24.8
	Have access to a computer only part of the time	33	16.3
	I have a personal computer with internet connectivity	83	41.1
	I only have access to a computer with internet part of the time	21	10.4
	I have no access to a computer	15	7.4
Students' experiences with e-learning	I have taken at least one full e-learning course before	81	40.1
	I have never taken an online course before	20	9.90
	I have taken a part online (hybrid) course before	101	50.0

Source: Author's Field Data (2024)

4.4 Student's Level of Computer or Technology Skills

The findings regarding the level of computer or technology skills among the respondents revealed that 96 participants, representing 47.5% of the total, were competent users of computers or technology. Additionally, 53 respondents (26.2%) were categorized as beginners in computer or technology skills, while 38 respondents (18.8%) were identified as proficient users. Furthermore, the analysis showed that 15 respondents (7.5%) were experts in computer or technology. This distribution

indicates that a significant majority of the respondents possess the necessary technology skills, which is likely to enhance the effectiveness of e-learning courses, as supported by Mensah, Mensah, Gyapong, and Taley (2021).

4.5 Type of Technology Accessible to Students Outside the University Campus

Table 4.2 reveals important insights into respondents‘ access to computers and internet connectivity. A significant majority of 83 respondents, accounting for 41.1%, reported owning a personal computer with internet connectivity. Additionally, 50 respondents (24.8%) indicated that they own a computer but do not have internet access. Furthermore, 33 respondents (16.3%) stated that they have access to a computer only part of the time. Similarly, 21 respondents (10.4%) reported having access to a computer with internet only intermittently. Lastly, 15 respondents (7.4%) indicated that they do not have access to a computer at all. Access to both computers and internet connectivity is essential for the effective implementation of e-learning, as highlighted by Paz (2017).

4.6 Student’s Experiences with E-learning Technology

The results presented in Table 4.2 reveal that a significant majority of respondents, totalling 101 and representing 50% of the sample, indicated that they have previously participated in an online course. Additionally, a substantial proportion of 81 respondents (40.1%) reported having completed at least one full e-learning course, while 20 respondents (9.9%) stated that they had never engaged in any online learning course. These findings suggest that most accounting students have prior experience with online or e-learning courses and possess a clear understanding of the differences between electronic learning and traditional face-to-face instruction. Furthermore, as noted by Daultani, Goswami, Kumar, and Pretap (2021); Barteit et al., (2020), such e-

learning experiences, which encompass various forms of interactivity, positively influence technology adoption.

4.7 Preliminary Analysis

Prior to using PLS-SEM to assess relationships, fundamental analysis was conducted to check the normality of the data.

4.7.1 Test of Normality

PLS-SEM analysis emphasizes the importance of verifying the normality of data to avoid inflated model fit measurements. Ensuring normality is crucial as it demonstrates a commitment to maintaining reliability and validity throughout the modelling process. Additionally, assessing normality helps identify potential challenges arising from non-normal data distributions, allowing researchers to apply appropriate corrective actions such as variable transformation or selecting estimation techniques better suited to the data. In this study, normality was tested using skewness and kurtosis values. According to Kamasa, Owusu, and Nkansah Asante (2023), for data to be considered normally distributed, the absolute values of skewness and kurtosis must fall within the range of +1 and -1. However, as shown in Table 4.3, nineteen (19) questionnaire items exhibited kurtosis values exceeding ±1.0, and twenty-four (24) items showed skewness values beyond ±1.0, indicating deviations from normality in the data.

Table 4.3: Normality test

Items	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
To what extent do you agree to use recorded lectures for tutorials as a preferred way of learning strategy in accounting?	3.42	1.276	-0.689	0.171	-0.68	0.341
To what extent do you agree to use face-to-face tutorials as a preferred way of learning strategy in accounting?	3.84	1.148	-1.16	0.171	0.662	0.341
To what extent do you agree to use PowerPoint presentations for assignments as a preferred way of learning strategy in accounting?	3.73	1.055	-1.066	0.171	0.663	0.341
To what extent do you agree to use Google Meet for lectures as a preferred way of learning strategy in accounting?	3.62	1.118	-0.939	0.171	0.116	0.341
To what extent do you agree to use face-to-face lectures as a preferred way of learning strategy in accounting?	3.95	1.116	-1.366	0.171	1.302	0.341
I prefer to use online tutorials instead of face-to-face tutorials.	3.13	1.309	-0.214	0.171	-1.199	0.341
I prefer to use the e-learning platform for accounting courses.	3.38	1.237	-0.568	0.171	-0.825	0.341
I would prefer to learn this accounting course entirely online.	2.74	1.259	0.195	0.171	-1.192	0.341
I would prefer to have no technology in the accounting course.	2.18	1.241	0.855	0.171	-0.399	0.341

I would prefer to have less technology used in accounting courses.	2.53	1.282	0.309	0.171	-1.275	0.341
I would prefer to navigate and use the e-learning platform.	3.72	0.994	-1.14	0.171	1.215	0.341
I am happy with the extent of the technology used.	3.88	0.917	-1.207	0.171	1.714	0.341
To what extent do you agree that group interaction in tutorials and lectures was important for technology usage in accounting?	3.92	0.932	-1.329	0.171	2.201	0.341
To what extent do you agree that potent participation in discussions with tutorials and lectures was important for technology usage in accounting?	3.85	0.896	-1.125	0.171	1.721	0.341
To what extent do you agree that time and space for your tutorials and lectures on campus were important for technology usage in accounting?	3.6	1.033	-1.035	0.171	0.652	0.341
To what extent do you agree that updates and announcements were important for technology usage in accounting?	3.86	0.99	-1.325	0.171	1.86	0.341
To what extent do you agree that lecture notes were important for technology usage in accounting?	3.76	1.066	-1.128	0.171	0.993	0.341
To what extent do you overall rate the quality of e-learning websites as the importance of technology usage in accounting?	3.86	0.979	-1.312	0.171	1.812	0.341

The e-learning experience has affected your understanding of accounting concepts.	3.37	1.183	-0.609	0.171	-0.755	0.341
The e-learning experience has influenced your academic performance in accounting courses to some level.	3.62	1.026	-1.121	0.171	0.709	0.341
Lecturers put a lot of time into commenting on my work.	3.38	1.001	-0.662	0.171	-0.464	0.341
There are some challenges you faced while using the e-learning platform for accounting courses.	3.83	0.959	-1.388	0.171	2.044	0.341
There are some benefits that you have derived from using the e-learning platform for accounting courses.	4	0.872	-1.67	0.171	3.896	0.341
I was generally given ample time to comprehend the things I had to learn.	3.68	1.026	-1.033	0.171	0.506	0.341
The lecturers made a real effort to understand the difficulties I might be having with my work.	3.6	0.994	-1.122	0.171	0.773	0.341
Assessment methods used in accounting require an in-depth understanding of the content.	3.85	0.971	-1.574	0.171	2.548	0.341
The teaching staff normally gave me helpful feedback on how I was doing.	3.7	1.042	-1.245	0.171	1.035	0.341
My lecturer was extremely good at explaining things.	3.93	0.941	-1.589	0.171	2.916	0.341
Many lecturers asked me questions just about facts.	3.5	1.071	-0.75	0.171	-0.199	0.341
The facilitators worked hard to make the course interesting.	3.91	0.926	-1.302	0.171	1.863	0.341

There was a lot of pressure on me to do well in this course.	3.55	1.06	-0.814	0.171	-0.096	0.341
The amount of work covered in the accounting course meant it could not be thoroughly comprehended.	3.45	1.06	-0.767	0.171	-0.217	0.341
I am satisfied with my learning experience in this course.	3.81	0.986	-1.207	0.171	1.34	0.341
I aim to pass accounting while doing as little work as possible.	3.7	1.147	-1.064	0.171	0.334	0.341
I work hard on my studies because I find the material interesting.	4	0.782	-1.52	0.171	3.934	0.341
There is no point in learning material that is not likely to be on the exam.	2.85	1.309	0.045	0.171	-1.367	0.341
I come to classes as I am interested in learning about accounting.	3.76	1.224	-1.039	0.171	0.094	0.341

Source: Author's Field Data (2024).

The findings presented in Table 4.3 show that the data is not normally distributed, as some skewness and kurtosis values fall outside the acceptable range of -1 to +1. Responses were based on a five-point Likert scale, where 5 indicates "strongly agree," 4 "agree," 3 "undecided," 2 "disagree," and 1 "strongly disagree." The item on preferred usage of e-learning technology had a weighted average of 3.71, indicating a high preference among respondents for using technology in accounting courses, with variation in responses. The social interactivity item recorded a weighted average of 3.42, suggesting a high level of engagement with e-learning platforms. Technology adoption had a weighted average of 3.67, showing that most respondents expected a

positive influence from adopting technology in accounting education. Finally, the attitude item had a weighted average of 3.6, indicating a generally positive attitude toward technology adoption in accounting.

4.7.2 Accounting Student's Perception on e-learning Technology

The results indicate accounting students have a positive perception towards e-learning technology. All the results displayed by the mean, achieved a positive value with highest average being 4.0 and least average being 2.85. Although the findings reveal a positive average value to indicate positive perception accounting students have towards the use of technology for instructional delivery of accounting courses, majority of the average values are weak in nature. Table 4.3 above shows the average values for the perception of accounting students towards e-learning technology.

4.7.3 Measurement Model Evaluation

This section examined the influence of accounting students' e-learning experiences on technology adoption. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to empirically analyze this aspect of the study. Loadings of factors including Cronbach's alpha, Composite Reliability (CR), and Average Variance Extracted (AVE) are presented in Table 4.4 as part of the study's Confirmatory Factor Analysis (CFA), used to assess the reliability and validity (convergent and discriminant) of the data (Schreiber, 2017). CFA supports theoretical validation and is essential for ensuring accuracy in the analysis of variable factor structures (Hsu et al., 2017). The CFA results were based on item loadings for the latent variables: Attitude (A), Technology Adoption (TA), Preferred Usage (U), and Social Interaction (SI). To improve model fit, at least two observable variables were retained for each latent construct, as recommended by (Sahoo 2019; Ramayah et al.,2018). The PLS-SEM

analysis produced credible correlations, coefficients, and loading values, as illustrated in the path model (Figure 4.1).

4.7.4 Internal Consistency, Validity, and Reliability

Assessing internal consistency involves determining whether multiple indicators measuring the same construct yield consistent results. Cronbach's alpha and Composite Reliability were used to evaluate the internal consistency of the model, with a minimum threshold of 0.70 indicating acceptability (Nandal, Kataria, Nandal & Jora, 2021). Table 4.4 shows that all constructs recorded Cronbach's alpha and Composite Reliability values at or above 0.70, meeting the required benchmarks. These results demonstrate a strong level of internal consistency and reliability for each latent variable.

4.7.5 Validity and Reliability

This study employed a test of psychometric features of reflective scales. This process involves the test of convergent validity. Table 4.4 shows a summary of the variables and their values for validity and reliability tests.

Table 4.4: Variable Validity and Reliability

	Cronbach's alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Technology Adoption	0.886	0.888	0.556
Social interaction	0.875	0.884	0.575d
Usage	0.713	0.740	0.634
Attitude	0.637	0.666	0.731

Source: Authors Field Data (2024)

Convergent validity in this study was assessed using the Average Variance Extracted (AVE) values. According to Mehmetoglu and Venturini (2021), convergent validity is

established when the AVE is 0.50 or higher. The findings revealed that all latent variables recorded AVE values above the 0.50 threshold. Additionally, the Composite Reliability (CR) values for all latent variables except Attitude, which was approximately 0.70 exceeded the recommended threshold of 0.70. Therefore, the results confirm that the study meets the required standards for convergent validity, with all variables satisfying the acceptable AVE (≥ 0.50) and CR (≥ 0.70) criteria (Hair et al., 2019; Roemer, Schuberth, & Henseler 2021).

Table 4.5: Outer Loadings of e-Learning Technology Factors

	A	TA	SI	U
A30	0.814			
A31	0.894			
TA38		0.735		
TA39		0.726		
TA40		0.797		
TA41		0.751		
TA42		0.708		
TA43		0.754		
TA45		0.724		
TA48		0.769		
SI17			0.623	
SI22			0.734	
SI24			0.703	
SI25			0.769	
SI27			0.800	
SI28			0.788	
SI29			0.868	
U12				0.818
U14				0.711
U15				0.854

Source: Author's Field Data (2024)

An initial analysis of the findings indicated that several items exhibited significant cross-loadings onto other variables. These items included: A32, A33, SI18, SI19, SI20, SI21, SI23, SI26, U13, U16, TA34, TA35, TA36, TA37, TA44, TA46, and TA47. Due to their failure to meet the required threshold loading of 0.70 or higher, these items were deleted, and the PLS analysis was re-run (Hair et al., 2019). The

acceptable standardized loading threshold is 0.70 or above. The re-analysis revealed that only one item (SI1; 0.623) had a loading below 0.70 but was retained as its construct met the AVE and CR thresholds. The final outer loadings are presented in Table 4.5.

4.7.6 Discriminant Validity

Discriminant validity was assessed following the approach recommended by Roemer et al. (2021). The Heterotrait-Monotrait (HTMT) ratio was used to evaluate discriminant validity and cross-loadings, with values below 0.90 confirming acceptable discriminant validity. Discriminant validity refers to the extent to which measurements of distinct constructs are truly different from one another.

Table 4.6: Heterotrait-Monotrait ratio HTMT-Matrix

		1	2	3	4
1.	Attitude				
2.	Technology Adoption	0.815			
3.	Social Interaction	0.686	0.826		
4.	Preferred Usage	0.599	0.634	0.764	

Source: Author's Field Data (2024)

The HTMT criterion for this study confirms the establishment of discriminant validity. The highest correlation identified was 0.83 among Attitude, Social Interaction, and Preferred Usage which falls within the acceptable threshold of less than 0.90, as shown in Table 4.6 (Roemer et al., 2021), and was significant at the 0.05 level following bootstrapping. This confirms that the study has achieved acceptable discriminant validity. Additionally, the study employed the Fornell-Larcker criterion

by comparing the correlation values of latent variables with the square root of the Average Variance Extracted (√AVE). According to this criterion, discriminant validity is confirmed when the correlation between latent constructs is less than the √AVE for each construct (Corr. < √AVE). As presented in Table 4.7, all inter-construct correlations were lower than their corresponding √AVE values, confirming the uniqueness of each latent variable (Fornell & Larcker, 1981, as cited in Melkamu Asaye et al., 2022).

Table 4.7: Fornel-Lacker Criteria

	1	2	3	4
Attitude	0.855			
Technology Adoption	0.627	**0.746****		
Social interaction	0.524	0.738	**0.759****	
Preferred Usage	0.406	0.518	0.600	**0.796****

Source: Author's Field Data (2024)

4.8 Structural Equation Modelling Analysis

The structural model presented in Figure 4.1 illustrates the relationships among the constructs proposed in the conceptual framework, evaluated after confirming the validity and reliability of the measurement model. A key aspect of the structural model evaluation was the assessment of multicollinearity. This study assessed Variance Inflation Factor (VIF) values and found no indication of multicollinearity, as all constructs recorded VIF values below 5 (Hair et al., 2019). Previous studies have established that VIF values above 5 indicate the presence of multicollinearity among variables (Ramayah et al., 2018; Hair et al., 2019). Therefore, the VIF values

observed in this study fall within the acceptable threshold, confirming the absence of multicollinearity concerns.

Table 4.8: Multi-collinearity Analysis

Variables	(VIF)
U12	1.443
U14	1.304
U15	1.509
SI17	1.552
SI22	1.890
SI24	1.689
SI25	1.792
SI27	2.465
SI28	2.063
SI29	3.089
A30	1.279
A31	1.279
TA38	1.996
TA39	1.977
TA40	2.372
TA41	1.932
TA42	1.663
TA43	1.925
TA45	1.921
TA48	1.917

Source: Author's Field Data (2024)

4.8.1 Test of Fitness of Model

This study conducted a model fit test to assess how well the proposed model aligns with the observed data. Although various model fit indices exist, most studies combine selected indices to evaluate model fitness based on established thresholds. This study employed the Standardised Root Mean Square Residual (SRMR), Normed Fit Index (NFI), Squared Equalidean Distance (d_ULS), and Geodesic Distance (d_G) as bootstrap-based exact model fit tests. Primarily, Smart-PLS 4.1 was used to analyse and evaluate the fitness of the measurement model. The study further considered SRMR and NFI due to the sensitivity of the chi-square statistic to large sample sizes. An SRMR value of less than 0.08 is considered an acceptable indicator of model fit

(Roemer et al., 2021). The NFI ranges from 0 to 1, with values closer to 1 indicating better model fit. An NFI of 0.70 or higher is regarded as satisfactory, confirming the measurement model's appropriateness (Franke & Sarstedt, 2019). The d_ULS and d_G assess the statistical difference between the observed covariance matrix and the predicted covariance matrix generated by the composite factor model. Table 4.9 below presents a summary of the model fit indices.

Table 4.9: Model Fitness Indices

Fit indices	Saturated Model	Estimated Model
SRMR	0.075	0.075
d_ULS	1.19	1.19
d_G	0.461	0.461
Chi-square	520.208	520.208
NFI	0.759	0.759

Note: bolded values show the results of the model generated from fit estimates for this study. SRMR= Standardised Root Mean Square Residual, NFI= Normed Fit Index; d_G= Geodesic Distance; d_ULS= Squared Equalidean Distance.

Source: Author's Field Data (2024)

4.8.2 Test of Hypothesis- Path coefficient

This subsection investigated the relationships if any, existing between technological experiences and strength of technology adoption. Forecasted models were computed employing the Partial Least Square Structural Equation Model (PLS-SEM). The PLS-SEM method assisted in the evaluation of the relationship between the pivotal dimensions and the technology adoption among the student respondents with results presented in Table 4.10.

Table 4.10: Findings of Hypothesis Testing

Hypothesis	Relationship	Path	t-Value	p-Value	Direction	Decision
H_{2A}	Attitude has a positive and significant influence on technology adoption.	0.322	4.376	0.000	Positive	Supported
H_{2B}	Social interaction has a positive and significant impact on technology adoption.	0.526	5.39	0.000	Positive	Supported
H_{2C}	Preferred Usage has a positive but insignificant influence on technology adoption.	0.071	1.02	0.296	Positive	Not supported

Source: Author's Field Data (2024)

The findings presented in Table 4.10 revealed that two out of the three hypotheses concerning the significant impact of attitude and social interaction on learning outcomes were supported. Specifically, the results indicated that attitude towards using technology positively and significantly influences technology adoption (A → TA, $\beta = 0.322$, $p = 0.000 < 0.05$), thereby confirming H_{2A}. Additionally, social interaction was found to have a significant and positive impact on technology adoption (SI → TA, $\beta = 0.526$, $p = 0.000 < 0.05$), thereby confirming H_{2B}. Conversely, the preferred usage exhibited a positive but statistically insignificant

effect on technology adoption (U → TA, β = 0.071, p = 0.296 > 0.05), leading to the rejection of H_{2C}. Overall, the findings of this study highlight the positive and significant roles of attitude and social interaction in promoting the adoption and benefits of technology in accounting education within Ghanaian public universities.

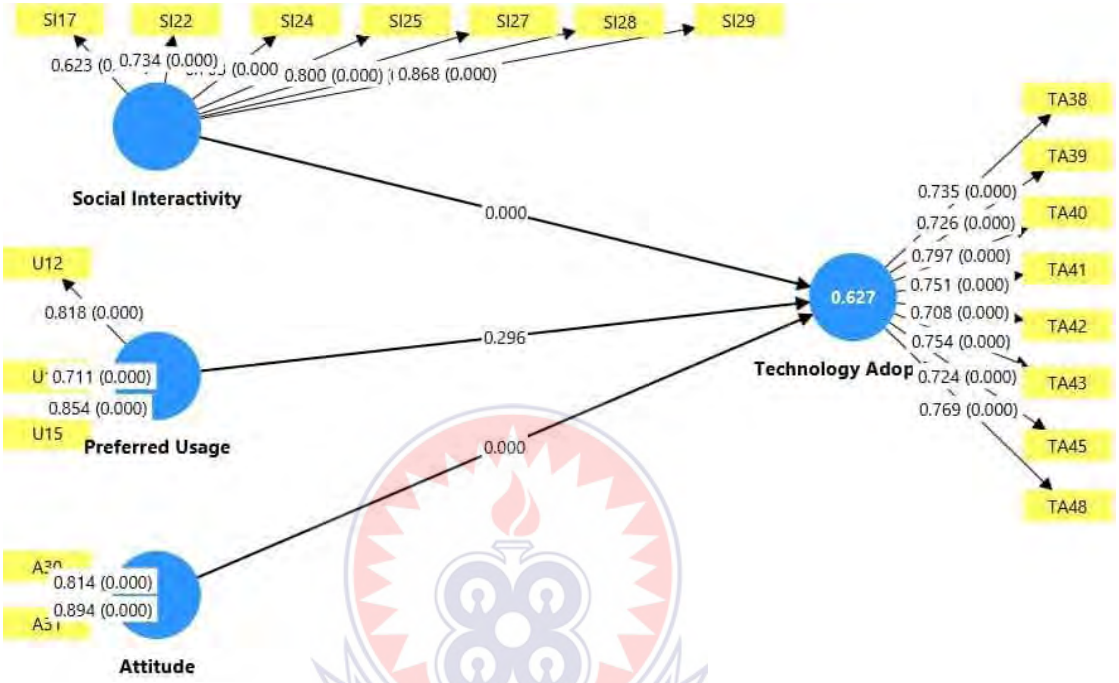

Figure 4.1: Students Path Coefficient Findings

Source: Authors' Field Data (2024).

4.8.3 Coefficient of Determination

The explanatory power of the study's model was assessed using the coefficient of determination (R^2), which indicates the percentage of variance in the dependent construct explained by the independent constructs. R^2 is calculated as the squared correlation between the observed and predicted values of the endogenous variables (Hair et al., 2019). According to Dirgiatmo (2023), R^2 values range between 0 and 1, with higher values indicating better explanatory power. The analysis in this study revealed an R^2 value of 0.627, suggesting that the model explains a substantial proportion of the variance.

Table 4.11: R^2 of the Dependent Constructs

Dependent Variable	R-square	Adjusted R-square
Technology Adoption	0.627	0.600

Source: Author's Field Data (2024)

4.9 Analysis of Qualitative Data

This study also collected qualitative data through the use of semi-structured interview questions from the same sample of accounting students at the University of Education, Winneba (UEW), and the University of Cape Coast (UCC), Ghana. The semi-structured questions were clearly outlined in the questionnaire. Respondents submitted their answers via Google Forms and were informed that their responses would be used solely for academic purposes. The qualitative responses were analysed using thematic analysis, following the approach outlined by Clark et al., (2021). Each response was examined based on the specific question addressed in the questionnaire. The researcher through familiarizing with the responses from interviewee, realised that from the 5th response, students were providing the same answers. Hence, saturation set in from the 5th respondent and data collection was not proceed further after the 7th response.

4.9.1 E-Learning Technology

(Q49. Understanding of e-learning)

The basic theme that appears to be the understanding of the respondents was technology assisting learning. E-learning according to Ray and Srivastava (2020), involves using digital platforms for online learning interaction. Some of the responses revealed by those interviewed are stated below:

Adopting technology in learning is termed e-learning technology

(respondent 1).

Any form of learning that is aided by the use of technology

(respondent 3).

E-learning technology refers to using Electronic means for learning

(respondent 4).

Using technology to support learning. Information communication technology has helped improve learning

(respondent 5).

More online learning without physical classroom presence is termed as e-learning technology

(respondent 6).

The themes drawn from these responses were: Technology to support learning, Electronic means of learning, and online learning.

(Q50. Familiarity and Usage of e-learning)

This question aimed to determine the popularity of e-learning among the respondents. All participants responded ―Yes," though their levels of familiarity varied. According to Akhter et al. (2021), examples of e-learning platforms include Moodle, Google Classroom, ClassDojo, and Adobe Captivate 9. The following are selected responses that reflect the respondents' views:

I am very familiar with e-learning technology in learning my accounting courses

(respondent 1).

I am moderately familiar with e-learning technology in learning my accounting program

(respondent 2).

I am less familiar with e-learning technology in learning my accounting courses

(respondent 3).

I have been engaging in online platforms for my lecture tutorials which form almost 90% of my studies

(respondent 4).

I take part both in online classes and face to face for my accounting courses

(respondent 6).

Themes deduced from the responses were: Very Familiar, Moderately Familiar, Less familiar, Yes.

4.9.2 Advantages and Disadvantages of Employing Technology in Learning

(Q51. Benefits of technology-based Learning to Accounting Education?)

The question was raised to reveal various merits of employing technology in learning over the traditional face-to-face mode of learning. The majority of respondents stated quick access to academic information such as notes. Learners can quickly have access to their learning materials every time or everywhere (Alastal et al., 2023). Some of the views of the respondents are stated as:

E-learning technology helps in faster access to learning information. Learning information is always available and easily retrieved from the learning site

(respondent 1).

It leads to autonomous learning in the sense that learners are given time to practice self-learning in their various individual places

(respondent 3).

The learner seeks help from their facilitator in a few areas that need further explanation

(respondent 4).

Quick access to learning information on accounting concepts when needed. The learner has quick access to learning information when logging into the learning platform

(respondent 5).

It enables the sharing of learning information faster (respondent 6).

The themes generated from the responses were: Availability of Information, Quick Accessibility, Increase Enrolment, Saves Time, Independent Learning, Space, and Interactivity.

(Q52. What are some Potential demerits of using Technology for Learning in Accounting?)

Contrary to the advantages are the disadvantages of using e-learning technology in accounting. This question was posed to determine the possible demerits of e-learning technology in learning accounting courses. The majority of respondents stated network as the principal drawback of e-learning technology. As stated by Akhter et al., (2021), poor internet connection with poor network connection could cause frustrations. The following are some responses stated by the respondents:

Poor network connection is a major challenge for using e-learning technology

(respondent 1).

Poor accessibility to internet service when someone is in the hinterlands or even some parts of the city

(respondent 2).

Higher internet cost is a hindrance to using technology for learning

(respondent 3).

There are threats of cyber fraud and hackers hindering the use of technology for learning

(respondent 4).

Where there is poor or no network connection during e-learning live tutorials or lectures some information might be lost

(respondent 5).

Some identified themes from stated answers by the respondents include: Hackers, Poor Network Connection, and Poor Access to Internet, Higher Cost of Data bundle.

4.9.3 Factors Influencing Adoption of Technology for Learning

(Q53. Effectiveness of e-learning technology in accounting education).

E-learning technology has been effective in accounting education. Alshammari (2023) concluded in their study that e-learning technology provides an effective means to assess and evaluate the academic performance of learners. In total, all respondents answered ―Yes" but gave diverse reasons as stated. Some of the answers respondents stated are:

Because students can be easily assessed by the facilitator through the e-learning platform

(respondent 1).

Because learners can easily receive the needed support from facilitators when the need arises

(respondent 2).

It makes it easy to retrieve course information when e-learning technology mode of learning is employed in accounting education

(respondent 3).

Because e-learning technology makes use of learning management systems as other successful disciplines that adopted the use of technology for learning

(respondent 5).

It has been effective since e-learning technology in accounting education makes it for the collection, preparation, analysis, and storing of accounting transactions for academic purposes as well

(respondent 6).

The responses revealed the following themes: Yes, Statements of Account, Support, Learning Management Systems, Course Information, and Assessment.

4.9.4 Comparing Technology Used in Learning with Face-to-Face Learning Mode

(Q54. E-learning Technology compared to Traditional Face to Face Learning in Accounting).

This question was aimed at finding out the merits and demerits of using technology for learning and the conventional face-to-face mode of learning from accounting students' perspectives. Most respondents stated the merits of using technology for learning over traditional learning and opted for hybrid learning mode where both conventional face-to-face learning mode is combined with technology-integrated modes. Some of the views expressed in the interview are stated as:

> *It saves space compared to face-to-face.*
>
> *(respondent 1)*.
>
> *Both have their merits and demerits, so it is best to combine both methods (blended mode) in accounting*
>
> *(respondent 2)*.
>
> *It enables easy communication with large participants compared to the conventional mode of studying*
>
> *(respondent 3)*.
>
> *Employing technology in studying can absorb a large number of learners compared with the conventional mode of studying*
>
> *(respondent 4)*.

Themes derived from responses were: Hybrid Learning, Convenience, Interactivity, and Space.

4.10 Discussion of quantitative findings

This research aims to evaluate the current use of e-learning technology in the instructional delivery of accounting courses and provide insight into students' perceptions regarding the level to which e-learning assist and improves their academic performance. Sequentially, the study draws on quantitative findings to explore how accounting students perceive the use of technology in learning their courses. The focus is specifically on the application of technology in instructional delivery, students' experiences, and the influence on technology adoption in Ghanaian public universities. This section presents and discusses the quantitative findings based on the analysed data. For clarity, the discussion is organized according to the TPB, UTAUT, study's conceptual framework and specific research objectives.

4.10.1 Level of Interactivity with Technology

This study's first objective sought to assess the level of interactivity with e-learning technology in the teaching and learning of accounting courses in public universities of Ghana. The results of this study shown that accounting students have high level of interactivity with e-learning technology. Students clearly demonstrated a high level of effort expectancy, positive perceived behaviour control as a means of having required expertise or skills in using the technological platforms without difficulties, which are some of the key variables disclosed in the TPB, UTAUT. Moreover, the findings indicate there are facilitating conditions that assisted the students to use e-learning technologies. Understanding the extent of interactivity with technology use for academic purposes in Ghanaian public universities is crucial not merely for

presentation but to provide valuable insights that can inform stakeholders. Such knowledge enables educators, administrators, and policymakers in accounting education to grasp the current state of digital technology integration for accounting courses based on empirical evidence. This awareness is essential given the dynamic nature of technology in education and the need for continuous adaptation (Dailey-Hebert, 2018). Recognizing how e-learning technologies evolve and the factors necessary to maximize their interactivity prompted the formulation of Research Objective One, which corresponds to Research Question One: ―What is the level of interactivity with e-learning technology used in the teaching and learning of accounting courses in Ghanaian public universities?" In addressing this question, the study's results are drawn from responses by accounting students, focusing on several parameters outlined below:

4.10.1.2 Student's Level of Computer or Technology Skills

The findings revealed that students' computer or technology skills significantly influence their ability to successfully interact with technological platforms used for academic purposes. Accounting student having the computer skills aligns with the perceived behavioural control variable stated by the Theory of Planned Behaviour (Ajzen, 2020). Student having skills in using the computer or technology is also in agreement with the construct of effort expectancy disclosed in the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2012). That is, the technological or computer skills of the accounting student enable the individual to use the technological tools without difficulties. According to previous research by Rugube et al., (2020), to enhance interactivity with academic technology, participants suggested that training and sensitization on the use and importance of technology are necessary. Also, incorporating information and communication technology (ICT) as a

core component of accounting curricula could further strengthen these skills. The significance of technological skills among accounting students found in this study aligns with Raman et al. (2022), who reported a substantial influence of technical skills on students‘ attitudes toward technology use in learning. Moreover, this study‘s findings confirm the Ghanaian government‘s commitment to improving ICT education through various international and local initiatives, which have yielded positive results (Dwasee et al., 2020).

To further support these agreements, Kunwar, Shrestha and Phuyal (2020) identified low technological skills as a major challenge in the implementation of online teaching and learning in higher education. Their study emphasized that technological knowledge supports isolated students by enhancing their competency and interaction with learning technologies. Similarly, other studies noted that computer knowledge, training, and skills are essential prerequisites for effective technological use (Kotb et al., 2019; Yaw Obeng & Coleman, 2020). Therefore, consistent with this study‘s results, possessing adequate computer skills and competencies is crucial for students to frequently and effectively engage with e-learning platforms.

4.10.1.2 Type of Technology Accessible to Students Outside the University Campus

This study also found that accessibility to technology outside the university campus significantly impacts academic engagement and enhances interaction on e-learning platforms (Paz, 2017). The UTAUT is applicable to the findings of this study by having linkage with the variable of facilitating conditions; which expresses the assistance infrastructure an individual needs to aid in technology acceptance and use (Venkatesh et al., 2012). The results indicated that majority of students have access to

computer and internet connectivity which are key resources that assist utilisation of e-learning platforms. This observation aligns with findings of previous studies from emerging economies such as Kenya, Ghana, and Nigeria, where determinants of e-learning adoption heavily depend on the availability and accessibility of computers and the Internet (Yaw Obeng & Coleman, 2020; Kisanjara et al., 2019; Idris & Osman, 2017). Many African heads of state and academic authorities recognize the importance of integrating technology into education and have taken steps to increase accessibility by distributing free computers and improving internet services on university campuses (Olaniran & Maphalala, 2020).

In this study, a majority of respondents reported owning personal computers with internet access outside their campuses. This finding is consistent with Ali and Anwar (2021), who noted that students' access to technology and their motivation to use it play significant roles in e-learning adoption. However, other studies present contradictory findings; Owusu-Fordjour et al. (2020) reported low accessibility to computers and internet connectivity among students in African universities despite efforts to integrate technology into education. Similarly, Chapin (2018) highlighted the scarcity of personal computers and reliable internet access outside campuses.

Factors such as stable internet availability, speed, reliable access, and the limited number of computers and e-learning facilities on campuses remain critical barriers to full e-learning engagement (Ali & Anwar, 2021). In conclusion, to foster higher adoption and effective interaction with e-learning platforms, governments, and academic institutions should implement policies that promote greater ownership of personal computers and reliable internet connectivity among university students.

4.10.1.3 Student's Experiences with E-learning Technology

Prior studies that align with the findings of this study have demonstrated that previous experiences with interactive technology on learning platforms positively and significantly influence academic performance (MacCarthy et al., 2019; Braun et al., 2020). The UTAUT constitutes a particular variable called performance expectancy, which is referred to as improved performance (Venkatesh et al., 2012). The performance expectancy has a direct association with experiences which is gained through the continuous use of e-learning technology (Setiyani et al., 2020). The results of this study shown that through the improved performance, students are able to easily interact on the e-learning platforms. Such experiences also enhance the degree of e-learning adoption and usage, fostering a more effective and successful learning process. For instance, Dautani et al. (2021) reported that students who have gained experience using e-learning technology platforms feel encouraged and motivated to interact confidently within these digital environments. The findings of this study indicate that the majority of learners possess experience with e-learning technologies and can distinguish them from other traditional modes of learning. Furthermore, the study reveals that universities in Ghana have made notable efforts to implement online learning across various academic disciplines.

In contrast, studies by Idris and Osman (2017); Weldy (2018) reported that most respondents lacked experience with e-learning. In those studies, the majority of students indicated they had not engaged with any e-learning platforms and preferred conventional face-to-face methods for their academic activities. Similarly, Lambert and Yanson (2017) presented mixed findings, with some students reporting that they used online platforms for tutorials and assignment submissions but relied on face-to-face interaction for examinations. This suggests that students may hold dual

experiences in both online and traditional learning environments. Supporting this study‘s findings, Shabeeb et al. (2022) observed that most students have experience using online platforms not only for writing assessments but also for taking lecture notes and participating in tutorials. Their results demonstrated an overall positive and significant relationship between students‘ e-learning experiences and their satisfaction with usage. Collectively, these findings underscore that the e-learning experience plays a crucial role in enhancing students‘ interactivity with e-learning platforms, thereby contributing positively to their academic outcomes.

4.10.1.4 Accounting Student’s Perception on e-learning Technology

Students generally expressed positive views on the adoption of e-learning technology for accounting course, with high optimism about its advantages. They expressed the potential of e-learning to enhance their academic performance, while disclosing significant e-learning challenges to the effective adoption of e-learning technology. The findings of this study revealed a positive perception of accounting students towards e-learning technology which concord with the perceived behavioral control variable of the TPB. Ajzen, (1985) considered the ease at which an individual could use a technological tool as significant factor that can predict its use. Once students perceived that technological tool is user friendly, they developed a positive perception. Similarly, the UTAUT bears an effort expectancy variable that also explains the less effort required to use a technology improves its acceptance and use due to the positive perception students would have towards it (Venkatesh et al., 2012). The performance expectancy variable also discloses how e-learning technology could improve academic performance of students through its use. When students perceived the benefits derived from the use of technology in learning, they form a positive perception towards it (Ferrero & Álvarez Sainz, 2024). The results of this study reveal a

positive but weak mean value regarding the perception of accounting students, which clearly indicate that there exist challenges in the use of e-learning technologies. Some of these identified challenges include; poor internet connectivity, High cost of technological devices, the require skills to use some of the technological platforms, and many more (Inusah & Debrah, 2022). Previous researchers (Hussain, 2018; Ilahi et al., 2022; Edumadze, 2019; De Nito et al., 2023) have found a positive perception of students on technology use. Specifically, Brink (2023) agrees with the findings of this study. The findings of the study shown that students perceived e-learning to provide benefits such as convenience of time, quick access to learning material, and collaborative learning.

4.10.2 Influence of e-learning Experiences on Technology Adoption.

A key pressing issue that every education system must consider when reviewing educational policies is the evaluation of students‘ knowledge in the course. Previous studies by Namirembe (2019); Choudbury and Pttnaik (2020) have revealed that e-learning, as an alternative mode of learning, is globally accepted and offers significant benefits to education. Various prominent studies in accounting education have explored e-learning adoption, distance education factors, and innovative online teaching methods (Kisanjara et al., 2019; Dei & Peprah, 2021; Sharoff, 2019; Malan, 2020). These investigators have examined e-learning from multiple perspectives, including students, facilitators, faculty, or combinations thereof (Apostolou et al., 2018).

Despite the well-recognized impact of technology in shaping e-learning experiences, numerous constructs within e-learning experiences have been found to influence technology adoption. Based on the modified Theory of Planned Behaviour (TPB) which underpins this study, key determinants affecting the adoption of e-learning technology include: attitude, subjective norms, and perceived behavioural control (Ajzen, 1991). Moreover, UTAUT also disclosed variables such as; facilitating

conditions, effort expectancy, and others that help to influence technology use (Venkatesh et al., 2012). Accordingly, this study addressed research objective two: ~~–to~~ evaluate the influence of e-learning experiences on technology adoption of accounting students," with the discussion framed around the following constructs which are proxied as e-learning experiences that impact technology adoption.

4.10.2.1 Attitude

One of the most significant determinants influencing efficient technology adoption for learning, and thereby directly impacting academic performance, is students' **attitude** toward using technology for academic purposes (Ajzen et al., 2018). This study's results revealed that students' attitudes positively and significantly influenced technology adoption. Specifically, attitude showed a positive and statistically significant path loading ($\beta = 0.322$, $p = 0.000 < 0.05$), confirming Hypothesis 2A (H_{2A}). These results align with the accepted p-value threshold for significance (Hair et al., 2019). The findings further indicate that a unit increase in attitude corresponds with a 0.322 unit increase in technology adoption. Thus, maintaining a positive attitude toward e-learning is essential to enhancing technology use. Prior research supports these conclusions (Abdel-Rahim, 2021; Setiyani et al., 2020; Yaw Obeng & Coleman, 2020; Sabah, 2013). Abdel-Rahim (2021); Felder et al. (2020) emphasize that the transition to accounting courses online is inevitable, driven by students' positive attitudes toward online learning tools such as homework platforms and recorded video lectures. A positive attitude increases readiness for e-learning adoption, fuelled by intrinsic and extrinsic motivation, prior experience with technology, and favourable perceptions of digital learning platforms.

However, some studies contradict these findings. Idris and Osman (2017) reported that low attitude levels toward e-learning were due to inadequate resources, negative perceptions, and poor integration of technology in universities. Similarly, Inusah and Debrah (2020) found that students‘ negative attitudes were influenced by low computer skills, limited access, poor internet connectivity, and perceptions that online accounting learning was ineffective. Ajzen (2018) also highlighted that users‘ perceptions, experiences, and perceived benefits are key determinants shaping students‘ attitudes toward technology adoption in academics. Based on this study‘s findings, stakeholders in accounting education can foster positive attitudes toward e-learning by implementing strategies that enhance students‘ technological skills, improve access to resources and reliable internet, sustainable electricity, and provide support from facilitators.

4.10.2.2 Social Interactivity

Another crucial factor influencing technology adoption in learning is social interactivity. This construct encompasses the use of digital platforms such as online chat rooms, social media networks (X, Facebook), video conferencing tools (Google Meet, Zoom), messaging apps (Telegram, WhatsApp Live), and the social relationships that develop through these tools. Social interactivity fosters productive outcomes and integrity, and values technology‘s role in learning activities. The study found that social interactivity positively and significantly influences technology use, with a path loading of ($\beta = 0.526$, $p = 0.000 < 0.05$), thus supporting Hypothesis 2B (H_{2B}). This means a unit increase in social interactivity results in a 0.526 unit increase in technology adoption. Prior research corroborates this finding (Buc & Divjak, 2016; Ryan et al., 2016), with Ryan et al. (2016) noting that social platforms assist university students in gaining social aspects of learning, consistent with TPB (Ajzen

et al., 2018). Open-source and cloud-based e-learning tools enable collaborative learning through online forums, academic content sharing, tutorials, and live lectures, which significantly improve learning outcomes. Cantabella et al. (2019) emphasized that group learning integral to Learning Management Systems (LMS) is a vital feature of social interactivity. It enables students to share assessments, study materials, and quizzes in real time, enhancing their overall learning experience.

Conversely, some studies indicate challenges related to social interactivity in e-learning. Tareen and Haand (2020); Morris (2019) argued that conventional face-to-face interaction remains essential for effective information sharing and group learning, with online environments lacking the depth of social interaction found in traditional settings. Ives et al. (2023) further highlighted the negative impacts of reduced social and cultural interaction in technology-based learning, such as detachment and loss of nonverbal communication cues like body language, which can adversely affect peer-to-peer learning and performance. Despite these challenges, the findings of this study support the conclusion that social interactivity through e-learning technology positively influences learning outcomes. Therefore, it is recommended that modern online platforms be enhanced to promote richer social and cultural interactions among students, facilitators, and instructional designers to optimize teaching and learning effectiveness.

4.10.2.3 Preferred Usage

The final important variable considered in this study that influences the intention to adopt e-learning technology and ultimately impacts learning outcomes is preferred usage. Preferred usage, a component of perceived behavioral control, is closely linked to the concept of self-efficacy (Munir et al., 2024). Self-efficacy strongly affects an

individual's selection of behavior, readiness to engage in certain situations, the effort applied to implementation, and the level of cognitive reasoning involved. Preferred usage in learning modes can generally be categorized into two main forms: traditional face-to-face learning and online learning such as tutorials using recorded lectures, assignments presented via live PowerPoint sessions, and lectures conducted through platforms like Google Meet.

The findings of this study revealed that preferred usage exhibited a positive but statistically insignificant correlation with technology adoption. Specifically, preferred usage, used as the independent variable, produced a path loading of ($\beta = 0.071$) with a p-value of ($p = 0.296 > 0.05$), where 0.05 is the significance threshold in line with Hair et al. (2019). This indicates that while preferred usage tends to positively influence technology adoption, this effect was not strong enough to be considered statistically significant. Consequently, hypothesis 2C (H_{2C}), which posited preferred usage has positive influence on technology adoption, was not supported. Additionally, the findings indicated that a unit increase in preferred usage would only lead to a marginal increase of 0.071 in technology adoption, which is negligible.

Supporting these results, Ajzen (2020) revisited the concept of perceived behaviour, emphasizing its close interdependence with self-efficacy, which centers on motivation. Preferred usage, as studied here, reflects what motivates students to choose one learning mode over another, and this choice subsequently impacts their academic performance (Hussain, 2018). The positive but insignificant influence observed may be attributed to students' general preference for a blended learning mode, which combines both face-to-face and online methods. Despite the lack of statistical significance, blended learning merges the advantages of conventional face-

to-face education with those of online learning, thus helping to offset the limitations inherent in either method alone. This is consistent with Kastner (2019), who highlighted the pivotal role of blended learning in transforming university-level accounting education. Similarly, Dunbar (2017) found no statistically significant relationship between faculty burnout and course delivery methods whether face-to-face or online and further indicating that the mode of delivery might not strongly influence educational outcomes.

However, contrasting findings exist. Lambert and Yanson (2017) for example, observed in their study of employee-students‘ learning preferences that face-to-face learning was generally favored over technology-based learning methods. This preference suggests that under certain contexts, traditional learning modes might still hold more sway over learners‘ engagement and technology adoption. From the perspective of the Theory of Planned Behaviour (TPB), as developed by Ajzen (1991) and revisited in Ajzen (2020), revealed that intention to adopt a particular learning mode are influenced by perceived behavioral control, which includes preferred usage and is intertwined with self-efficacy. TPB thus supports the view that preferred usage can influence the extent of technology adoption, especially when a **b**lended learning approach is adopted, as it leverages the strengths of both traditional and technological instructional methods.

4.10.3 Accounting Students’ Suggestion to Improve Technology Adoption

This section presents the discussion of qualitative findings related to the third research objective, which explored accounting students‘ perceptions of e-learning adoption in Ghanaian public universities. The prior quantitative analysis informed the development of six relevant open-ended questions that elicited rich qualitative

insights. Below is a synthesis of the questions, responses, and discussions based on the findings:

What comes to mind when you hear the term ‗e-learning technology'? The majority of respondents defined e-learning technology as using technology to facilitate learning. One participant described it as predominantly online learning without the need for physical classroom presence. These views align with definitions from Ray and Srivastava (2020); Sangra et al. (2012), who describe e-learning as the use of electronic technologies to support education. Additionally, the findings correspond with Ansong et al. (2017), who investigated technology use in African universities, noting that while e-learning is known, its widespread academic use remains limited. Similarly, Inusah and Debrah (2022) confirmed that Ghanaian university students understand e-learning technology as an electronic or digital means of learning.

How familiar are you with e-learning platforms, and have you used them before? All respondents indicated familiarity with e-learning platforms, although levels varied. Most reported being very familiar, a significant number moderately familiar, and a few less familiar. Some students stated, ―I am very familiar with e-learning technology in learning my accounting courses." This finding aligns with studies by Akhter et al. (2021), Adarkwah (2020); Inusah and Debrah (2022), which emphasize the popularity of technology use in Ghanaian universities for activities like checking academic results, sharing lecture notes, and live presentations. Common platforms include Google Classroom, ClassDojo, Moodle, and iSpring Suite 8.1. However, Ansong et al. (2017); UNESCO (2013) as cited in West & Vosloo (2013) reported

lower levels of e-learning adoption in African universities, highlighting a gap between awareness and widespread use.

What benefits do you think e-learning technology can bring to Accounting Education? Respondents identified several advantages of e-learning over traditional face-to-face learning, such as saving time, promoting independent learning, conserving physical space, and facilitating quick access to learning materials. One participant noted, "E-learning technology assists in faster access to learning information, which is always available and easily retrieved." These perceptions are supported by Alastal et al. (2023); Pallavi et al. (2022); Mayer (2019), who argue that virtual learning enhances accessibility, reduces costs, and improves overall learning effectiveness. Ives et al. (2023) also highlighted that e-learning decreases time spent away from work, particularly for working students. However, some studies report drawbacks such as feelings of isolation and technological issues (Nikou & Maslov, 2023; Rusu & Tudose, 2018), which contrast with the largely positive views expressed by participants in this study. What are some potential drawbacks of using e-learning technology?

This question explored the negative aspects of e-learning as perceived by students. The predominant issue raised was poor network connectivity, with one student explaining, "Where there is poor or no network connection during live tutorials or lectures, some vital information might be lost." This aligns with Akhter et al. (2021), who also highlighted unreliable internet connections as a major barrier to effective e-learning. In contrast, other studies (Alastal et al., 2023; Pallavi et al., 2022) continue to emphasize the benefits of e-learning despite such challenges.

Notably, the open-ended question five (5) was: *"Do you think e-learning technology can be effective in accounting education? If yes or no, state the reasons."* Findings from this study showed that all respondents answered "Yes," though with varying reasons. One respondent stated that e-learning would be an effective mode of learning in accounting education because it utilizes Learning Management Systems (LMS), which have been successfully employed in other disciplines. Alshammari (2023) affirmed that e-learning technology has been effective in accounting education. The findings of that study support the current study by stating that e-learning technology provides an effective means to assess and evaluate the academic performance of learners. Similarly, a related study by Pallavi et al. (2022) confirmed this study's findings, identifying the flexibility and less stressful nature of e-learning as reasons for its effectiveness. The advancement of digital technology has influenced all aspects of life and has increased the demand for online education. Students, as key stakeholders in education, have not been exempt from this impact, which has led to the integration of technology into academics.

On the other hand, some studies present findings contrary to those of the current study by highlighting reasons why e-learning might be ineffective or unsuccessful in accounting education. For instance, Inusah and Debrah (2022) reported that students perceive the use of technology for academic purposes as ineffective, particularly due to limited course interactivity. The final open-ended question was: *"How does e-learning technology compare to traditional face-to-face learning in accounting?"* Findings showed that this qualitative question aimed to evaluate the strengths and weaknesses of both traditional face-to-face learning and e-learning technology. The study revealed that the majority of respondents preferred the advantages of technology-enhanced learning over the conventional face-to-face mode. Furthermore,

most respondents, after comparing the merits and demerits of the two learning modes, advocated for a blended approach. One respondent noted that both modes have their strengths and weaknesses, and thus, combining them would be the best approach to overcome the limitations of each in the accounting course. Similar findings were reported by Raman et al. (2022), who found that blended learning could mitigate the shortcomings of both conventional face-to-face and online learning. In their study involving students from Alquds Open University, the examination of four learning methods face-to-face, blended learning, virtual classrooms, and video streaming revealed that students appreciated and favored the integration of e-learning with traditional instruction. Conversely, a study by Baragash and Al-Samarraie (2018) found that most respondents favored the traditional face-to-face mode over both blended and online learning. Their findings further indicated that the face-to-face mode had a more positive influence on learning performance than LMS-based and web-based learning (WBL).

4.11 Chapter Summary

Extent of interactivity from technology adoption in learning was employed to assess the engagement level with e-learning instructional delivery in the accounting course. Three key parameters were used: level of computer or technology skills, type of technology accessible to students outside the university campus, and students' technology experiences in learning. Overall, findings indicated a high level of interactivity with e-learning technology.

Testing of the proposed model presented in the conceptual framework was done using the PLS-SEM statistical method. From the quantitative data analysis, the following hypotheses were developed to test the relationships between social interactivity and

technology adoption, attitude towards learning and technology adoption, and preferred usage and technology adoption:

H_{2A}: There is a positive and significant correlation between attitudes and technology Adoption ($p \leq 0.00 < 0.05$); hence, H_{2A} was supported.

H_{2B}: Social interactivity positively and significantly impacts technology adoption ($p \leq 0.00 < 0.05$); therefore, H_{2B} was supported.

H_{2C}: Preferred usage has a positive influence on technology adoption and leads to increased learning outcomes but at an insignificant level ($p = 0.296 > 0.05$). Therefore, H_{2C} was not supported.

The findings of this study confirm prior studies, showing that students have positive, warm, and supported interactions and attitudes toward e-learning technology adoption, which are positively and significantly linked with learning outcomes (Alastal et al., 2023; Olaniran & Maphalala, 2020; Pallavi et al., 2022). The interaction between learners or between learners and facilitators positively impacts technology adoption (Chen et al., 2019; Inusah & Debrah, 2022; Blankley et al.). However, this study revealed that the preferred usage of e-learning technology results in a positive but insignificant increase in technology adoption (Van Oordt & Mulder, 2016). That is, the preferred usage of e-learning technology is unidirectional (Al-Fraihat et al., 2020). E-learning technology was adopted by students to enhance learning outcomes (Edumadze, 2019). There is a growing positive attitude towards the use of technology in accounting education in public universities in Ghana, which is expected to enhance learning outcomes (Owusu-Fordjour et al., 2020).

The use of electronic technology in learning is considered a mode of learning and a type of Innovative Learning Environment (ILE) made up of instructional delivery content with experiences particularly supported by technology (Olszewski & Crompton, 2020). This study confirms that a positive attitude towards the adoption of technology is very relevant in enhancing learning outcomes. Connecting attitudes towards technology adoption in learning, the study's SEM analysis revealed that 85.5% of the variation in technology adoption is explained by attitudes towards learning. Thus, the quantitative findings suggest that students are highly engaged with e-learning technology in accounting education and that their experiences with e-learning technology have a significant and positive influence on technology adoption.

Mainly, this study developed six (6) open-ended questions based on the quantitative analysis, which helped further explore and clarify the current developments in technology adoption in academics, as well as the face-to-face mode of instructional delivery, to gain better insights from students' perspectives. From the responses to the qualitative questions, about twenty-eight (28) different themes emerged regarding the meaning of e-learning technology as cited by respondents. In answering the open-ended questions, students reported positive and high interactivity with e-learning technology and expressed that it provides significant benefits that improve learning outcomes. Hence, the diverse data sources, analyses, and findings revealed an integration and convergence of results (Flick, 2018). Also, the qualitative results suggested the adoption of a hybrid mode of instructional delivery, such as flipped learning or blended learning, for studying accounting.

The following are views expressed by students through their answers:

E-learning technology was explained as the use of technology to support learning; it is considered an electronic means of learning. Respondents demonstrated familiarity and a high level of engagement with e-learning technology, as all respondents answered ―Yes" to qualitative question two. They cited several e-learning platforms Google Classroom, Moodle, ClassDojo, and Adobe Captivate 9 which they used to assist with assignments and term papers.

They further indicated that e-learning technology provides several benefits to accounting education, with the majority identifying access to learning information as a key benefit. However, a significant proportion of respondents also stated that poor network, frequent power outages, and poor internet connectivity are potential drawbacks of e-learning technology. All respondents agreed that e-learning technology would be effective in accounting education. Some respondents stated that e-learning in accounting also uses LMS, which has been successfully adopted in other fields for online teaching and learning. All the reasons provided for the success of e-learning in accounting education had an equal proportion of thematic relevance.

From the research findings, it was revealed that, when comparing e-learning with face-to-face learning, a significant majority of students preferred the merits of e-learning such as improved interactivity (student-student, student-facilitator, student-system, student-content) and noted that e-learning overcomes space limitations associated with face-to-face learning. Additionally, many suggested hybrids learning after weighing the merits and demerits of both modes.

In agreement with prior qualitative studies on students' perspectives (Adarkwah, 2020), the current qualitative findings show that technology used for academic purposes is increasingly popular in Ghanaian universities (Owusu-Fordjour et al.,

2020; Ansong et al., 2017; Edumadze, 2019), and that e-learning means using technology in learning (Sigroha, 2020). Many of the e-learning platforms mentioned by students, such as Google Classroom, ClassDojo, Moodle, iSpring Suite 8.1, and Adobe Captivate 9, have been identified in earlier studies (Alastal et al., 2023). Though e-learning has benefits, it also presents some drawbacks, as noted in other studies (Ives et al., 2023; Nikou & Maslov, 2023).

In conclusion, this study‘s quantitative findings provide significant insights into how social interaction, attitudes, and preferred usage of e-learning predict technology adoption. The qualitative findings reveal a complex set of modern e-learning platforms and show students‘ familiarity and engagement with them. The benefits of e-learning technology outweigh its drawbacks and positively impact learning outcomes. Finally, in comparing e-learning technology with traditional face-to-face instruction, students expressed support for combining both modes (blended learning) in accounting education to overcome the weaknesses of each.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a summary of the analyzed findings concerning the study's research questions and objectives. It further draws conclusions based on the empirical evidence obtained and provides recommendations for accounting students, academic stakeholders, policymakers, and future researchers. The chapter begins with a concise yet comprehensive summary of the study, outlining the research scope, focus areas, methodology adopted, and key findings. The conclusion section reflects on the specific objectives and determines the extent to which they have been achieved. This is followed by a section on practical recommendations derived from the study's results, aimed at relevant stakeholders in accounting education. Finally, suggestions for further research are presented.

5.1 Overview of the Study

The main aim of the study was to evaluate the current use of e-learning technology in accounting instruction, particularly focusing on how e-learning experiences of accounting students with technological tools influence on technology adoption in Ghanaian public universities. The study sought to examine the level of interactivity, accounting student‘s experiences with e-learning tools to determine their influence on technology adoption, and explore the perceptions of accounting students towards the adoption of technology. The research began with a critical review of existing literatures to establish a foundation for understanding current knowledge on accounting education and the integration of e-learning technology. The literature review revealed a gap in the representation of student perspectives, especially within the African context, where most studies have predominantly focused on faculty

viewpoints or employed either purely quantitative or qualitative approaches. This gap informed the mixed-method approach adopted in the current study, which collected both quantitative and qualitative data from students. This study targeted total population of 2,536 accounting students across two selected public universities in Ghana: The University of Cape Coast (UCC) and the University of Education, Winneba (UEW). A sample size of 331 students was determined using the sample size calculation method; 10 times rules suggested by Hair et al. (2020), and alongside Krejcie and Morgan's (1970) sample size determination table. Purposive sampling was used to select the two universities out of a total of fifteen (15) public universities in Ghana, based on their active implementation of e-learning systems. Simple random sampling was then employed to select student participants within the two universities.

Primary data collection was conducted through structured Google Form questionnaire, distributed across student social media platforms and personal networks. The questionnaire included both closed-ended questions for quantitative analysis and semi-structured interview questions for qualitative exploration, allowing for a comprehensive assessment of the three research objectives: To assess the level of interactivity with e-learning technology in instructional delivery of accounting courses in Ghanaian public universities, to evaluate the influence of e-learning experiences on technology adoption of accounting students in Ghanaian public universities, and to explore the perceptions of accounting students towards technology adoption for academic purposes in Ghanaian public universities.

These objectives were guided by the following research questions:

1. What is the level of interactivity with technology used in teaching and learning accounting courses in Ghanaian public universities?

2. How have e-learning experiences influence technology adoption of accounting students in Ghanaian public universities?
3. What are the perceptions of accounting student towards the adoption of e-learning in Ghanaian public universities?

Through the integration of quantitative findings (using SPSS, PLS-SEM for analysis) and qualitative insights (through thematic analysis of student views expressed), this study achieved a comprehensive understanding of the e-learning landscape in accounting education. The findings revealed high student interactivity with e-learning technologies, the significant positive impact of e-learning experiences on technology adoption, and generally favorable perceptions towards the adoption of e-learning in Ghanaian public universities. These findings affirm the increasing relevance of technology-enhanced learning in accounting education and underscore the need for more inclusive and hybrid instructional approaches.

5.2 Summary of Main Findings

There are key findings generated by this research, which were discussed in chapter four and are summarised based on the research objectives in the subsequent sections which follow.

5.2.1 Level of Interactivity with e-learning Technology

To address the first research objective, descriptive statistics comprising percentages and frequencies were employed. The findings from this analysis revealed that a significant majority of students possess computer or technology skills, have access to technological tools outside the university campus, and have prior experiences with e-learning platforms. Specifically, 47.5% of respondents identified as competent in using computers, 18.8% as proficient, 7.5% as experts, and 26.2% as beginners.

Concerning access to technology, 41.1% of students reported owning a computer with internet connectivity, 24.8% owned a computer without internet access, 16.3% had access to a computer only part of the time, 10.4% had part-time access to a computer with internet, and 7.4% had no access to a computer at all.

Regarding their experiences with e-learning technologies, the findings revealed that 50% of students had previously taken part in an online course, 40.1% had participated in at least one fully technology-integrated education course, and only 9.9% had never engaged in such a course. These results highlight a relatively high level of interactivity and familiarity with e-learning technologies among accounting students, which is particularly important given the evolving nature of digital learning tools (Dailey-Herbert, 2018).

5.2.2 E-learning Experiences influence on technology adoption

The second objective was addressed through Partial Least Square Structural Equation Modeling (PLS-SEM), which involved assessing measurement models with respective path loadings and p-values. The findings demonstrated that students' attitudes had a significant and positive influence on technology adoption. Specifically, students who displayed a higher motivation and positive attitude towards the use of technology showed enhanced learning outcomes. The path loading and p-value ($\beta = 0.322$, $p \leq 0.000 < 0.05$) confirmed this relationship, thereby supporting Hypothesis 2A (H_{2A}).

Additionally, the social interactivity feature of e-learning experiences was found to have a strong and significant positive influence on technology adoption. The more students interact through e-learning platforms, the better their readiness to adopt technology. This relationship was statistically supported by a path loading of $\beta =$

0.524 and a p-value of ≤ 0.000 < 0.05, confirming Hypothesis 2B (H_{2B}). On the contrary, preferred usage did not show a statistically significant influence on technology adoption. Though the path loading was relatively moderate (β = 0.071), the corresponding p-value (p ≤ 0.296 > 0.05) indicated that Hypothesis 2C (H_{2C}) was not supported. Thus, while students may prefer using technology, this preference does not necessarily translate into their willingness to solely adopt technology in learning.

5.2.3 Accounting Students' Suggestion to Improve Technology Adoption

This objective was investigated using six semi-structured interview questions administered through Google Forms. In response to the question "What comes to mind when you hear the term e-learning technology?", the majority of respondents described it as the use of technology to support learning. Other responses included definitions such as electronic learning and online education. Regarding familiarity, all respondents (100%) indicated they were familiar with e-learning platforms, with varying levels of familiarity ranging from very familiar to moderately familiar, and a few stated they were less familiar.

When asked about the benefits of e-learning in accounting education, students highlighted several advantages: quick access to information, increased enrolment, time savings, improved interactivity, availability of learning materials, support for independent learning, and reduced space requirements. However, they also noted potential drawbacks. Most cited poor internet connectivity as the primary hindrance, with others mentioning the high cost of data, frequent power outages, the potential for cyber threats, and the unreliability of network infrastructure.

In assessing the effectiveness of e-learning in accounting education, all respondents agreed that it could be effective. Their reasons included ease of assessment,

availability of learning management systems (LMS), access to course content, and enhanced support from facilitators. Finally, when comparing e-learning to traditional face-to-face instruction, many respondents favoured a hybrid (blended) approach, such as flipped learning, that integrates both modes. They emphasized that e-learning fosters interactivity, saves space, and offers convenience, although face-to-face learning still retains some unique advantages.

5.3 Conclusions

This study set out to evaluate the current use of e-learning technology in accounting instruction and to provide insight into students‘ perceptions regarding the extent to which e-learning supports and enhances their academic performance in Ghanaian public universities. Based on the analysis of the study‘s findings, conclusions were drawn regarding each of the research objectives.

5.3.1 Facilitating Conditions Improve Interactivity with E-learning Technology

Concerning objective one, which explored accounting students‘ access to, competence in, and experiences with e-learning technology, the study concluded that a high level of technological interactivity exists in the learning of accounting because majority of students demonstrated competence in the use of computers and related technologies, had access to digital tools and internet connectivity outside the university environment, and possessed relevant experiences with e-learning platforms. These findings contribute by urging management of universities to make available infrastructures that support e-learning and ultimately motivate accounting students to highly interact with digital learning tools in their academic pursuits.

5.3.2 Impact of E-learning Experiences on Technology Adoption

In line with objective two, which evaluated the effect of e-learning experiences of accounting students on technology adoption, it was concluded that students‘ attitude has a positive and significant relationship with technology adoption. Specifically, any factor introduced by management of the university that enhances students‘ attitude and motivate the use of e-learning platforms lead to improve the behavioral intentions of the student to adopt the technological tools for learning. Conversely, any unfavorable conditions introduced by the management of the universities result in a decline of attitudes which negatively affects the intentions of the student to use the technological tools. This finding underlines the need for institutions to implement strategies that promote a positive disposition toward e-learning technologies.

Additionally, the study found that social interactivity has positive and significant influence on technology adoption. Increased interaction whether between students and facilitators or among peers via digital platforms contributes positively to students‘ academic achievements. Therefore, academics and practitioners should ensure creating an engaging, collaborative online environments which are essential for enhancing technological use. However, the study also concluded that the preferred usage of e-learning platform, although widespread, does not necessarily result in high technology adoption. This concludes that universities must not just consider the frequent use of these platforms by students but rather ensure effective engagement or structured learning design, that translate into academic success.

5.3.3 Accounting Student's Perception Towards E-learning Technology

In addressing objective three, which sought to explore students' perceptions and adoption of e-learning technology, qualitative analysis revealed that students clearly understood the concept of e-learning. They were generally very familiar with various e-learning platforms, recognized their benefits such as accessibility and flexibility, and were aware of associated limitations including poor internet connectivity and high data costs. These findings affirm a high degree of interactivity with e-learning technology. Moreover, students expressed a preference for a hybrid model of learning that combines e-learning with traditional face-to-face instruction. The findings conclude that the qualities and benefits in technology-based education must be supported, and considering the view that technology is impactful, integrating it with conventional teaching methods may yield the most effective outcomes. Hence, increasing technology acceptance and usage.

5.3 Contributions of the Study

This study is conducted to address different gaps and through that the results of this study have shown important theoretical, practical and policy contributions in knowledge. This section, first presents theoretical contributions, followed by practical contributions and finally the contribution to policy.

5.3.1 Contributions to Theory

This study provides theoretical implications by expanding on previous studies, employing integrated theories which incorporates the TPB and UTAUT. The developed framework has factors that play an important function in e-learning technology adoption for emerging economies specifically in Ghanaian public universities. Recently, investigators for e-learning implementation and use have

taking note that determinants impacting e-learning adoption have only been researched using basic conditions without employing the core or in-depth factors that affect a person‘s intentions towards behavior for technology use. Therefore, it was relevant to specifically investigate the impact of e-learning experiences on technology adoption employing those core factors (attitude, social interactivity, and preferred usage) in accounting education. Hence, this study provides a key theoretical contribution by assisting to develop a deeper understanding of the factors that influence technology adoption. That is, the utilized variables for e-learning experiences explain the extent and direction of influence on e-learning technology adoption in Ghanaian public universities as agreed by Mashroofa, Jusoh and Chinna, (2019).

Moreover, in considering the variables proxied for e-learning experiences; attitude, social interactivity and preferred usage, which are obtained through the integration of TPB, and UTAUT. This study contributes to emerging literature in accounting education since their consideration in prior studies are limited as disclosed by Mashroofa et al., (2019). Also, this study is valuable through the developed model for guiding successful adoption of e-learning technology in Ghanaian public universities. This study contributes to the body of knowledge through variables considered, tested and validated in the model as influencing technology adoption.

5.3.2 Contributions to Practice

Many practical implications are revealed by the findings of this study. Foremost, the results provide deeper and better comprehension on e-learning and technology adoption among stakeholders of technology-based learning such as government, faculty members of universities, university management, students, users, policy

makers. Also, the findings assist universities to establish different motivational and incentive programs that intensify and encourage students to actively participate on the e-learning platforms. To enhance the use of the interactive tools, universities roll out e-learning training and developmental programs for students and also partner foreign organizations who are pioneer in e-learning platforms through students learning exchange programs. Additionally, the results of this study call on management of the universities to consider the implementation of blended learning model for the early stage of e-learning in accounting education.

5.3.3 Contribution to Policy

The Ministry of Education (MOE), Ghana Education Service (GES), Government, and other policymakers through the findings of this study are able to ensure that universities are given enough funds to secure relevant physical infrastructure that would enable training for students. Also, MOE, GES, and Government of Ghana through the findings shown by this study would be able to ensure collaborations with internet service providers, IT firms and private training organizations who would obtain sponsorships and resources that address the concerns of e-learning technology adoption. Moreover, through the results of this study the National Council for Curriculum and Assessment (NACCA) would be more convinced to ensure that quality standards in accounting education are maintained in the e-learning environment.

5.4 Recommendations

Based on the key findings and conclusions drawn from this study, several recommendations are proposed to enhance the use of e-learning technology in accounting education in Ghanaian public universities.

First, universities in Ghana should adopt strategic measures to improve students' motivation and attitudes toward using e-learning technologies. The study revealed that a positive attitude significantly enhances technology adoption. As such, institutions should prioritize actions that promote favourable perceptions of e-learning. These may include expanding internet access across campuses and surrounding areas and collaborating with network providers to ensure stable and reliable internet connectivity. Enhanced access to digital infrastructure would reduce technological barriers and foster increased student engagement with online learning platforms. The free Wi-Fi made available at the various campuses of public universities such as UEW, should ensure stable network connectivity and off campus network services. Also, the free laptop distribution to teachers must be well streamlined and extended to students in the beginning of every academic year.

Secondly, the integration of interactive tools such as Learning Management Systems (LMS), interactive whiteboards, and other relevant e-learning software into the instructional process should be intensified. Given that students are already familiar with such technologies, their consistent incorporation into classroom activities would improve both engagement and understanding. Furthermore, partnerships with organizations such as the National Council for Curriculum and Assessment (NCCA), National Schools Inspectorate Authority (NaSIA), the European University Institute (EUI), and the United Nations Educational, Scientific and Cultural Organisation

(UNESCO) should be considered. These alliances could provide exposure to cutting-edge technological tools, training resources, and best practices that enhance both teaching and learning as well as quality in online environment.

In addition, university policies regarding the adoption and usage of e-learning technologies should emphasize functional areas that have a direct impact on improving learning performance. Although students may show a preference for certain platforms or tools, this study‘s results indicate that preferred usage does not necessarily correlate with better technology adoption. Hence, institutions should focus on areas where technology adds measurable value to students‘ learning, rather than solely relying on popularity or frequency of use. For instance, the new UEW Student Information Portal (SIP) do not only assist students to view their results, but rather it is integrated with a number of functions such as lecturer evaluation, having access to academic timetable etc. that aid to improve academic performances of students.

Moreover, management of the universities should consider implementing a hybrid model of instruction that combines both e-learning and traditional face-to-face teaching at the early stage for students. Findings from this study indicated that students prefer and benefit from a blended learning environment, especially in accounting education. By integrating digital tools with conventional teaching methods, institutions can leverage the strengths of both approaches to support improved learning outcomes. Students in UEW, as part of their course work are obliged to engage in live presentation through online mode, face to face or blended mode. This practice of students being exposed to LMS should be encouraged and scheduled on regular basis which would sharpen the technological skills of students and enhance their experiences with the technological tools.

5.5 Suggestions for Future Studies

This study acknowledges certain limitations, which provide avenues for future research. One limitation was the geographical and institutional scope; the study focused on only two public universities in Ghana. Given that Ghana has a total of fifteen public universities, future research should include a broader range of institutions, including private and technical universities. This will help capture more diverse perspectives and enhance the generalizability of findings.

Furthermore, this study was restricted to accounting students. Future research could extend to faculty members, facilitators, university administrators, and students from other academic disciplines to provide a holistic understanding of e-learning adoption and its educational impacts across the higher education sector.

In terms of analytical depth, subsequent studies should consider integrating additional variables such as age, gender, cultural background, and technological skill level. These factors may significantly influence how students perceive and engage with e-learning technologies. Studying the moderating or mediating roles of these variables would enrich the robustness of the conceptual framework, particularly within the context of accounting education in developing countries.

Finally, future research should also explore alternative qualitative data collection techniques to gain a deeper understanding of students‘ lived experiences with e-learning. Methods such as observational, focus group discussions, or longitudinal interviews may provide more nuanced insights into how students adapt to and benefit from technology-enhanced learning.

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APPENDIX A:

RESEARCH QUESTIONNAIRE

TOPIC: THE E-LEARNING EXPERIENCES OF ACCOUNTING STUDENTS IN GHANAIAN PUBLIC UNIVERSITIES.

Dear Sir/ Madam

I am a student of the University of Education-Winneba, School of Business, Department of Accounting, pursuing a Master of Philosophy (Accounting) and presently working on my thesis on the earlier stated title: ―E-learning experiences of accounting students in Ghanaian public universities".

Advancements in information technology, the recent disruption caused by the outbreak of coronavirus pandemic, and the global call for increase in enrolment in higher education prompted many higher institutions to adopt technology in their instructional delivery. Conversely, limited studies have been undertaken on evaluating student's e-learning experiences in emerging economy such as Ghana. Therefore, a study required to evaluate the current use of e-learning technology and provide insights on students perceived influence on technology adoption is appropriate.

With humility, I seek your thoughts, and views on this stated research title. Your views would be kept in the strictest confidentiality. All information collected is significant for the study and would be treated as anonymous.

Please tick [√] or write out your responses where appropriate.

Part 1: Socio-Demographic information of respondents

1.	Gender	[ ] Male [ ] Female
2.	Age group	[ ] below 25 years [ ] 26-30 [ ] 31-35 [ ] 36-40 [ ] 40+
3.	University	[ ] UEW [ ] UCC
4.	Enrolment status	[ ] Full time [ ] Part-time
5.	Select highest academic qualification pursuing	[ ] PhD [ ] Masters [ ] Undergraduate [ ] Post-diploma [ ] Others
6.	Level of study	[ ] 100 [ ] 200 [ ] 300 [ ] 400 [ ] 800
7.	Do you work and study	[ ] Yes [ ] No
8.	If yes; indicate hours	[ ] 0-10 hours [ ] 11-20 hours [ ] 21-30 hours [ ] Greater than 30 hours

Part 2: the level of interactivity with e-learning technology

Please tick [√] out your responses where appropriate.

9- Select which describes your computer/technology skills.

a. [ ] Beginner b. [ ] Competent c. [ ] Proficient d. [ ] Expert

10- What type of technology access do you have outside the University campus?

a. [ ] I have a personal computer but no internet connectivity

b. [ ] I have access to a computer only part of the time

c. [ ] I have a personal computer with internet connectivity

d. [ ] I only have access to a computer with internet part of the time

e. [ ] I have no access to a computer.

11- What is your experience with e-learning?

a. [ ] I have taken at least one full e-learning course before

b. [ ] I have never taken an online course before

c. [ ] I have taken a part online (hybrid) course before

Part 3: Influence of e-learning experiences on technology adoption in accounting education

Which of these describes the level of your preferred ways of learning strategies in accounting?

Use; **SD = Strongly Disagree, D = Disagree, U=Undecided, A = Agree and SA = Strongly Agree**

	Preferred Usage Characteristics	**SD**	**D**	**U**	**A**	**SA**
12	Recorded lectures for Tutorials					
13	Face to face for Tutorials					
14	Power-point presentation for Assignment					
15	Google meet for Lectures					
16	Face to face for lectures					

	Social Interaction Characteristics **I would prefer to:**	**SD**	**D**	**U**	**A**	**SA**
17	engage in online tutorials instead of face-to-face tutorials					
18	use the e-learning platform for accounting courses					
19	learn this accounting course entirely online					
20	have no technology in accounting course					
21	less technology used in accounting course					
22	navigate and use the e-learning platform					
23	***I am happy with the extent of technology used***					

		SD	**D**	**U**	**A**	**SA**
24	Group interaction in tutorials and lectures					
25	Potent participation in discussions with tutorials and lectures					
26	Having time and space for your tutorials and lectures on campus					
27	Updates and announcements					
28	Lecture notes					
29	***Overall, rate the quality of the e-learning website***					

	Attitude Characteristics	SD	D	U	A	SA
30.	I aim to pass Accounting while doing as little work as possible					
31.	I work hard at my studies because I find the material interesting					
32.	I see no point in learning material which is not likely to be on the exam.					
33.	I come to classes as I am interested in learning about accounting.					

Part 4: Perception of accounting students on technology adoption

Choose the statement that accurately reflects your view on the extent of benefits and hindrances in technology adoption for learning Accounting. Please use; **SD = Strongly Disagree, D = Disagree, U=Undecided, A = Agree and SA = Strongly Agree**

	Technology Adoption	SD	D	U	A	SA
34.	The e-learning experience has affected your understanding of accounting concepts.					
35.	The e-learning experience has influenced your academic performance in accounting courses to some level.					
36.	Lecturers put a lot of time into commenting on my work					
37.	There are some challenges you faced while using the e-learning platform for accounting courses.					
38.	There are some benefits that you have derived from using the e-learning platform for accounting courses.					
39.	Ample time was given to me to comprehend things I had to learn.					
40.	The lecturers made a real effort to understand the difficulties I might be having with my work.					
41.	Assessment methods used in accounting require an in-depth understanding of the content.					
42.	The teaching staff normally gave me helpful feedback on how I was doing.					
43.	My lecturer was extremely good at explaining things.					
44.	Too many lecturers asked me questions just about facts.					
45.	The teaching staff worked hard to make the course interesting.					
46.	There was a lot of pressure on me to do well in this course.					

47.	The amount of work covered in the Accounting course meant it couldn‘t all be thoroughly comprehended.					
48.	***I am satisfied with my learning experience in this course.***					

Part 5: Student's suggestion to improve e-learning accounting course

49. What comes to mind when you hear the term ~~–e-~~learning technology"?

……

50. How familiar are you with e-learning platforms, and have you used them before?

…….

51. What benefits do you think e-learning technology can bring to accounting education?

……

52. What are some potential drawbacks of using e-learning technology in accounting courses?

…….

53. Do you think e-learning technology can be effective in accounting education? If yes or no state the reasons.

……

54 How does e-learning technology compare to traditional face-to-face learning in accounting courses?

……

THANK YOU.